

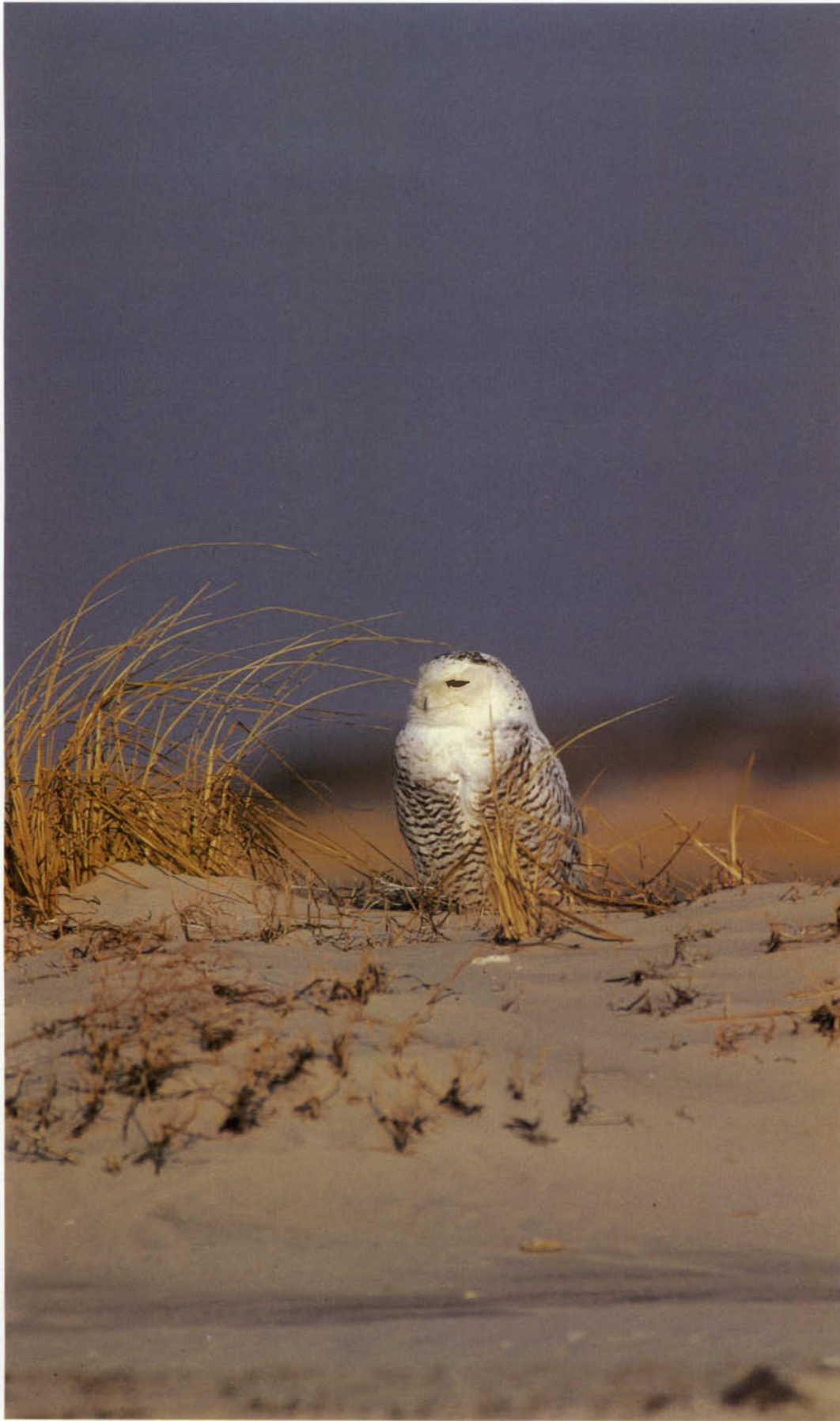
# NEW JERSEY Outdoors

\$4.25

Fall 1995



Ride the Rails through History • Tour New Jersey's Wild Side  
Find Your Way with Orienteering • Visit New Jersey's Zoos  
Discover Medicinal Plants



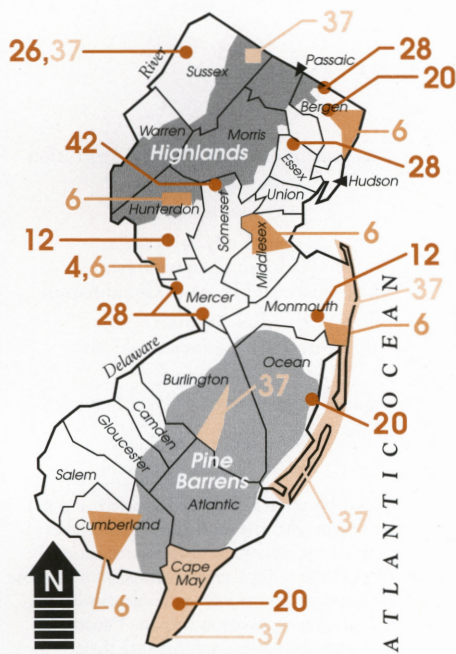
A snowy owl rests in the dunes at the Edwin B. Forsythe National Wildlife Refuge in Long Beach Township. For more species of birds found in New Jersey, see the photo essay, beginning on page 32.

MICHAEL P. GAGE

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Deer are abundant in New Jersey, and one of the most challenging ways to hunt them is with a bow. Find out more about the equipment and lures used to get those trophy bucks.

A white-tailed spike buck is a welcome sight for hunters in New Jersey. Learn more about bowhunting for deer, beginning on page 49.



# Editorials



Christine Todd Whitman, Governor

## Keeping the Green in the Garden State

Since 1961, Green Acres bond issues approved by the voters have helped us fund the preservation of open space and historic sites throughout the state. This November, we would like to continue that legacy with another \$340 million referendum for the acquisition of land, the preservation of farmland and historic sites and the protection of flood-prone areas along the coast and inland.

In the last 34 years, voters have overwhelmingly approved Green Acres measures before them, totaling more than \$1.1 billion. These funds have been used to preserve approximately 340,000 acres, including 240,000 acres in state parks, forests, wildlife management and natural areas, another 80,000 acres of municipal and county

parkland and 20,000 acres in non-profit projects.

But there were more than \$65 million worth of requests from local governments last year that could not be fulfilled, and more keep coming. Without a new bond issue, Green Acres funding will be nearly depleted. Efforts, such as the recent purchase with substantial Green Acres funds of the Warner Tract in Cumberland County — a 3.6 mile, 3,259-acre tract along the Manumuskin River that is a haven for the endangered joint vetch plant and the bald eagle — would no longer be possible.

This new bond issue would dedicate up to \$200 million for the acquisition of open space and would include low interest loans or grants to counties, municipalities and non-profit organizations for their projects. Ten million dollars would be dedicated to the greening of Liberty State Park, phenomenally located as it is in the midst of the Statue of Liberty, Ellis Island and the Manhattan Skyline. In addition, \$50 million would be available for farmland preservation and another \$10 million would be set aside for historic preservation.

And, for the first time, this bond issue also provides for a Blue Acres initiative: \$30 million that would be used to purchase flood-prone properties along the coast and inland.

Green Acres bond issues have proven to be an effective method of preserving open space, protecting critical habitat and providing economic prosperity to communities throughout New Jersey. Support the Green Acres referendum on the November ballot and keep New Jersey a national leader in protecting our natural heritage.



Robert C. Shinn, Jr., Commissioner

## Get On-Line with the DEP

The Department of Environmental Protection is coming on-line to better serve residents and businesses with information and communications from throughout the department.

Called the Bulletin Board System (NJDEP BBS), this new service will allow the public to obtain DEP documents, notices of public hearings and answers to commonly asked questions from home or office over a computer phone line. Using a computer, a communications software package, a modem and a phone line, this new bulletin board service will provide "one-stop" shopping for department information.

A wide array of information instantly will be available at your fingertips. For example, you could find out more about the new car inspection and maintenance program. Or you may be able to find out about the latest local environmental health issues by tuning into a forum for county health agents. Or you also may need to find out about hazardous chemicals stored in the factory at the end of your street. This and more will be available on-line.

While the DEP in the past has run several limited bulletin board services, including the New Jersey Pollution Discharge Elimination System, Air Quality Regulations and Right to Know information, this new bulletin board will combine all aspects of the department in a common, easy-to-use format. In addition to accessing information, users also will be able to transfer comments, questions or data to DEP staff via E-mail. And forums will be set up so that the public can "talk" to key personnel, similar to a computer-based interview.

This electronic bulletin board service will bring the DEP into the 21st century, while making department information more accessible to the public from their homes and offices. So stayed tuned and stay on-line for the latest environmental news.

For more information regarding the new NJDEP BBS, call the systems operators, Victor Staniec and Richard Hyjack at (609) 292-4860.

State of New Jersey  
Christine Todd Whitman  
Governor



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New Jersey Outdoors  
Fall 1995, Vol. 22, 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

## Clean Water Support

You have a beautiful, informative magazine, which we display in our active office for all to read.

As the Alliance for a Living Ocean's main focus is preventative education, we hope the great state of New Jersey continues to support clean water, open land, pure air and responsible citizens.

If so, you should have many years of such editions.

Carol Elliott  
Alliance for a Living Ocean  
Ship Bottom

## Legends Among Us

Congratulations on John Cunningham's excellent 150-year survey of baseball in New Jersey ("From Hatters to Hitters: That Old Ball Game in New Jersey," NJO, spring 1995). Reporting racial integration as a fact of New Jersey's baseball history before 1887, when agitation by an Ohio team led to exclusion of blacks from organized baseball, Cunningham omits a great piece of New Jersey's more recent baseball history: Almost 50 years ago, in Jersey City, on the first opening day after World War II (April 18, 1946), Jackie Robinson broke that color barrier once and for all.

When Robinson took to the field with the Montreal Royals, he showed his stunning stuff. He hit four for five, including a three-run homer, four runs scored and four RBIs, and ran the bases the way that would revolutionize the game, stealing his first two bases of the season.

After one record-smashing year with the International League's Montreal Royals, Robinson moved up to the Brooklyn Dodgers. The rest is history. Interestingly, his last year in baseball brought him back to New Jersey as the Dodgers played a quarter of their home games in Jersey City. This man, a hero for all Americans, took an awful lot of flack for our sake, white in many ways as

much as black. He corrected some stereotypical thinking about race and sought to overcome the evils that flow from such error. What a shame that we have no national monument in his honor.

David J. Bardin  
Washington, D.C.

*Editor's Note: Bardin, an avid baseball fan, was commissioner of the Department of Environmental Protection from 1974 to 1977.*

## In Praise of Firefighters

Tuesday, April 4, 1995, was the most terrifying experience I have had as Mayor of Manchester Township. The fire that raged through the Pinelands surrounding Manchester Township could have been devastating to our community.

Permit me to take this opportunity to thank each and every one of you (at the State Forest Fire Service) for the immediate response to our emergency and the superb support that you provided to our front-line firefighters. Your contributions of manpower, equipment and commodities, and your concern for the residents, will never be forgotten.

The immediate response of your organization to our desperate situation shows the world that people are concerned for their fellow man. For your help in our hour of need, you have our undying gratitude.

Mayor Jane C. Cameron  
Manchester Township

*Editor's Note: In the spring of 1995, New Jersey experienced the most devastating wildfires in the Pinelands since 1971. All totaled, more than 20,000 acres burned, forcing the temporary evacuation of residential communities. This letter is among the tributes to the State Forest Fire Service, which was instrumental in putting out the wildfires. For more information on Pine Barrens fires, see "Death, Rebirth and the Forest's Fiery Cycle" in the spring 1993 edition of *New Jersey Outdoors*.*

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 08625-0402. We reserve the right to edit letters for length and clarity.

## Outdoors for Everyone

New Jersey Outdoors magazine should belong to ALL New Jersey residents. The publisher would do a disservice by catering to "sportsmen" as suggested by Donald L. Loder of Mount Holly in the spring issue. ("Mailbox," NJO, spring 1995). The subjects covered should be of interest to all enthusiasts of the outdoors . . . hikers, bikers, horticulturists, naturalists, photographers, writers, artists, tourists, farmers, boaters, historians . . . etc.

Charles A. Mueller  
Whiting

## Hawks and Highlands

I was very impressed with the article, "The Bonny Highlands," (NJO, summer 1995). My family has lived in this area for four generations. It is beautiful and well deserving of protection.

Perhaps one of the endangered species you mentioned under state acts to protect the Highlands should have been the Cooper's hawk?

William J. Gallagher, Secretary  
Hawk Migration  
Association of America  
Boonton

*Editor's Note: Jim Sciascia of the Department of Environmental Protection's Endangered and Nongame Species office says efforts are underway to protect the endangered breeding population of Cooper's hawks in New Jersey by determining where the species lives and preserving domestic woodland sites whenever possible. The Cooper's hawk is one of the endangered and threatened species in the Highlands region which will be protected by the Highlands Landscape Project, a regional approach to preserving rare species and the ecosystems that they depend on. For further information about the Hawk Migration Association, contact William Gallagher at (201) 335-0674.*



MICHEAL S. MILLER

## Stewards of the Woodlands

If you ask Roger Locandro why he's putting so much time and effort into managing his 65 acres of rural farm and woodlands in Stockton, Hunterdon County, he might tell you that it's for the birds — the wild turkeys, that is.

As a volunteer participant in the New Jersey Forest Stewardship Program (FSP), a federally funded program that assists landowners in more actively managing their forest resources, Locandro has been building and enhancing permanent habitat for game and nongame species on his family farm. He also maintains a productive landscape: nursery and harvests wood. Among other things, he is using the wood for an addition to his early 17th century historic home that once was occupied by William Penn, who settled one of the first British colonies in America.

"You need to manage what you impact and take responsibility for the land," says Locandro, a professor of agriculture and natural resources at Rutgers

University in New Brunswick for the last 35 years. "The forest stewardship program allows you to give nature a helping hand."

The stewardship program is designed to help private landowners develop management plans to protect and improve the timber, wildlife, endangered species (both plants and animals), soils, water, recreation and aesthetic values of their forests. Locandro is one of the program's nearly 200 volunteers who are being given technical advice and financial assistance to make their vision for their land a reality.

Begun in 1990 by the U.S. Department of Agriculture, Forest Service and the National Association of State Foresters, the FSP subsequently was authorized by Congress under the 1990 Farm Bill. In each state, the program is directed through a state stewardship coordinating committee made up of representatives from federal, state and private natural resource agencies and organizations.

### Turkeys, Turkeys Everywhere

At any given moment, especially during the early morning or late evening hours, as many as 80 wild turkeys might cross your path while walking one of the many trails on Locandro's property. You also may notice roost poles, nest boxes, platforms and tree shelters that have been installed with the help of funding from the Stewardship Incentive Program (SIP), a companion program to FSP that helps promote wildlife diversity.

While protecting and creating wildlife habitat is one of Locandro's main priorities, he also has been conducting reforestation practices on his more than 30 acres of woodlands to establish and reestablish stands of trees for conservation purposes and sustainable timber production.

With technical assistance from the Natural Resource Conservation Service (NRCS) and the U.S. Forest Service, Locandro is promoting stream bank and

shoreline stabilization on the small tributary stream on his property, where students have been hired to plant trees. Locandro created a pond, which is stocked with native aquatic species.

One of the key advantages of the stewardship program is that it affords landowners the chance to combine many of their goals and objectives, such as promoting fire protection and protecting wildlife diversity, into one plan with the help of natural resources professionals from all disciplines.

While the Department of Environmental Protection's State Forestry Service is responsible for administering and answering inquiries about the FSP, resource specialists from agencies, such as the Natural Resources Conservation Service, the New Jersey Division of Fish, Game and Wildlife (DFG&W), the U.S. Fish and Wildlife Service, and the Consolidated Farm Services Agency, and private consultants aid the landowner in planning for specific management objectives.

"Many of the landowners were managing the land before the program was ever introduced, but not as extensively," says Gregory McLaughlin of Rutgers Cooperative Extension, the coordinator of New Jersey's Forest Stewardship Program. "Stewardship provides direction to manage the land actively with the assistance of experts."

### A Modern Sawmill

As one of the larger private landowners in southern New Jersey participating in the stewardship program, Paul Schairer of the Schairer Brothers Sawmill views his family's property as a legacy — land that is being managed for not only potential income, but for future generations.

Schairer Brothers Sawmill is situated amid 500 acres in Atlantic County. One hundred and forty of those acres are being managed actively to restore desirable cedar stands and to replace scrub oak, red maple and brush that has taken



WENDY ROSEN

Forests throughout New Jersey are being preserved through the Forest Stewardship Program.

over acreage once damaged by wildfire and deer. Cedar is milled to produce such products as lumber, siding, shingles, flower boxes and animal bedding.

Schairer knows what it's like to grow up in a family operation where the land defines family history and where managing it properly is essential to the family's welfare.

"I've been working in the sawmill for more than half of my life," says Schairer. "It's incredible to think about how many tons of wood have been through our mill and even more incredible when you think that it takes one man's lifetime to produce a healthy, adult, cedar tree."

Through the FSP, the Schairers have been able to purchase fencing to help keep deer from eating and destroying cedar saplings before they have a chance to grow. They also purchased trees and equipment to help their reforestation and restoration efforts.

"Without the financial assistance provided by the stewardship program, those 140 acres would not be used and would just sit there," says Schairer. "Even though I won't see the benefits of the trees being planted in my lifetime, it's gratifying to know we're managing the forest for the future."

People cannot control every natural occurrence in the woods. However, in a densely populated state like New Jersey, where forest land is declining due to development and old age, foresters and progressive landowners recognize the need for responsible, active forest management.

"There are more than 1.4 million acres of private forest land in New Jersey," McLaughlin says. "Knowing that each landowner's forest management plan has significance at the local level, as well as on a larger natural resource scale, is part of the reward of participating in the stewardship program."

Information workshops and tours on how to better manage woodlands in New Jersey are held periodically at the Rutgers's University Snyder Research and Extension Farm in Pittstown, Hunterdon County, and at the 4-H Camp in Beemerville, Sussex County. Both of the stewardship demonstration areas are managed by Rutgers Cooperative Extension in cooperation with the New Jersey State Forestry Service, the NRCS and the DFG&W

Any private landowner who has between five and 1,000 acres of qualifying land may be eligible for stewardship assistance. To apply for participation in the FSP or to receive additional information about the program, contact the State Forestry Service at (609) 292-2531.

*by Amy Cradic, a consultant with the Department of Environmental Protection's Division of Parks and Forestry*

Lee Robinson shows off the eel he caught on the Passaic River in Lyndhurst.



WILLIAM NEUMANN

# One Man's Trash is Another Man's Treasure

by Gary Gresh

The angler waited patiently along the hard-fished stream. Suddenly, there was a sharp strike on his worm-laden hook, followed by a powerful run. His drag screeched, his rod bent, and his heart jumped with anticipation as he struggled to subdue his sizable opponent. Visions of breaking the state record for rainbow trout danced in his head.

As he netted his catch in front of his fishing partners, his dreams evaporated like the morning mist. Not a trout, but a sucker — and a big one at that. At first, he viewed the small-mouthed fish with disgust; then, he remembered how his grandmother used to make fish cakes out of them many years ago. So, much to the consternation of his companions, the fish went on the stringer instead of being tossed back in the water.

Very often, anglers overlook great fishing opportunities for less desirable species, dismissing them as “trash fish” not worthy of their time or effort. But with rapidly increasing fishing pressures, the discovery of contaminated fish and loss of access and habitat, trash fish are becoming an alternative to some of the more popular species. Most of the trash fish — which include carp, suckers, catfish and eels in New Jersey's fresh and tidal waters — are in fact quite sporting for catch and release programs. All you need is a New Jersey freshwater fishing license and a sturdy pole, and you are on your way to fishing for trash.

## Craving for Catfish

More highly regarded in the south, the various species of catfish generally have been treated with disdain in northern waters. Now that they are being “farmed,” they have become increasingly popular. So devoted are admirers, there now exists a magazine, *American Catfisherman*, extolling the species' virtues.

The channel cat is the most widely distributed catfish. In some regions, it may reach four feet in length and weigh 40 to 50 pounds. It may not grow as big around here, but 5- to 10-pound fish are common and are powerful fighters. Other catfish species in New Jersey include white catfish and the ubiquitous bullheads. Only channel catfish have a catch limit on them — five per day with a 12-inch minimum when taken from fresh water.

Channel cats often are thought of as bottom feeders in muddy waters. Actually, they prefer clean water and can be found in the company of smallmouth bass and walleyes. They respond eagerly to artificial lures, especially at night in shallow water. Surface plugs, such as the Jitterbug, and three-inch rubber tails are quite effective. Productive catfish baits include live or dead minnows, cut fish, liver (chicken, beef or pork), chicken entrails or skin, dead crawfish, night crawlers and commercially prepared or homemade catfish baits. Fish scents — commercial or homemade fish attractants — are useful since catfish locate food with their sense of smell.

While bullheads may be found in almost any pond or small lake, the Division of Fish, Game and Wildlife has stocked

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Trash fish are becoming an alternative to some of the more popular species

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Matt Angeles of Scotch Plains poses with the state record brown bullhead catfish — a three-pound, six ounce specimen caught in the South Branch of the Raritan River.

channel cats extensively throughout the state. The Hudson River area in north Jersey around the George Washington Bridge, Alpine and Piedmont is a steady producer of channel cats. You also may find some white catfish in that area. Cut shad is always the hot ticket there. The area around South Amboy Waterworks also has its proponents. (However, health advisories recommend limited consumption of catfish taken from these areas because of toxic contamination.)

In central Jersey, fishing around the boathouse on the Raritan River will produce lots of cats. Catfishing is rated very good along most of the Delaware and Raritan Canal, especially from Trenton to Kingston, Lambertville to West Trenton and New Brunswick to Kingston. Round Valley Reservoir and Lake near Lebanon may be better known for other types of fishing, but both offer excellent channel cat opportunities. The Delaware River is one of the many hot spots for aggressive channel cats, especially the Boulder Field area above the Route 202 bridge near Lambertville. (There is also a recommendation for limited consumption of catfish taken from some of these areas.)

South Jersey's unpolluted tidal waters are home to large populations of hungry cats. Down near the Delaware Bay, try the Cohansey River below Bridgeton, the Maurice River below the Route 49 bridge in Millville and at Mauricetown Park, the Page's Run stretch of the Nantuxent Creek at the bridge in Newport and Dividing Creek along Route 553. There is even a catfish tournament on the Cohansey every year.

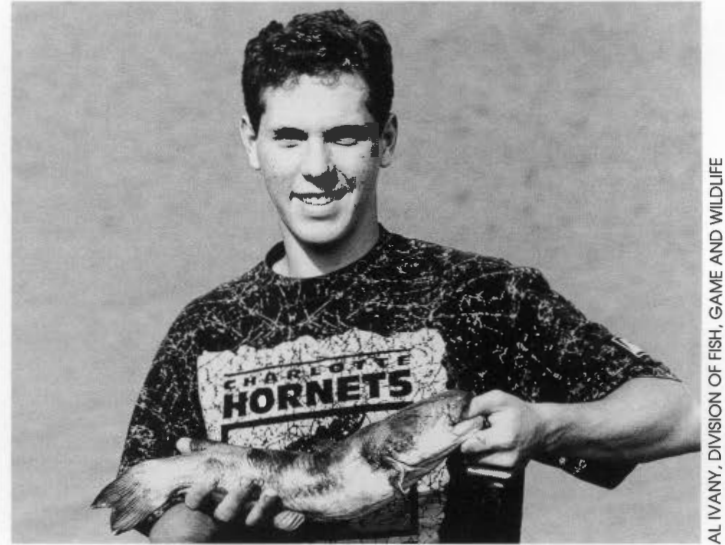
## A Giant Goldfish

Carp, which resemble giant goldfish, are another much-maligned fish. The common carp is more highly regarded in Europe and Asia than in America. Carp recipes are common in Central and Eastern European cookbooks, where they are a popular part of the cuisine.

Carp can grow to a great size and have been known to reach 80 pounds, with some specimens from New Jersey hitting 40 pounds. They are powerful fighters but, fear not, most of the ones you'll catch in this state will be much smaller.

Carp inhabit most area fresh and tidal waters, and they can tolerate conditions that many game fish cannot. Streams and ponds are favorites. To catch this species, use little or no weight with a rod with some backbone. Kernel corn, commercial carp baits and homemade dough baits are among the best baits. Some anglers chum them in with corn. But beware; carp can be hard to hook because they tend to nibble the food instead of swallow it.

While carp seem to be everywhere, there are some hot spots. In northern New Jersey, try Indian Lake at Little Ferry and Wooddale Park Pond at Woodcliff Lake. The Delaware River fairly brims with them, with many anglers recommending the area near the ranger's residence at Spruce Run in Clinton. Mid-state waters rated very good for carp include Carnegie Lake in Princeton, Milltown Pond in the town of the



AL IVANY, DIVISION OF FISH, GAME AND WILDLIFE

same name, New Market Pond in Dunellen, Spring Lake in that shore community and Willow Lake near Middlesex.

Again, South Jersey tidal waters have some of the best carp holes. That little bridge in Newport is home to some truly monstrous carp on low tide. They head in around the bend on the Route 553 side of the bridge. They will slap their tails and head in the shallow water. Plenty of other behemoths inhabit the Cohansey and Maurice rivers, with a prime location being the vicinity of the Route 49 bridge in Bridgeton. And Dividing Creek also has its share of smaller carp.

## Try a Sucker?

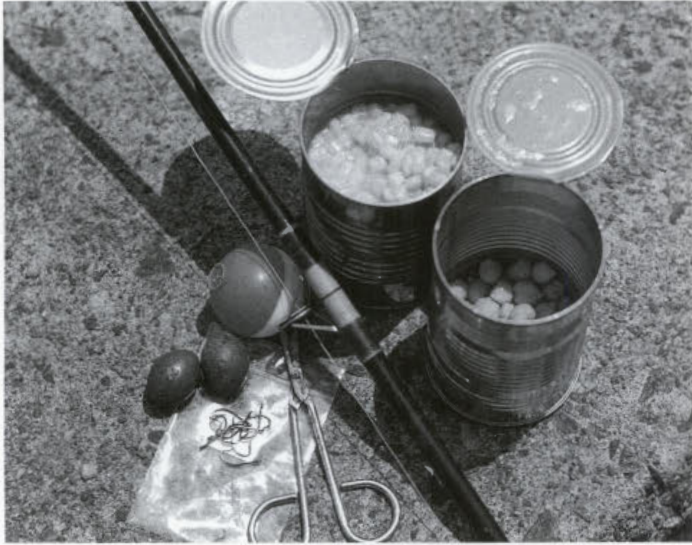
Suckers — freshwater fish of the family *catostomidae* — have taken a bad rap. Found in many streams, suckers do not acquire that “muddy” taste until the water temperature hits 65 degrees. Actually, when taken in late winter or early spring, they are quite tasty when prepared properly. When the water warms, smoke suckers to get rid of the muddy taste they acquire.

Suckers average about one and a half pounds, but some have been known to reach up to six pounds in some areas of the country. They have small mouths with big lips, making it easy to distinguish them from trout.

Suckers inhabit most streams and rivers — even very small streams in urban areas — and earn the enmity of trout anglers because they inhabit many stocked streams. Most of the streams and rivers emptying into the Delaware River are home to them. Anglers also report large populations in the Manasquan and Mingamahone rivers in Monmouth County, Allaire State Park near Squankum, Howell Park in Farmingdale, the Manasquan Wildlife Management Area near Herbertsville and Crosswicks Creek in Hamilton.

The best spring action is in deep pools at creek bends. Suckers seem to become particularly active after rain and can bite very well in muddy water. They are easy to locate in clear

The equipment and bait needed for trash fishing are simple; just a sturdy pole, corn and chick peas will do.



WILLIAM NEUMANN

water, but can be spooky. It's best to drift the bait to them.

Suckers can be caught on worms, scented baits and corn fished directly on the bottom, with little or no sinker. Fly-fishermen catch them on nymphs bumped slowly on the bottom. They give a good account of themselves and can grow to a couple of pounds or more. Years ago, rural residents looked forward to the spring sucker run as a true harbinger of spring and to add variety to a mundane winter diet.

## Eels: A European Delicacy

Freshwater streams, rivers and tidal waters are also home to the American eel, a popular European delicacy. They often are confused with snakes, even though they are fish, not reptiles. Their long, thin shape, lack of scales and slimy covering have given rise to their bad reputation.

The Hudson River is a top spot in the north for this species as well as the Delaware River and the Delaware Bay tidal region in the south. You also may want to try the tidal creeks around Fortescue and Gandy's Beach. (However, it is best to practice catch and release with this species because there is a health advisory for all state waters recommending limited or no consumption of American eel.) Minnows and worms make good baits for these slimy creatures. You even can catch them in eel traps that resemble elongated minnow traps. Eeling is often better at night.

Eels can grow to some size — up to five or six pounds and two and a half feet in length — and are fair fighters. If you leave your line unattended, they are sure to tie it in a knot. Hold them with a rag or glove to remove your hook unless you want to get "slimed." Some anglers roll them in the sand to get a better grip on them.

So don't overlook "trash" fish when you can't find trout or bass on your next angling excursion. Be a real sport and give them a chance. You'll probably be surprised by the fight and, with those taken from unspoiled waters, you may even enjoy a tasty meal.

Gary Gresh is a freelance outdoors writer who lives in Fort Washington, Pa.

## Warnings Posted for Some State Waters

Currently, there is a health advisory recommending against eating some fish species, including eels and catfish taken from several state waterways, because of contamination by toxic chemicals, such as polychlorinated biphenyls (PCBs), dioxins and chlordane. Fish should not be eaten when taken from waters in the Camden area, including Strawbridge Lake, Pennsauken Creek, Cooper River, Cooper River Lake, Stewart Lake and Newton Lake. In the Newark Bay complex, do not eat fish taken from the Newark Bay, the Passaic River up to Dundee Dam, Hackensack River up to Oradell Dam, Arthur Kill and Kill Van Kull and all tidal portions of tributaries.

The state also advises that certain fish species, including white catfish and eel, taken from the Hudson River should not be eaten more than once a week and certain species, including white catfish taken from the Raritan Bay Complex, (including the tidal portion of the Raritan River upstream to the Route 1 bridge and New Brunswick), should not be eaten more than once a month. Pregnant and nursing women, women in their child-bearing years and children under 15 are advised not to eat eel or catfish at all, except catfish taken from the Delaware River from Salem to the mouth of the Delaware Bay. Consumption of those fish should be limited to three,

four-ounce servings annually.

Anglers also are advised not to eat channel catfish or eels taken from the Delaware River below Yardley. There presently are no advisories for carp or suckers taken from any state waters.

Check the May 1995 Marine Issue of the *New Jersey Fish & Wildlife Digest* for the latest waters that have advisories or prohibitions on consumption or call the Division of Fish, Game and Wildlife at (609) 748-2020 or the Division of Science and Research at (609) 984-6070. If you'd like a copy of a brochure on New Jersey fish advisories, call the DEP's Public Access Center at (609) 777-DEP-3 (See Library, page 55).

Catch and release may provide the best method when fishing for trash species, but if you plan to eat the catch from your favorite fishing hole, here are some tips to help reduce your exposure to pollutants.

- Before cooking, remove and do not eat the organs, head, skin and the dark fatty tissue along the backbone, belly and lateral lines (sides.)

- Avoid batter or breading because they hold in the liquid which may contain contaminants.

- Bake or broil the fish on an elevated rack that allows fats to drain to the pan below; do not fry in the pan.

- After cooking, discard all liquids. Do not reuse.

- Eat smaller-sized fish (within state size regulations) instead of larger fish. Smaller, younger fish have a lower level of contaminants than larger, older fish.

- Eat a variety of fish from different locations.



“The Garden State” is New Jersey’s official nickname.

# NEW JERSEY APPELLATION TRAILS

by Diane M. Calabrese

An itinerary that includes “The State of Spain,” “The Riviera of America” and “Nature’s Showcase” may stir the worldly traveler. But stop those insatiable vacationers before they pack their bags for distant places. This journey is complete without leaving New Jersey.

Thirty-five nicknames — and counting — have been applied to the third state in the nation. Each appellation offers passage to the history or geography of the region. And the sobriquets are the best sort. They are sprinkled with romance and intrigue.

The hidden meanings behind each nickname may be lost to the written word. Many of the names doubtless were uttered first out of affection or awe. (There even might be a tinge of anger tucked in some.) To follow the nicknames is to get off the

beaten path. Instead, their existence simply may help us rekindle a passion for our state.

“The Garden State” is New Jersey’s official nickname. The moniker dates to the American Revolution. Then, New Jersey’s fertile soils sprouted provisions for troops. Today, the same verdant land feeds nearby metropolises.

Green is also the background color of “Nature’s Showcase.” Its intensity has stirred many American writers who called New Jersey home, at least some of the time. New Jersey’s coast was the inspiration for the setting in James Fenimore Cooper’s *The Water Witch*. Against the beautiful backdrop, all ends well in the waters south of New York for an abducted heiress, her English captain and the good-hearted pirate who aids them. New Brunswick’s trees encouraged native son Joyce Kilmer in *Trees and Other Poems*.



Walt Whitman lived his last two decades in Camden. There he augmented his *Leaves of Grass* collection, puzzling at the nexus of the natural world and the human endeavor. Whitman's poems reflect the many dimensions of life "in the garden state for pleasure and business."

## Small or Big?

"The Small State," which ranks only 47th in total area (including waterways) and 46th in land mass, is genuinely "Big in Agriculture." New Jersey is fifth in net farm income per acre in the country. And it's "Big in Industry," standing 20th in the nation in manufacturing and fourth in transportation, communications and public utilities, according to *The World Almanac of the U.S.A.*

"The Industrial Park State" boasts more of these entities — land areas designed to unobtrusively accommodate clusters of smaller manufacturers — than any other state, the *Almanac* says. Nestled between New York and Philadelphia, New Jersey justly claims "The Geographic Center of the World's Biggest Market." The axis makes New Jersey "The Crossroads of the East" and "The Crossroads State."

"The Hub of Commerce" needs viable arteries. "The Center for World Transportation" has been able to meet them ingeniously. Connecticut transplant John Fitch and New Jersey's Colonel John Stevens labored through the late 18th and early 19th centuries to design a commercial steamboat here.

By 1804, Stevens met success: the first steamboat with a twin-screw propeller was built in Hoboken. Stevens, a Hoboken native, was never short of ideas. In 1824, he showcased a steam wagon, which also put Hoboken on the map as the site of the first locomotive built in the United States. But Stevens could not persuade investors to support his interest in a New Jersey-run trial. His notion of a tunnel under the Hudson struck financiers as fanciful; yet less than a century later, the Hudson and Manhattan Railroad System opened the first tunnel under that waterway.

Robert L. Stevens, the colonel's son, was able to complete a rail line from Camden to South Amboy by 1834. At the time, it was the longest in the United States. The line became so important — supplanting the use of the Delaware and Raritan Canal it paralleled — New Jersey earned the appellations "The Camden and Amboy State" and "The State of Camden and Amboy."

## Greatest Asset: People

The many transportation firsts seem only fitting for "The Adaptable State," which is also "The Cradle of Industrial Research." Every schoolchild knows New Jersey as the birthplace of Edison's electric light bulb and Samuel F.B. Morse's electric telegraph. There's also John Philip Holland, who ultimately produced a practical submarine, one the U.S. Navy deemed worthy of purchase. "The Land of Amazing Industrial Advantages" claims the greatest variety of manufactured products among the 50 states, according to the *Almanac*.

But the state of "People, Purpose and Progress" is just that: people oriented. New Jersey was the first colony to grant suffrage to women on July 2, 1776. During the first 20 years of New Jersey statehood beginning in 1787, laws continued to support the voting rights of women. (In 1807, women lost the vote however, and would wait with those in other states for the ratification of the 19th Amendment of the U.S. Constitution in 1920. What happened? An 1807 vote over the location of the Essex County Courthouse and ballot box fraud precipitated the change in state law. Why either of these events were put at the feet of women is unclear, according to the account in *New Jersey: The American Guide Series, the 1939 Federal Writers' Project.* )

"The Energy-packed State" may have initially had a different meaning, but it may apply well to the long lists of active residents in every sphere. For example, add to the writers already cited countless more, including Edgar Allen Poe, Stephen Crane, Dorothy Parks and Philip Roth. Recall the Revolutionary War heroine Molly Pitcher (really Mary Ludwig Hay McCauley of New Jersey) who took up a station at a cannon in Pennsylvania after her husband died. There's also President Grover Cleveland and contemporary celebrities, such as actress Meryl Streep, singer Bruce Springsteen, singer Frank Sinatra and actor Jack Nicholson, who all have their roots in this great state.

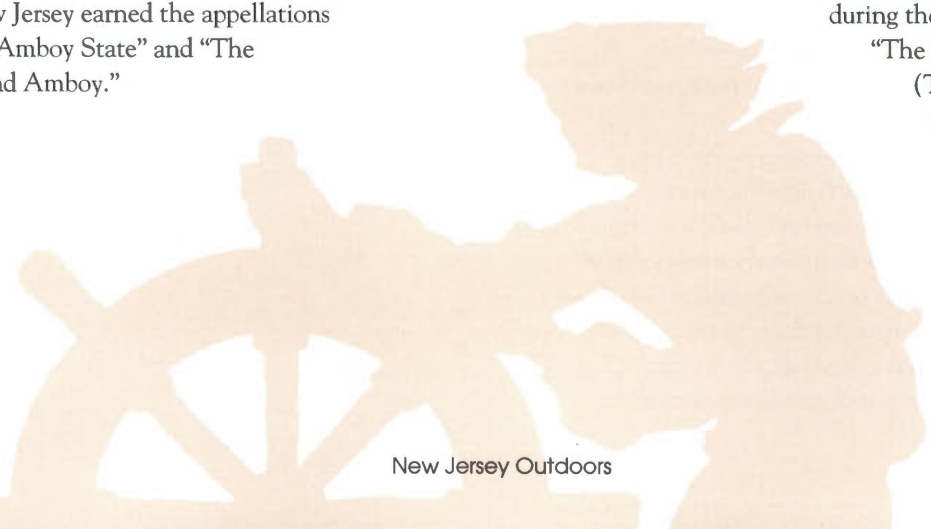
## History's Gateway

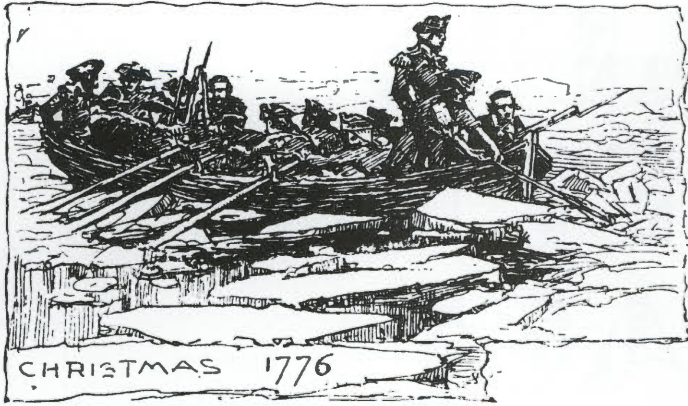
As "History's Main Road," the position of New Jersey near the middle of the original 13 colonies dictated a pivotal role in the War for Independence. "The Pathway of the Revolution" was the site of nearly 100 battles. Moreover, soldiers' uniforms during the Civil War account for

"The New Jersey Blue State."

(The same nickname in more recent times has been tied to blue laws prohibiting shopping on Sundays in Bergen County.)

"The Cockpit of the Revolution" continued its freedom inspired role in





World War I and World War II as an important site of ship-building. Thus, the 1776 nickname for New Jersey was modified to “The Cockpit of History.”

Beauty and individual rights are powerful attractants, and New Jersey has welcomed many immigrants. Today, “The Foreigner State” ranks fifth in the percentage of state residents born outside the United States, accounting for 12.5 percent of the population, the *Almanac* says. When he was exiled from Spain in 1816, former king Joseph Bonaparte, Napoleon’s brother, came to America and established an estate of approximately 1,500 acres in Bordentown. Bonaparte’s land holdings account for “The State of Spain” and “The New Spain State.”

There’s a healthy reciprocity to the comings and goings in New Jersey. “The U.S. Gateway to the World” is the stepping off point for many travelers. In 1993, Newark Airport was ranked the 13th busiest in the world.

## A Year-Round Vacation

Anyone who decides New Jersey is the “State Where You Come for a Visit and Come Back for a Lifetime,” finds varied rewards. “The Riviera of America” offers 127 miles of beaches. “The Vacationland Year ’Round” encompasses Brigantine National Wildlife Refuge and the Pine Barrens. Those reserves are as rich an experience on Dec. 30 as they are in mid-July.

In the mid-19th century, the importance of seafood harvesting made New Jersey “The Clam State.” Seafood lovers can still enjoy the New Jersey Fresh Seafood Festival in Atlantic City the third weekend after Memorial Day.

Giving the Delaware River its due makes New Jersey a sort of peninsula. It’s 27th among states in water area. And with water comes mosquitoes. During the 19th century, New Jersey was crowned “The Mosquito State” because of the hordes of pesky insects that feasted on shore visitors.

By 1912, a methodical system of drainage control had helped suppress the nuisance insects. But that was not before a large amount of New Jersey mosquito lore accumulated. A song penned in 1899 described the vexing creatures: “The Mosquitoes’ Parade: A Jersey Review.” There’s more: the first Bergen

County settlers were purportedly chased by “sparrow-sized” mosquitoes, and others met mosquitoes that could pierce metal with their stylet mouthparts.

With hindsight — not to mention recent controls over the critters — mosquito stories provide a little humor to relieve the sting of the nickname. A look backwards does nothing to solve the mystery of another nickname, however.

Just what makes New Jersey “The Sharpbacks State?” Are the linear angles of its borders the explanation, especially the straight one across land with New York? Or is the name attributable to the narrow ridge of the Kittatinny Mountains — and their neighbors (e.g., Jenny Jump and Green Pond)? Those Appalachian tiers step down gradually from the northwest to the southeast. Perhaps the sculpted Palisades — sills formed by diabase introduced in sedimentary rock — are the missing link.

John Gunther mentions “the sharp bending ribbons of the Delaware River” in *Inside U.S.A.*, a book characterizing the main features of the 50 states. Could that be the origin? Although the nickname is recorded repeatedly, the story behind it is not. What’s your best guess or do you have the answer?

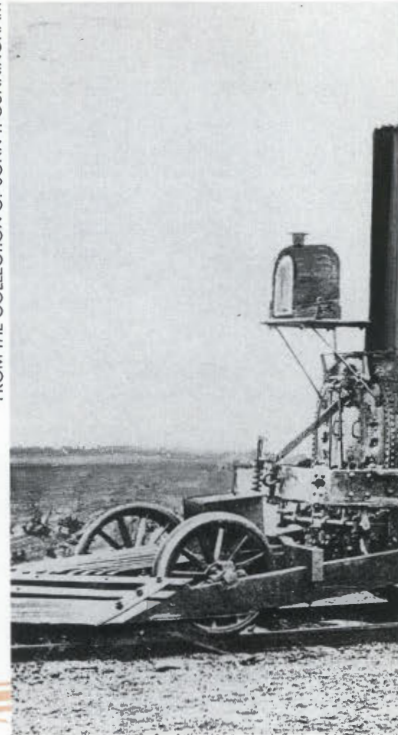
One thing is certain. It makes no difference whether they have an oral or written history. They all tie the traveler-by-word to the legacy of New Jersey. Follow the appellation trails and delight in the land of amazing opportunity.

*Diane M. Calabrese is an entomologist and a writer from Columbia, Missouri.*



# RAILROAD'S GOLDEN AGE

FROM THE COLLECTION OF JOHN T. CUNNINGHAM



by John T. Cunningham

On an early November evening long ago, my first encounter with a speeding steam locomotive overwhelmed me with a mixture of exhilaration and terror. That evening, my father and I stood on the platform of the Delaware, Lackawanna & Western Railroad in the Highland Avenue Station in Orange. A soft rain refracted the station lights, lending surrealism to the scene.

My father said "The Buffalo" was due. Much later, I learned "The Buffalo" was used by neophytes to describe all fast, limited-stop trains heading to the railroad's gateway to the West in Buffalo, New York. Then, I expected a monstrous bison.

In the distance, the Buffalo chugged hard up the steep Roseville Hill out of Newark. Once past the slope, the locomotive's roar became exultant, smoother and increasingly louder. Suddenly its headlight pierced the rain. The Buffalo bearing down on the man and boy was far worse than anything imagined.

Highland Avenue was not a scheduled stop. Forty tons of steel, brass, coal and water hurtled by, pistons pounding in fast rhythm, wheels showering sparks across the tracks. Thick, cinder-filled smoke spewed across the platform. Coaches filled with glamorous, anonymous people sped by in flashing blurs.

Amid the clatter and the glare, a locomotive-generated whirlwind sucked newspapers and candy wrappers, swirling them high above the coach tops, then released them to flutter across the tracks.

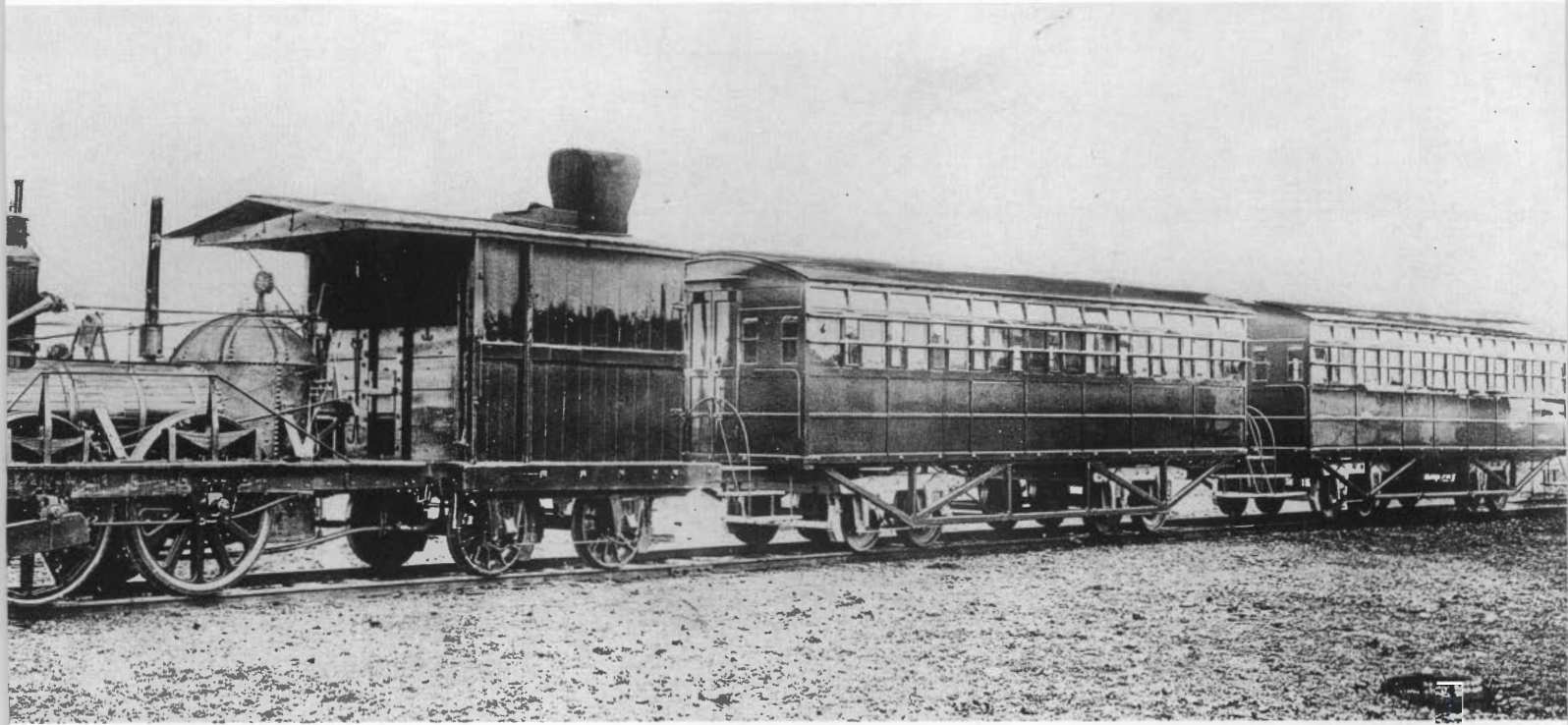
The Buffalo had come and gone. That momentary encounter made me a lifelong devotee of steam railroading.

## Raw Power

Steam locomotives were (and are) symbols of raw power, devoid of all subtlety. They pulled the "limiteds" (the through trains), the regular commuter cars and the long freight trains that rumbled across the land. They belched and roared, sprayed dirty cinders out of smokestacks, polluted the air, ruled the pace of America and rolled noisily through villages and cities at all hours of the day and night.

Most railroad historians agree that the period from about 1890 to 1940 was railroading's

A replica of the first "steam waggon" (opposite page), invented in 1825, as it was demonstrated on a circular track at Stevens Institute of Technology in Hoboken more than a century later.



Golden Age, as far as the public was concerned. The reason was steam. By World War I, electrically-drawn trains were common. During the 1920s, diesel engines edged into the scene. Electrics and diesels were dynamic, economical, quieter and less polluting, but they had the curse of efficiency: they were neither spine-tingling nor sense-shattering.

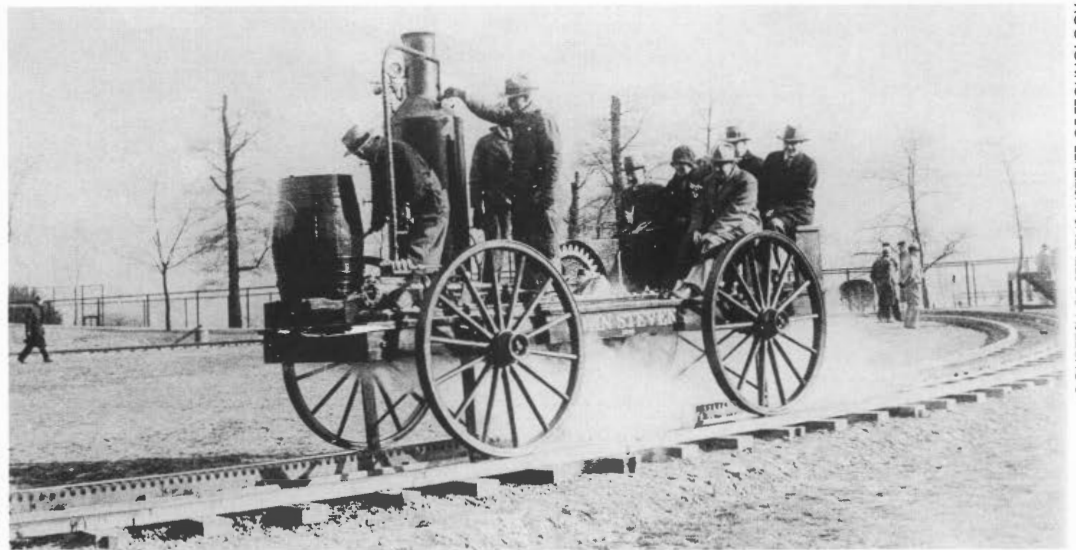
All of this rested on two precise and inter-related dates: Feb. 4, 1830, when New Jersey's first railroad, the Camden & Amboy, was chartered; and Sept. 4, 1831, when the C. & A.'s first locomotive, the English-made John Bull, arrived on the Bordentown dock.

The John Bull disappointed a welcoming crowd. Instead of the anticipated fiery iron horse, the dock was covered only with ten tons of assorted pieces of metal, encased in huge wooden crates. The assortment had no unifying blueprints or even a drawing of how a locomotive was suppose to look.

Isaac Dripps, an ingenious 21-year-old itinerant Yankee mechanic who settled in Bordentown, agreed to make something from the parts. He never had seen a steam locomotive and only had limited experience with steamboat engines. Yet, within a month, he had brought the John Bull to hissing, steaming life.

The public got its first look at the perplexing machine on

The John Bull (above), the first steam engine in New Jersey, was refurbished in 1893 and ran on the Pennsylvania Railroad tracks to the Colombian Exposition in Chicago.



COURTESY OF STEVENS INSTITUTE OF TECHNOLOGY



As in this artist's rendering of an 1880s Pennsylvania train, "limiteds" or express trains featured first class accommodations, including overstuffed, moveable chairs.

Bordentown to South Amboy for nearly two years, mostly because of the new track that had to be laid, leaving the horsepower to actual steeds. On its first round trip, the locomotive collided with a hog dozing on the tracks. The hog was decapitated. The John Bull "plunged with its head into the gutter, causing one male passenger to turn a summerset out of the window."

### From Swamps to the Sea

New Jersey's varied terrain provided a severe testing ground for early railroads. The frightening Meadowlands between Newark and Jersey City, often believed to be "bottomless," had resisted road construction since the beginning of recorded time. The Orange Mountains that rose precipitously west of Newark would require an as yet unknown hill-climbing locomotive. The Highlands west of Morristown, cut by rushing streams, offered baffling challenges. The 127 miles of nearly unpopulated Jersey Shore beaches seemed beyond railroad capabilities.

Nov. 12, 1831, in a section of Bordentown called "Mile Hollow." Most spectators doubted the John Bull would work or suspected it would explode if pushed to the limit. State legislators filling the cars for the first ride were not envied.

Fireman John Higgins stoked the fire in the engine. When the steam pressure hit 30 pounds, Dripps, the engineer, eased the throttle forward. The train lurched ahead, then settled smoothly into the one-mile test. With legislators satisfied, or at least happily off the train, the C. & A. management invited the public to ride.

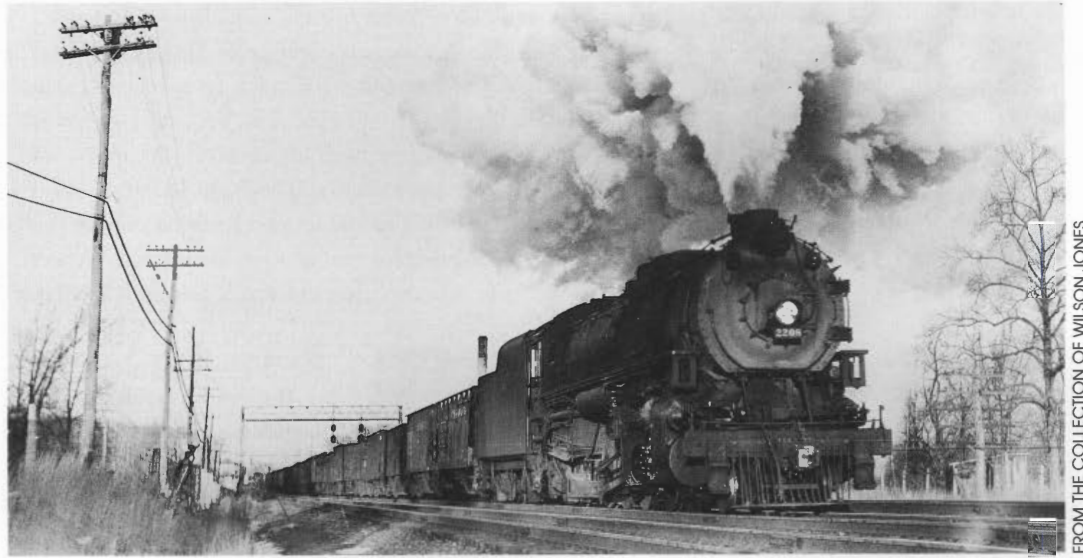
Up stepped vivacious Caroline Fraser Murat, Bordentown's leading belle (and somewhat royal as a local girl married to Prince Murat, Napoleon Bonaparte's nephew). Madame Murat gathered her ample skirt and mounted the steps to the high coach, becoming the first woman railroad passenger in New Jersey. Males had only one recourse: they followed. The day became a huge success.

Exciting though the hijinks were in Mile Hollow, the John Bull didn't go into regular service from

Builders of the Paterson & Hudson River Railroad and the New Jersey Rail Road conquered the Meadowlands in the early 1830s. Thousands of great cedar trees were taken from the Meadowlands forests and dumped into the muck, then countless tons of upland fill were added to get a base on which tracks could be laid. Even then, it was not considered safe to run a locomotive across the Meadowlands until the fill had settled for a year.

When the Morris & Essex Railroad set its eyes on Morristown, the directors asked Seth Boyden, Newark's resident genius and inventor, to design and build a hill-climbing locomotive capable of pulling cars through the mountains that lay between Newark and Morris County. Working without drawings, Boyden fashioned the first "little engine that could," the relatively tiny six-ton Orange. The inventor drove the engine himself early in August 1837 and triumphantly pulled two cars up the grade out of Newark to Orange.

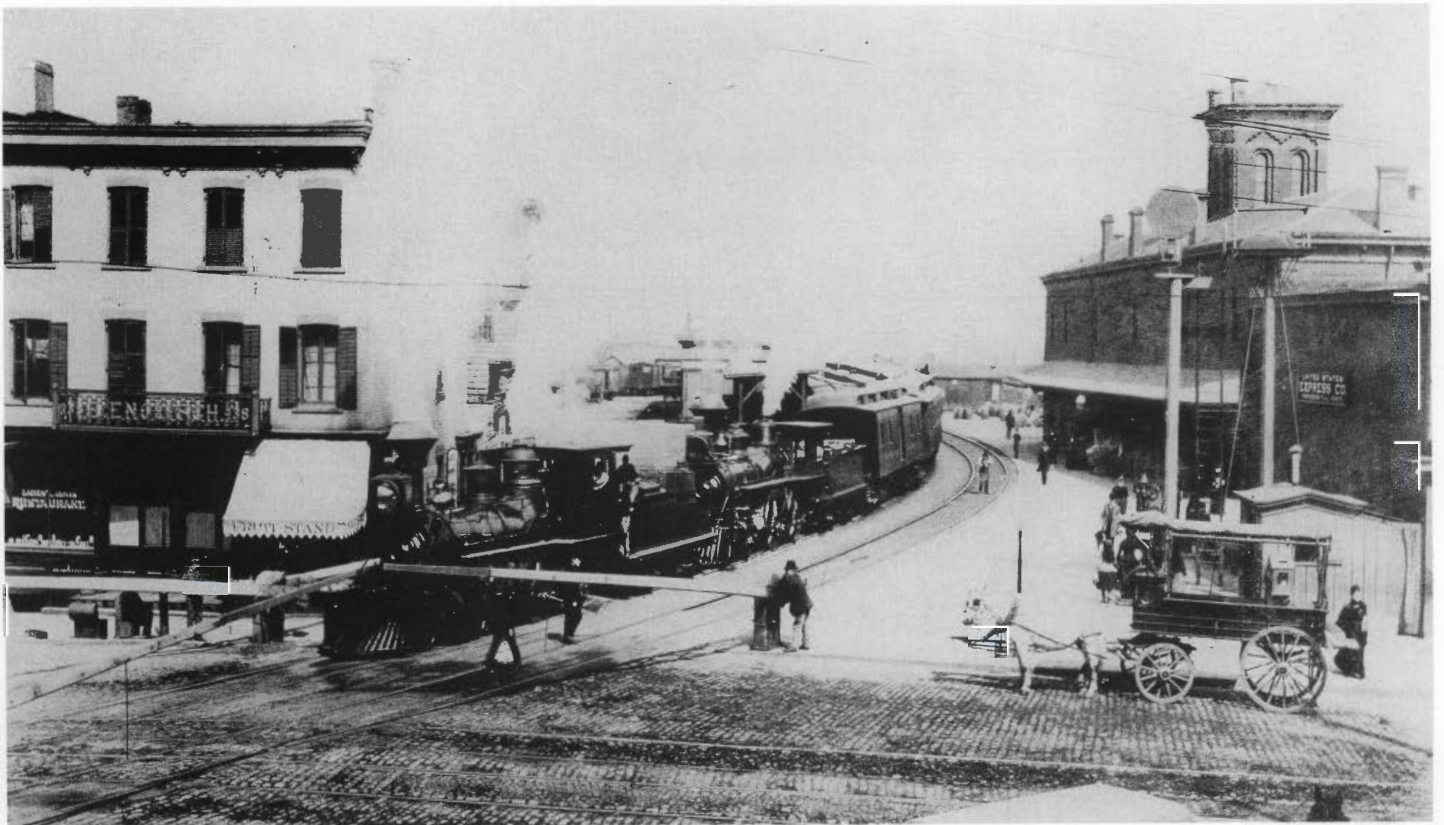
Reporters rode in the cars behind Boyden. The correspondent from the *Morristown Jerseyman* wrote "she [the Orange] went at the rate of 60 to 70 miles an hour." That was highly unlikely; the M. & E. roadbed was laid directly on the ground and followed the contours of



FROM THE COLLECTION OF WILSON JONES

The raw power of steam can be seen in this Delaware, Lackawanna & Western Railroad engine in Mountain Lakes in 1939 (top).

A Delaware, Lackawanna and Western Railroad train idles at a railroad crossing in Newark in 1892 (bottom). Gates had to be hand-cranked to stop horse-drawn traffic on Broad Street.



COURTESY OF NEWARK PUBLIC LIBRARY

This locomotive, pictured at the Camden Station of the Atlantic City Railroad (below), had high driving wheels for greater speed.

A Lehigh Valley train crosses the bridge between Easton, Pa. and Phillipsburg in 1875 (bottom of page).

the earth. It would have been ruined by such high speeds.

By 1852, New Jersey railroads had moved far beyond the Yankee ingenuity of Isaac Dripps and Seth Boyden. The Central Railroad of New Jersey reached Phillipsburg that year, in position to tap Pennsylvania's rich coal fields. The Belvidere-Delaware Railroad was building northward from Trenton, on the way to the coal mines. Commuters were beginning to move outward along the railroad fingers that stretched out through Morris, Union and Bergen counties.

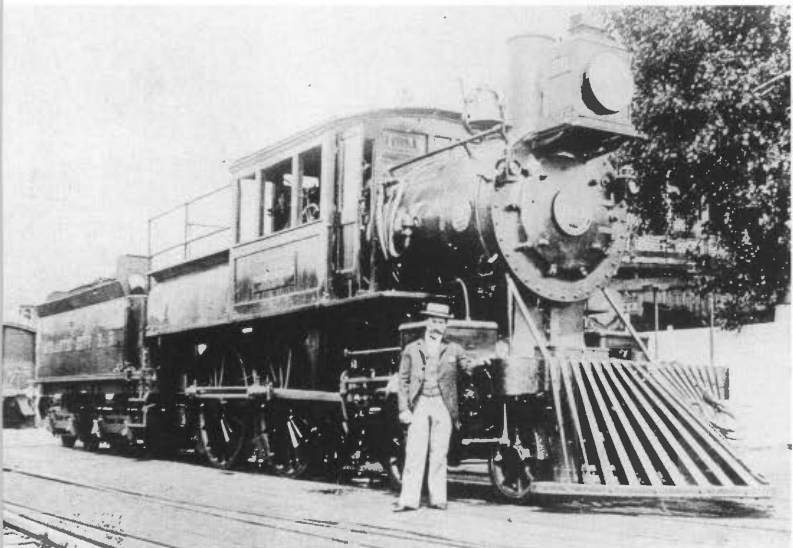
The Camden & Amboy had realigned its tracks across the corridor, providing through service from New York to Philadelphia via New Brunswick and Trenton. The C. & A. was built with a sense of power and security, since its charter forbade any railroad that might be considered competitive.

## Railroad to Nowhere

Against such solidity elsewhere, the application in 1852 for the Camden and Atlantic Railroad charter had an air of frivolity, bordering on insanity. The starting point, Camden, was fine. The eastern terminal, however, would be "a bathing village." A bathing village! The Legislature, seemingly in jest, approved the charter for a scheme that quickly was dubbed the "railroad to nowhere."

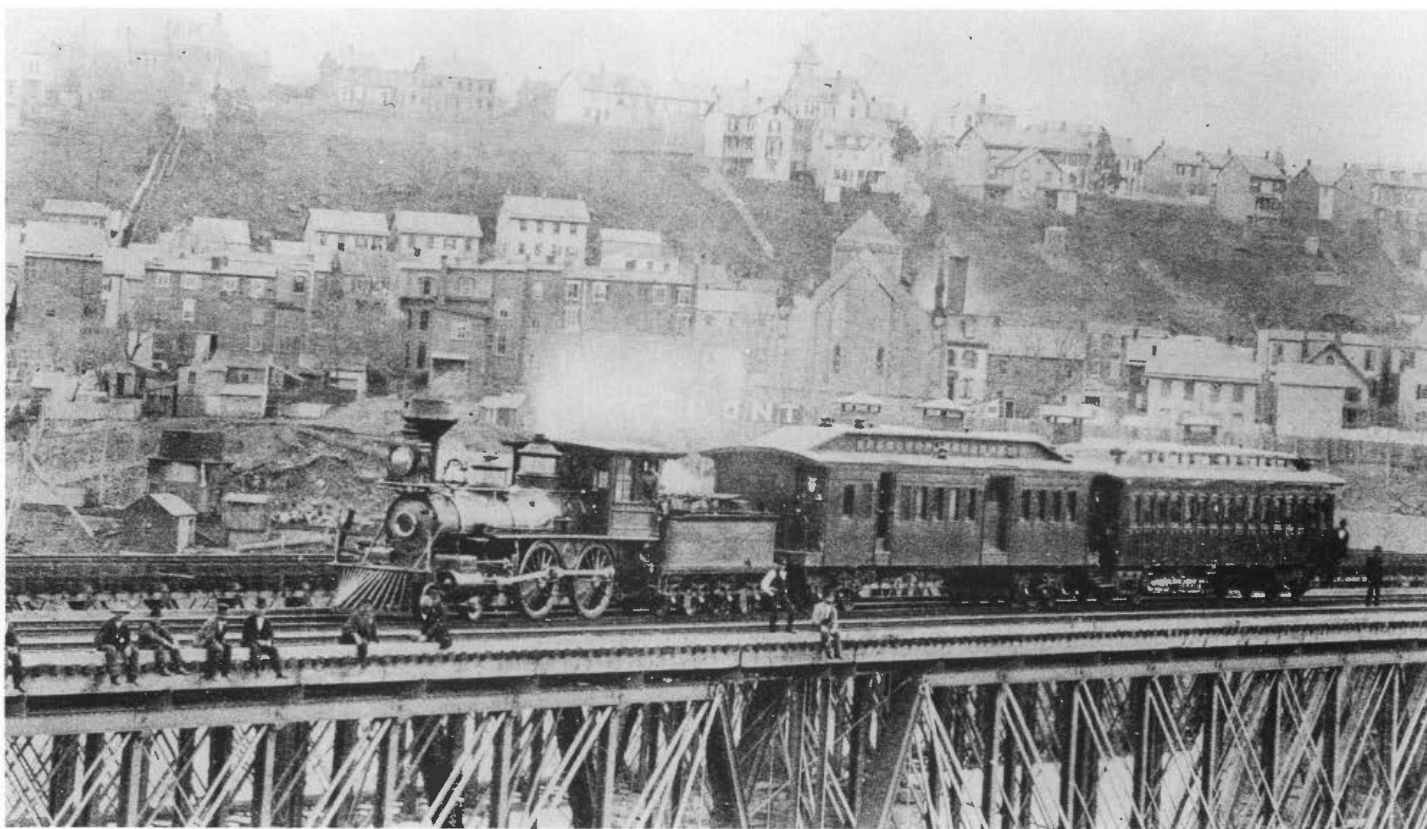
The railroad's stockholders knew the "bathing village" would be Absecon Island, reachable only by boat and known locally as "Further Island." Six families inhabited shacks among the high dunes. All of them willingly sold land — one thousand acres of it, at about \$10 an acre — to a railroad-endorsed real estate company.

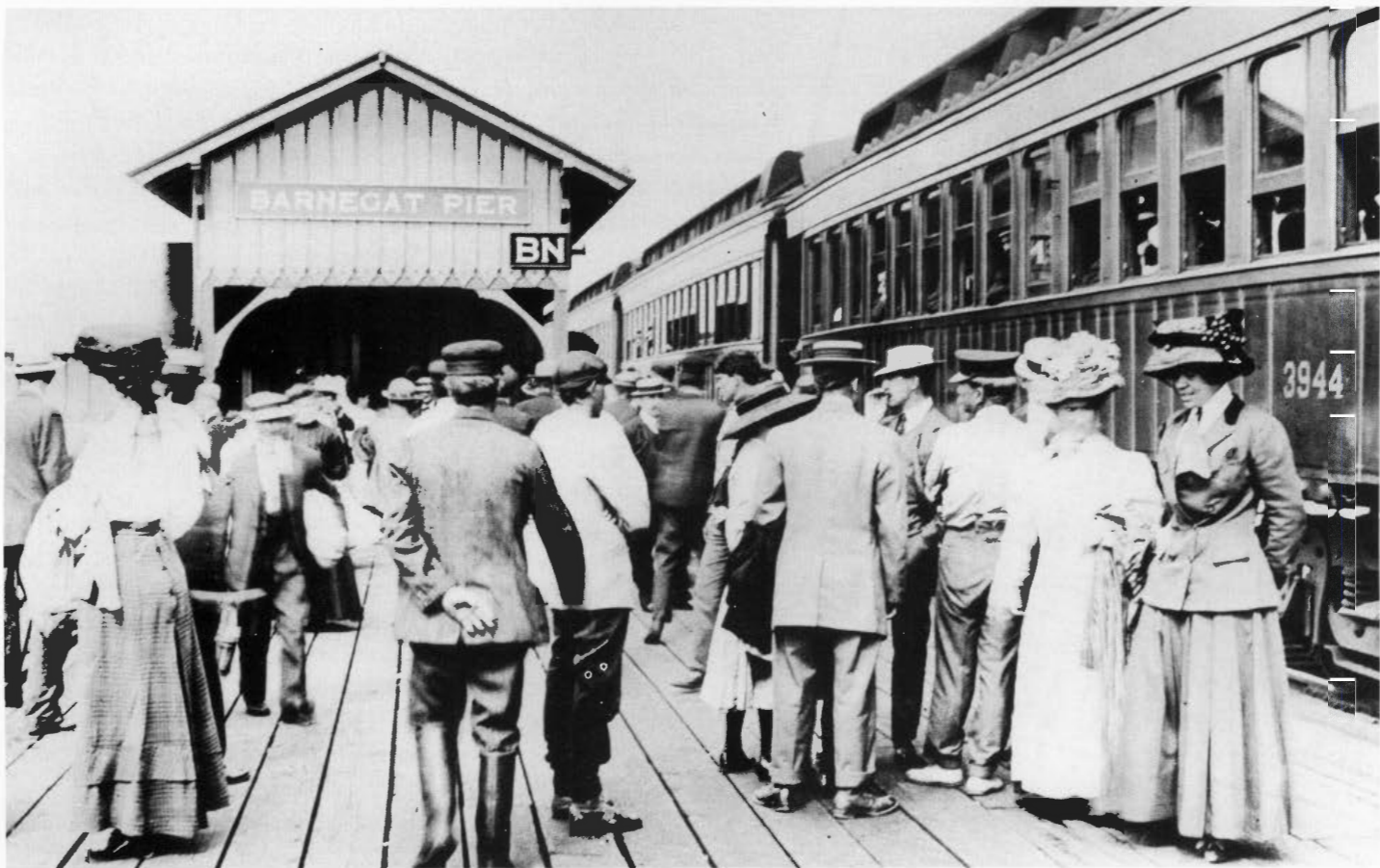
The new landholders drew a grandiose map of their holdings, marked with north-south streets named after oceans and east-west thoroughfares bearing the names of states. On



DONALD B. WENZEL

FROM THE COLLECTION OF C. L. ANDREWS





ROBERT L. LONG

Christmas Day, 1852, the entrepreneurs happily embraced a name, Atlantic City, proposed by Richard B. Osborne, chief C. & A. engineer.

On July 1, 1854, the maiden run to “Atlantic City” carried 500 dignitaries, politicians and reporters out of Camden. The train often was stopped to accept congratulations at Pine Barrens waystops. In the “city,” the railroad’s guests were fed amply in the half-finished United States Hotel, a far cry from “the world’s largest hotel” that management claimed. But the food was good, and the wine was strong.

Later, the guests wandered across the unpopulated beach, swatting away mosquitoes and green flies, clambering over the skeletons of seven wrecked ships on the strand and, tourist-like, picking up shells. They returned to Camden in the late afternoon. The riders, apparently entranced by the magic of the beach, willingly told their constituencies that Atlantic City only needed railroad-borne visitors to become a reality.

By 1870, Atlantic City had 42 hotels and 42 boarding houses, capable of sheltering 10,000 people. Every room was taken in July and August. The Camden & Atlantic kept the trains coming, inaugurating \$1 round-trip excursion trains. Many of the excursionists brought lunch in a shoebox, causing more traditional visitors to call them “Shoobies,” a derogatory nickname that became a badge of honor for one-day, one-dollar visitors.

Passengers wait at the Barnegat Pier in 1910 (above). Open windows, which let in cinders as well as oxygen, was the only form of air-conditioning.



MICHAEL S. MILLER

## To the Beach

Tracks were nearly everywhere along the Jersey Shore by 1880 — south from Long Branch to create Asbury Park, Ocean Grove and a string of other resorts as far as Bay Head; outward from Tuckerton to Long Beach Island; and seaward over uncertain marshes to Cape May’s many offshore beaches. Most of the railroad-created or railroad-augmented resorts became staid cottage communities, but Wildwood also won fame for its weekend “Fishermen’s Specials” (\$1, of course).

This 1850 poster warned of the hazards of trains.



Nearly all railroads had weekend and holiday excursion trains by 1900, often to company-owned recreation parks or to such annual events as county and state agricultural fairs. Particularly “special” were the Central Railroad of New Jersey’s excursions to Lake Hopatcong and the Erie Railroad’s weekend trains to Greenwood Lake. Thousands of riders packed the excursion cars out of Jersey City, bound for Lake Hopatcong where, according to a 19th century travel writer, they “concentrated a whole year’s holidays into one day at the lake.”

Excursion trains enlarged the web of New Jerseyans fully captivated by and committed to railroads and their steam locomotives. By 1900, railroads were the royal way to go, the sound way to ship, the dependable way to be on time.

### Fast and Efficient

“On time” ruled every city, every town, every hamlet through which a railroad traversed. Housewives scarcely glanced at their kitchen clocks; the whistle of the 7:33 morning commuter train meant it was *exactly* 7:33, not “about” 7:33. The wail of a top, limited-stop train was as dependable as the setting sun.

Dependability, called “on the advertised” by railroads, gave a feeling of security, but the intimacy of railroading came at the depot. In the Golden Age, every small boy (plus big brothers, fathers and grandfathers) knew that the main building in town was the depot rather than the town hall or even the tall-spired church of the founders.

Vital people got off the trains. Drummers (traveling salesmen) took the cars into town and stayed at the hotel across from the depot. Vaudevillians alighted to present their “three-a-day” shows in the local movie theater. Lordly, well-dressed lawyers slipped off the trains for the big murder trial in the county courthouse. The telegraph ticker went all day, creating the messages of hope and the messages of death.

Yet, of all the depot sensations, nothing topped the awesome spectacle of a crack train ripping through the depot at breakneck speed. The most exciting place in the world for a train buff must have been along the tracks leading to Atlantic City in pre-World War I days.

If people heading for Atlantic City then had been asked why 15 extra minutes on the Boardwalk made any difference, they would have been hard-pressed to answer. Nevertheless, when the West Jersey-Seashore and the Atlantic City Railroad used speed — and extra time at the resort — as a lure, the customers took the bait.

In 1899, the West Jersey boasted of a locomotive that hit 83 miles an hour between Winslow and Absecon. Five years later, an A.C.R.R. express train made the 55-mile Camden-to-Atlantic City trip in 43 minutes, averaging 77 miles per hour and, at one point, reaching a top speed of 115 miles per hour.

Perhaps the greatest on-time, high-speed record was set in the summer of 1897 by the A.C.R.R.’s Atlantic City Flyer. Each day, it made the run at 69 miles per hour, allowing time for an occasional stop. More remarkably, it was on time or better throughout the entire summer. Engineer Charlie Fahl wheeled the Flyer out of Camden every day at 4 p.m. during the record run. He stopped in Atlantic City not more than 48 minutes later.

Charlie was a folk hero throughout southern New Jersey. He raced the Flyer through town after town, rattling windows, frightening horses and maiden ladies, causing some townfolk to shake their fists in rage and filling every ten-year-old boy with awe.

Come to think of it, Charlie’s every-day run made the Buffalo’s dash through the Highland Avenue Station seem like a turtle crawling. But it was all I knew, and it was all part of railroad’s Golden Age.

John T. Cunningham of Florham Park is the author of 34 books and is one of the founders and former chairman of the New Jersey Historical Commission.

JAMES G. GRANELLI/VISTA PHOTOS



Pine Creek's oldest steam locomotive, the Lady Edith, built in 1887, used to run commercially in Ireland.

Flemington to Lambertville, via Ringoes, on the Black River & Western Railroad. The other functional steam line is the Pine Creek Railroad, which stays on a 1.5-mile circular track in Allaire State Park in Farmingdale.

Black River & Western trains run often on Saturdays and Sundays from April to December, with added schedules on Thursday and Friday during summer months. Each of these days, trains leave Flemington for Ringoes, starting at 11:30 a.m. and every 90 minutes thereafter until 4 p.m., and three trips leave from Ringoes, at 12:30, 2:30 and 4 p.m. On Sundays, trains make round-trip runs from Ringoes to Lambertville at 12:30, 2:30 and 4:30 p.m. Fares are \$6.50 for adults and \$3.25 for children, ages 3 to

12. For further information, call (908) 782-9600.

Pine Creek's railroad is sponsored by the New Jersey Museum of Transportation and operates on Saturdays and Sundays April through October. Although it is located in a state park, the railroad is neither sponsored nor underwritten by the state. The train ride, which runs periodically, is \$2. (There is also a \$3 parking charge for Allaire State Park on weekends and holidays from Memorial Day through Labor Day.) For further information, call (908) 938-5524.

A major difference between the B. R. & W. and the Pine Creek is that the former operates on standard gauge track (four feet, eight inches between rails.) The Pine Creek is narrow gauge (three feet between rails.)

## Riding the Rails

Steam locomotives are alive in New Jersey, but now serve only as tourist attractions. Two lines stir the

senses and help riders experience the sights and sounds of a vital era in American history.

The only steam locomotives operating "in the open" (traveling on regular tracks) pull tourist trains from

JAMES G. GRANELLI/VISTA PHOTOS



This caboose at Pine Creek (above) was originally a box car, but was converted to a caboose by the Central New Jersey Railroad.

Pine Creek is only one of two railroads in New Jersey (right) where you can still catch a ride behind a steam engine.

JAMES G. GRANELLI/VISTA PHOTOS



# Wildlife Conservation Centers



NANCY L. ERICKSON/NEW WAVE PHOTOGRAPHY

by Norman Miller, Ph.D.

It was a story full of hope and disappointment. In April, an Andean condor living at the Bergen County Zoo unexpectedly produced an egg. Zoo officials were not trying to breed her; there was a sufficient number of Andean condors in captivity to meet the demand.

But that egg gave hope to another, rarer, species halfway across the country. In an Idaho zoo, a California condor, a federally listed threatened species, was trying her first practice run at parenting — with a plastic egg. The sudden availability of an

egg from a similar species could expand the scope of her parenting skills — this time to a live hatchling. So the Los Angeles Zoo, the clearinghouse for the American Zoo and Aquarium Association's (AZAA's) Species Survival Program, arranged for the Bergen County egg to be flown to Idaho to be adopted.

Unfortunately, the egg stopped developing shortly after departure. But the effort helps to illustrate the new role of modern zoos as wildlife conservation centers. No longer are zoos simply museums with living exhibits. Today, zoos not only pro-

ALFRED B. THOMAS/BERGEN COUNTY ZOO



An ocelot is one of the rare species that has been bred successfully in captivity at the Bergen County Zoo.

vide education and amusement for young and old visitors alike, but many collaborate on a national or even worldwide basis to help conserve threatened or endangered species. In addition, many zoos serve as havens for the care and rehabilitation of injured wildlife, as reminders of local heritage and as centers of scientific education and experiments.

Fortunately, New Jersey, despite being the most densely populated and highly urbanized state in the nation, plays host to several zoos, each with its own unique mission and programs. Two of these zoos — the Bergen County Zoological Park in Van Saun County Park in Paramus and the Cape May County Park and Zoo in Cape May Court House — have been nationally accredited by the AZAA, a status earned by meeting or exceeding stringent guidelines not only for quality health care and humane treatment of animals, but for conducting environmental education, recreational and scientific study programs.

## America on Display

The Bergen County Zoo has an impressive wildlife population for a facility of less than 10 acres. (This compares to 265 acres at the Wildlife Conservation Society of the Bronx, New York, formerly known as the Bronx Zoo.) Its collection is comprised principally of North and South American animals and includes approximately 200 specimens from 65 species of mammals, birds, reptiles, amphibians and vertebrates.

Among its highlighted exhibits are a free-flight, walk-through North American Aviary, located in a wetlands replica; a North American Plains display, featuring American elk and bison; a simulated Colorado canyon, complete with mountain lions; and a display of black-handed spider monkeys, where three generations of a family taunt visitors with their antics. The exhibits contain clear, brief and informative signs identifying the various species, characterizing their habitats and habits and naming their favorite foods.

The Bergen County Zoo is committed to conservation. It conducts breeding programs for rare and endangered species and successfully has bred an ocelot and a red brocket deer, which are proudly on display. It is an active participant in the Species Survival Program, which involves numbering each threatened or endangered species, closely monitoring its health, undertaking breed matching and protecting its gene pool. Populations of captive animals are controlled appropriately. Mountain lions are not bred, for example, because there are sufficient numbers already in captivity, whereas ocelots are in demand by zoos throughout the country. The zoo's sponsors also raise funds to preserve habitats for rhinos in Africa and to purchase rain forests in South America.

The Bergen County Zoological Park supplements its exhibits with an extensive array of displays intended to provide environmental education — placards and replicas of the natural systems that describe the habitat of the animals and the larger

A camel mugs for the camera (opposite page, top) at the Cape May County Zoo.

This giraffe will be part of the African savanna exhibit at the Cape May County Zoo.



NANCY L. ERICKSON/NEW WAVE PHOTOGRAPHY

ecosystems that support them. These, together with a myriad of education programs conducted by trained volunteers and provided to nearly 10,000 school children annually, make the zoological park one of the most popular and valuable educational resources in the region.

## Africa in Cape May

At the other end of the state is its other nationally-recognized zoo. Like Bergen's, Cape May's zoo has collected an extensive wildlife population. It also employs a full-time professional staff — including a veterinarian and dietitians — and has a hospital with an operating room and x-ray facilities to maintain the menagerie.

Because of its greater size — Cape May Zoo is currently about 12 acres in extent — it can accommodate a larger variety of big animals, such as a camel, a giraffe and a zebra, along

with an assortment of lions, tigers, panthers, leopards, monkeys, lemurs and bison. Home to more than 300 animals representing some 80 species from around the world, the zoo also maintains native birds and farm animals. Along with international species, such as the Reeves muntjacs, miniature deer native to Asia, and a Patagonian cavy (a rodent native to South America) other popular attractions include the native golden eagle and the great horned owl. Some of the more exotic species were bred on site.

The Reptile House, built by county park staff, opened in 1991. More than three dozen species — a mix of snakes, lizards and scorpions — were recently joined by Coahuila turtles (native to Mexico), Texas tortoises and a Cuban iguana.

A prominent feature of the park is its signs charting whole families of specimens on display. Placards characterizing and

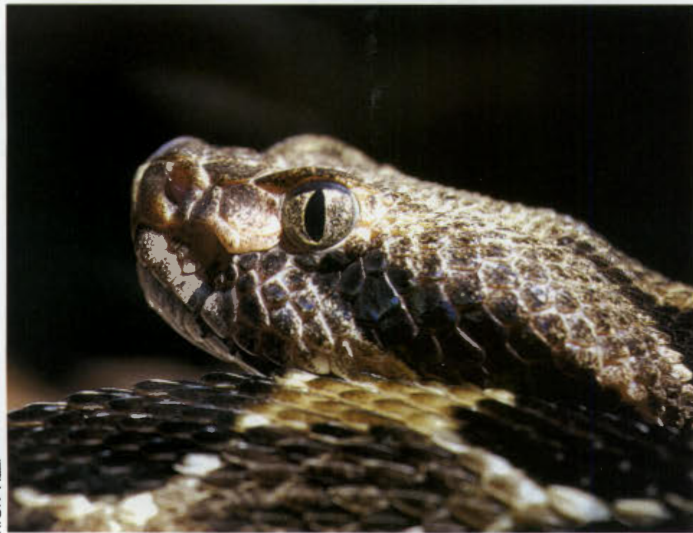


DOTTY WAXMAN

Bergen County Zoo also has a farmyard exhibit, which features domestic species, such as a pig (left).

A timber rattlesnake (bottom, left), which is native to New Jersey, is featured in the Reptile House at Cape May County Zoo.

American bison (bottom, right) are part of the North American Plains exhibit at the Bergen County Zoo.



RICK VIZZI



ALFRED B. THOMAS/BERGEN COUNTY ZOO

differentiating members of the antelope, bear, duck, “big cat” and shore bird families are posted throughout the grounds. Some fascinating tidbits include that black bears, at least in British Columbia, can be white and that lions can sleep up to 20 hours a day in their natural habitat. These signs collectively constitute a veritable wildlife textbook.

But what is sure to become the zoo’s central attraction is now under development — an African savanna, funded by a \$1.7 million county bond issue. A walkway, leading out to the new 50-acre area south of the park, runs adjacent to a mini-ecosystem and wetland, both described by clear, informative signs. When complete, the savanna will house almost 100 endangered species, as well as the zoo’s current collection of elk, deer and bison.

Like its northern counterpart, the Cape May Zoo is designed not merely to display wildlife (though every effort is made to al-

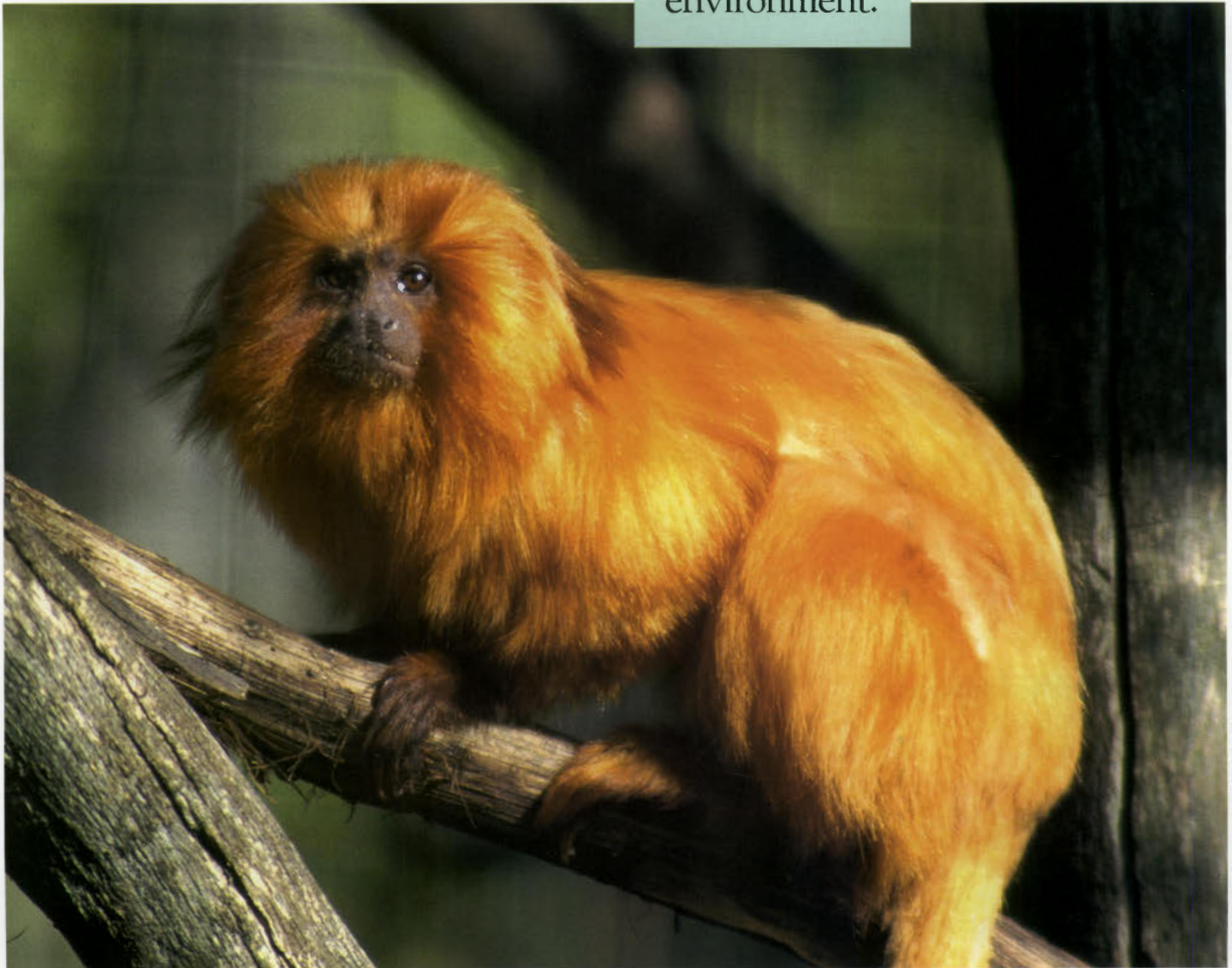
The appreciation that zoos cultivate for nature may justify the few specimens that are used in an overall effort to protect the species and the environment.



ALFRED B. THOMAS

A blue and yellow macaw from South America (above) can be found at the Bergen County Zoo.

This golden lion tamarin (below) at the Bergen County Zoo is a native of South America.



ALFRED B. THOMAS/BERGEN COUNTY ZOO

This educational exhibit at the Bergen County Zoo teaches visitors about rainforests.



Founded in 1977, it gradually has acquired increasingly exotic animals and now takes pride in its Bengal tiger, African lions and American black bears. Unlike at other zoos, children can get an up-close and personal view of some of the animals via a feeding program, where they can give orphaned or injured animals, such as cows, goats and sheep, various types of vegetation and popcorn (hence, the zoo's name). This hand-to-mouth bond may prove mutually beneficial for man and animal.

Perhaps less spectacular, but nevertheless important, refuges are a trio of animal havens in Middlesex County: Merrill Park in Colonia; Thompson Park in Jamesburg; and Johnson Park Zoo in New Brunswick. The animals in these parks were not purchased or bred, but donated because they are too old, unwanted or injured. Whenever possible, they are rehabili-

low people to come as close to the animals as safety permits), but to educate the nearly 70,000 visitors it hosts each year.

## Humanity or Cruelty?

Not all zoos meet the stringent requirements of the AZAA. And some animal protection groups often question the appropriateness of maintaining wild animals outside their natural habitats. These groups charge that the confinement of large animals — the big cats, giraffes, camels, elephants and the like — to narrow quarters is inhumane and outdated. But other animal advocates say that when adequate space and care are provided, the appreciation that zoos cultivate for nature may justify the few specimens that are used in an overall effort to protect the species and the environment.

The Department of Environmental Protection's Division of Fish, Game and Wildlife licenses and inspects all facilities that keep exotic or non-games species both for the protection of the animals, as well as public safety. In addition to ensuring that the animals receive proper care, the division also ensures that the animals are kept in such a way that they cannot escape or injure themselves or members of the public. In addition to zoos, the division regulates circuses, scientific facilities and pet shops.

## Refuges for the Unwanted

Some zoos put humane concerns first. More accurately designated refuges than zoos, these facilities exist as a haven for abandoned, injured, elderly, sick or abused animals that cannot survive in the wild and, at least temporarily, need human care.

The star in this category is Popcorn Park Zoo, the only federally licensed zoo of its kind in the nation. The seven-acre natural facility in Forked River, located in the Pinelands, is operated by the Associated Humane Societies, a non-profit organization dedicated to the care and welfare of animals.





A North American black bear at Six Flags Great Adventure Safari Park.

tated and returned to the wild. But when health concerns prevail, such as in the case of raccoons that may carry rabies in the wild or deer that may overpopulate the area, the animals are allowed to live out their lives at these zoos.

## Flora, Fauna and Fun

For some zoos, there is an even broader mission than wildlife preservation. Several feature spectacular displays of seasonal flora and other botanical specimens. Some are set in larger park areas that offer a wide array of outdoor activities, such as playgrounds, picnic areas, fishing areas, hiking areas and ball fields.

Some, like Bergen County Zoo, also support local culture and heritage. As part of its facility, the zoo features a 19th century Bergen Dutch Farmyard, complete with farmhouse, smokehouse, privy and equipment shed, with genuine period farm equipment (and, of course, barnyard animals). The style and construction replicate the designs of the early 1800s. There are plans to expand the farmyard into a living history museum, featuring some of the crafts that were practiced two centuries ago.

Zoos are a different breed than they were decades ago. At today's zoos, education and conservation go hand in hand.

While zoos are said to be for children, the lessons being taught are for everyone. Today's facilities play a major role in saving some species — and the vanishing wilderness.

*Norman Miller, Ph.D., is a freelance writer from Lawrenceville.*

Children can feed some of the sick, injured or abandoned animals at Popcorn Park Zoo (opposite page, center).

Mountain lions are housed in a replica of a Colorado canyon (opposite page, bottom) at the Bergen County Zoo.

## New Jersey Zoos

Following is a list of zoos located throughout the state of New Jersey.

**Bergen County Zoological Park**  
Van Saun Park  
216 Forest Ave.  
Paramus, NJ 07652  
(201) 262-3771

**Cape May County Park Zoo**  
Route 9 and Pine Lane  
Cape May Court House, NJ  
08210  
(609) 465-5271

**Cattus Island Park  
Cooper Environmental  
Center**  
Fisher Boulevard East  
Toms River, NJ 08753  
(908) 270-6960

**Cohanzick-Bridgeton  
City Zoo**  
Mayor Aitken Drive  
Bridgeton City Park  
Bridgeton City, NJ 08302  
(609) 455-3230

**James J. McFaul  
Wildlife Center**  
Crescent Avenue  
Wyckoff, NJ 07481  
(201) 891-5571

**Johnson Park Zoo**  
Middlesex County Parks  
Department  
P.O. Box 661  
Kennedy Square  
New Brunswick, NJ 08901  
(908) 247-2634

**Merrill Park**  
Fairview Avenue  
Colonia, NJ 08830  
(908) 381-3555

**Popcorn Park Zoo**  
1 Humane Way  
Lacey Township  
Forked River, NJ 08731  
(609) 693-1900

**Six Flags Great  
Adventure Safari Park**  
Route 537  
Jackson, NJ 08527  
(908) 928-2000

**Space Farms Zoo & Museum**  
Route 519  
Beemerville, NJ 07461  
(201) 875-5800

**Terry Lou Zoo**  
1451 Raritan Road  
Scotch Plains, NJ 07076  
(908) 322-7180

**Turtle Back Zoo**  
560 Northfield Avenue  
West Orange, NJ 07052  
(201) 731-5800

## Profile

# A Slice of Life at Stokes State Forest

For Robert Sikora, his job as a park ranger at Stokes State Forest has proven to be the perfect training ground for his hobby.

Sikora is a wood carver, and his inspiration is the wildlife that surrounds him on a daily basis. During the last two and a half years, Sikora has whittled about two dozen fish, birds, mammals and people, including portraits of old men, lifelike replicas of trout and bass and a rabbit poised to jump.

"His fish look like they can swim," says Ron Townsend, the chief ranger at Swartswood State Park, who purchased several walking sticks from Sikora, including those topped with an osprey, an eagle and a loon. (On the loon carving), "it actually looked like he had taken the head of a loon and stuck it on the end of a stick."

Sikora draws his inspiration from his daily duties.

"I have the opportunity to see these

things on a daily basis," says Sikora, who has worked for the State Park Service in the Division of Parks and Forestry for the last nine years. "Part of the job of a park ranger is to be part state trooper and part conservation officer all rolled into one. (In enforcing fish and game regulations), I get to handle these animals quite often."

In addition to his daily duties, Sikora gets many of his ideas from a colleague who works with the Avian Wildlife Center, a rehabilitation facility for injured or orphaned wild birds in Wantage. Here Sikora gets an up-close view of a variety of birds, including hummingbirds, owls and kestrels.

"He can study and get a better idea of birds," says John Smisko, who operates the facility in his spare time. "He

does excellent work not only in carving, but in the painting end of it as well."

Sikora takes his job home to the studio, where he uses a band saw, carving knives and paint to transform chunks of wood into works of art. One of his pieces, a brook trout, was selected in the summer of 1994 for the "People's Choice Award" in a professional art category at the Sussex County Fair.

"We look at (his fish) as a piece of fine art, and the public does too," says Suzanne Struble, co-chair of the Executive Committee for Art in Sussex County. "It was really the focal point of the show. Kids would gravitate to it thinking that it was a live fish in an aquarium. People who were into woodcarving would go get their friends and bring them back to the fish."

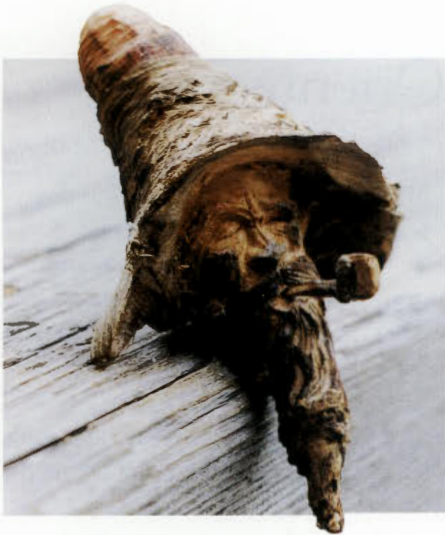
Struble says when Sikora shows up at the fair with his fish, he is like a "Pied Piper." People follow him to the art exhibit just to catch a glimpse of his trophy species.

Sikora began carving as a way to relieve the stress of the day. Although he does not carve on the job, he says his hobby is a way to occupy his mind during the long and often lonely

The wood is cut into the general shape of his subject and whittled down with carving knives to provide features like feathers and fins.

A rabbit poised to jump.





winter days in the forest.

"Say I am working on a bird's long flight feathers. I can work out the (carving) problem in my mind before I touch the wood or mess the wood up," Sikora says.

Sikora often will begin a project with a sketch of the animal or fish he wants to carve. He then selects a block of wood, usually basswood because it is soft and has a tight grain. The wood is cut into the general shape of his



subject and whittled down with carving knives to provide features like feathers and fins. Those features are refined further with an electric tool, similar to a dentist's drill, to provide texture and detail to the piece.

Finally, some pieces are painted or air brushed with lifelike colors.

"I just can't look at a subject and say I am going to carve that," Sikora says. "I have to take an overall shape and break it down into more and more detail."

It takes an average of three to four

weeks to finish a piece. Not bad for a someone who learned this hobby on his own by skimming through pictures in wood-carving books. "It's more important to me to develop my own style," he says.

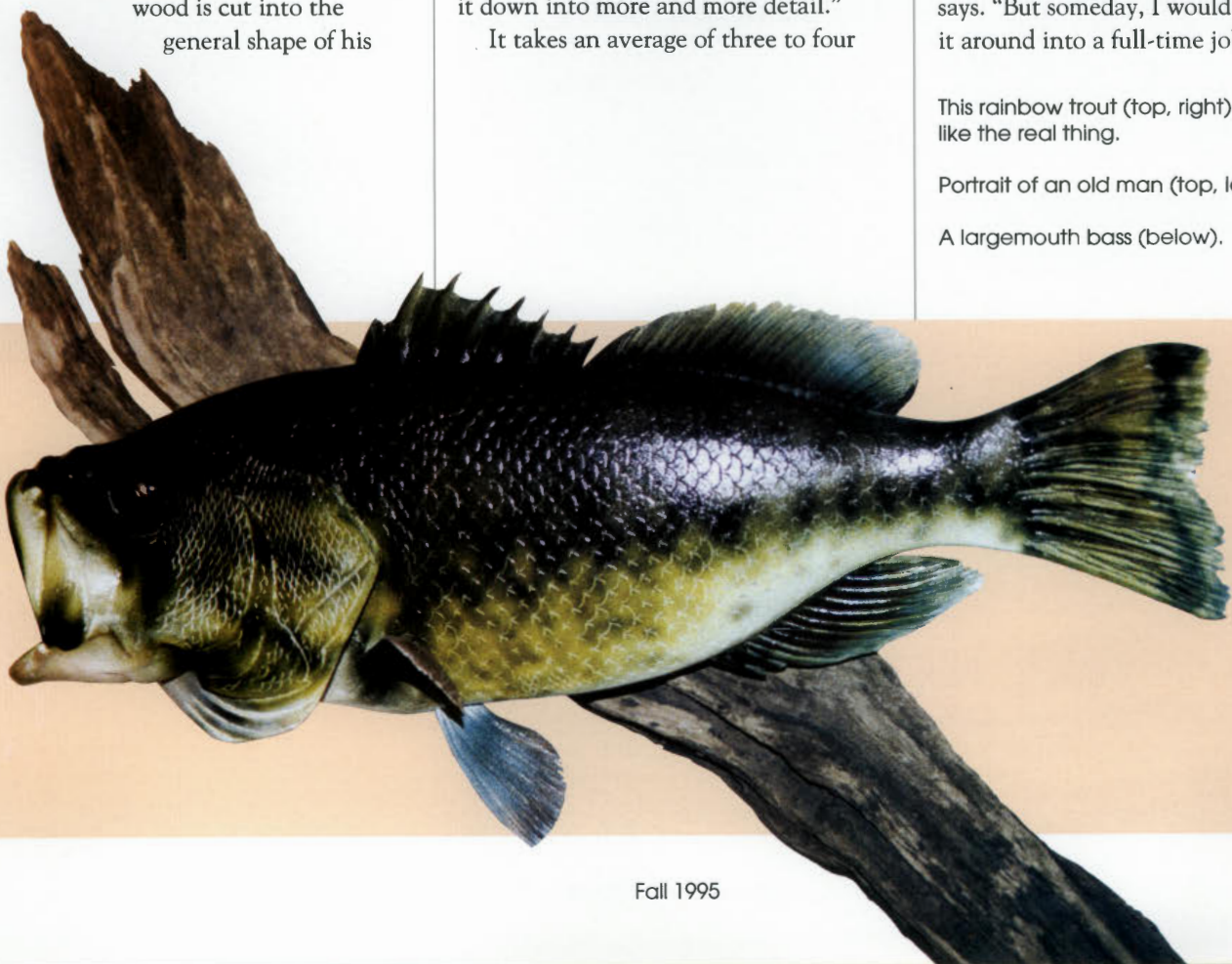
Sikora hopes one day to open his own mail order business and to display his artwork at local art galleries and shows. He currently sells his pieces for between \$50 and \$2,000.

"Right now, it's a hobby," Sikora says. "But someday, I would like to turn it around into a full-time job."

This rainbow trout (top, right) looks like the real thing.

Portrait of an old man (top, left).

A largemouth bass (below).



# Get Ready to Go . . .



## Orienteering

It's autumn deep in the New Jersey woods, and nature is on the move. Squirrels scurry about, gathering and storing nuts for the frigid months ahead. Branches sway in the cool breeze, as red, yellow and orange leaves twirl in the air and drift to the ground. High overhead, a flock of honking snow geese is heading south. Somehow, the birds know exactly where they are going.

Suddenly, the tranquillity is broken by a jogger, her feet padding rhythmically on the fresh bed of leaves. She stops, studying a map she carries in her left hand as her thumb moves slightly to mark her location. After a glance at a compass, with needle-sharp precision, she adjusts her course a few degrees and resumes her jog.



WILLIAM C. ERICKSON/NEW WAVE PHOTOGRAPHY

A compass and an orienteering map (above) are key elements for this sport.

The area around the Batona Trail in south Jersey (left) is a popular orienteering destination.

The Batona Trail offers many unique features (opposite page), including water obstacles and unusual bridges.

NANCY L. ERICKSON/NEW WAVE PHOTOGRAPHY

A few moments later, an elderly man trots by. Time passes, and more and more joggers glide through the pristine scene. One young man is so focused on his compass that he runs into a tree. But most, like the snow geese, know exactly where they are going.

Where are they going? And why?

These woodland runners are among the growing number of New Jerseyans who have discovered orienteering.

A blend of map and compass skills, physical conditioning and love of the outdoors, orienteering is a little-known specialty sport headed in the right direction.

It's called the "thinking sport," or a sports car rally without the car. The individual competitor is the driver, navigator and source of power.

At orienteering events, participants are sent into the woods individually at timed intervals. Using a map and com-

pass, they must determine the quickest route through a series of controls, or checkpoints, identified by orange and white markers. As participants quickly learn, the fastest way between the control points is not always a straight line. Steep hills, thick brush, tall grass, bodies of water and other obstacles are all factors to be considered. The winning participant is the individual who best combines fleetness of foot with sound navigational decisions.

But it's not all about winning.

"Orienteering lets me refocus and relax," says veteran orienteer Mary Frank, secretary/treasurer of the Delaware Valley Orienteering Association, one of two clubs covering New Jersey. "By that I mean when I start my course, for the next hour or so, I can put all my priorities aside, concentrate on my map and find controls. When I orienteer, I not

only get my body exercised, but my mind as well."

## A Scandinavian Sport

Orienteering began in the 1890s in Norway and Sweden, where it served as a military cross-country skiing exercise. It wasn't considered a sport until Ernst Killander, a Swedish scoutmaster, staged the first major recreational event in 1919. Dismayed by a drop-off in track and field athletics, Killander wanted to lure the youth of his day back into more active lifestyles. To do so, he decided to combine the beauty of the Swedish countryside with the mental challenge of map and compass skills. It worked. Killander's first event drew 155 participants, and the sport took off from there.

Today, orienteering is still enormously popular in Scandinavian countries, and Americans in increasing numbers are dis-

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It's called the  
"thinking sport,"  
or a  
sports car rally  
without the car.

---

covering its unique challenges.

For orienteering in the true sense of the word, look to the United States Orienteering Federation (USOF), headquartered in Forest Park, Georgia. The USOF is a network of 65 orienteering clubs nationwide, including the two clubs in New Jersey. The Delaware Valley Orienteering Association (DVOA) covers the southern portion of New Jersey, eastern Pennsylvania and Delaware, while Hudson Valley Orienteering (HVO) handles northern New Jersey, New York City and southern New York State.



NANCY L. ERICKSON/NEW WAVE PHOTOGRAPHY

LES REEPS



USOF club members are involved in every aspect of the sport. This includes map making, education and publication, and planning competitive events.

In addition to foot orienteering, clubs in northern climates stage Ski-Os, bringing the sport back to its Scandinavian roots. As the name implies, Ski-O is orienteering on cross-country skis. The Delaware Valley group occasionally holds these events, weather permitting.

Another popular variation is the Rugged Outdoor Group Activity Involving Navigation and Endurance. Not for the faint-of-heart, these events take place over large areas and long periods of time, usually 12 to 24 hours.

For youngsters, there's the Little Troll Program, which has four levels. Children as young as toddlers begin on a string course, where ribbon or yarn guides them along the way. From there, they progress with less and less adult supervision, culminating at the Roadrunner level, where they complete a course unassisted.

At almost all orienteering events, time is set aside for instruction. Begin-

ners usually can get in at least 15 minutes of training before starting. Also, most events offer several courses which vary in length and difficulty. While the veterans participate on rough, challenging courses of 10 kilometers or more, novices trot along much easier terrain of two to three kilometers on or near trails. In fact, some participants prefer to walk their course, observing nature and "smelling the roses" along the way.

## Orienteering Clubs

Orienteering clubs welcome everyone.

Delaware Valley is the oldest and largest USOF club in the country. It holds roughly 38 meets per year and caters to a membership of around 700. In New Jersey, DVOA conducts meets in the Assunpink Wildlife Management Area near Clarksburg, Washington Crossing State Park in Titusville and Lebanon State Forest in Burlington County. Most meets are scheduled for the spring and fall, but they try to get in at least one event per month each winter and summer.

"My husband and I have been

orienteering for more than 25 years," notes Caroline Ringo, a former DVOA secretary. "Having taken our children, and now our grandchildren, along has convinced us that orienteering is a great family sport for all ages."

Hudson Valley Orienteering is another active USOF club, with a membership topping 350 people. HVO sponsors about 30 meets per year, again primarily in the spring and fall. Several New Jersey locations include Campgaw Mountain Reservation in Mahwah, Mills Reservation in Cedar Grove and Lewis Morris Park in Harding.

## Simple Equipment

Whether you are competing in a USOF meet or practicing on your own, orienteering is generally an inexpensive sport. With just a few items and clothing you probably already own, you'll be set for anything — from mild recreation to stiff competition. Here are the essentials to begin your adventure.

■ **Compass.** Made of clear plastic and available from several manufacturers, the compasses preferred for orienteering are standard round instruments mounted onto rectangular bases. You can find them at most outdoor or camping stores and through specialty catalogs. While styles and prices vary, they all combine the qualities of a compass with those of a protractor, which provides information on appropriate angles to pursue.

■ **Map.** Topographic maps are fine for practicing or hiking on your own, but they're not true orienteering maps. Orienteering maps are modified topographic maps, providing more detail and some minor changes. For one thing, their parallel north-south lines compensate for declination, the angle between true north and magnetic north, which makes them easier to use. While orienteering maps show the same contour, or elevation lines, they also include vegetation densities, landmarks and other clues not usually found on standard topographic



CAROLINE RINGO

Addison Cole, age 7, of Collingswood (opposite page), punches in at a control on a beginners' course.

Competitive orienteer Ron Richmann (left) participates in orienteering events throughout the Delaware Valley.

maps. Control points, the station-to-station "bases" along the course, are marked clearly. Traditionally, orienteering maps are created and field checked by USOF organizers and supplied to participants the day of the event.

Before beginning the course, orienteers must determine their direction of travel, or bearing, from control to control. This is accomplished by aligning the compass to north and placing it over the map. The map then is turned so that its north direction lines up perfectly with magnetic north. The direction of travel is determined in degrees from the starting position to the destination. Once on the course, orienteers must glance frequently at the map to determine where they are at the moment and at the compass to stay on track.

■ **Clothing and shoes.** What you wear depends on how competitive you plan to be. If you are the type who likes to wander and explore, decent outdoor clothing and hiking boots will do the trick. Wear long-sleeved shirts and long pants to protect against abrasions caused

by tree branches and brambles, as well as ticks. Be prepared for changing weather and carry a whistle in your pocket in case you get lost.

While novices are satisfied with the basics, the experienced demand more from their attire. Orienteering catalogs offer special shoes, which combine the most desirable qualities of hiking boots and running shoes. They also offer nylon orienteering suits with polished surfaces that are snag resistant, quick-drying and come in the latest designer colors. Special protective knickers, gaiters and stockings also are available.

Orienteering is a sport that draws enthusiasts from many backgrounds, who participate for a variety of reasons. As the USOF explains, "Ask a hundred people why they do it, and you will get a hundred different answers. But first you will get a big grin. Some will stress enjoying the outdoors, some the exercise and some the mental challenge, but they will all finish up with the word fun."

*by Art Lackner, a freelance writer and media consultant from Eatontown.*

## Orienteering Guides

Map and compass skills are important for day hikers, backpackers and virtually anyone who enters the woods. For those who would like to learn these skills — the basis of orienteering — you can start by contacting the clubs and facilities listed below.

- **Delaware Valley Orienteering Association**  
c/o Mary Frank  
14 Lake Drive  
Spring City, Pa. 19475  
(610) 792-0502  
Club, Meets
- **Hudson Valley Orienteering**  
c/o Dave Hodgdon  
106 Allentown Road  
Parsippany, New Jersey 07054  
(201) 625-0499  
Club, Meets
- **New Jersey School of Conservation**  
Montclair State University  
1 Wapalanne Road  
Branchville, New Jersey 07826  
(201) 948-4646  
Instruction
- **United States Orienteering Federation (USOF)**  
P.O. Box 1444  
Forest Park, Ga. 30051  
(404) 363-2110  
Clubs, Meets
- **Washington Crossing State Park**  
3556 Washington Crossing Penn Road  
Titusville, New Jersey 08560  
(609) 737-0609  
Instruction

# Birds of New Jersey





There are only five states where one can see more than 200 species of birds in a single day. Among these is New Jersey, which has recorded more than 420 species, approximately 190 of which nest within its boundaries.

Why is New Jersey so attractive to our feathered friends? The reasons include habitat diversity, geographic position within a migratory flyway and a temperate climate due to the influence of the ocean.

Despite its small size, New Jersey offers a tremendous variety of habitats. The southern portions of the state are covered by huge expanses of pine forests, interspersed by cedar bogs and pine-oak woodlands. This habitat is a strong contrast to the deciduous woodlands of the mountain areas in the north. Other habitats include lakes and streams, vast salt and freshwater marshes, miles of ocean beach and a shoreline bordering the Delaware River. This diverse habitat is home to a tremendous variety of breeding birds, as well as those that migrate through the state.

During southbound migration, the area around Cape May becomes a staging ground for several bird species to refuel before braving the flight over the Delaware Bay. These birds are funneled into Cape May due to its geographic orientation within the Atlantic migratory flyway. Each fall, bird watchers flock to Cape May to see hundreds of hawks soar overhead, while the woodlands come alive with warblers and various other species.

In May, the Delaware Bayshore of New Jersey serves as a feeding area for shore birds heading north from their wintering grounds in South America. These shore birds arrive when horseshoe crabs are laying their eggs and, at times, the birds completely obscure the beaches while gorging themselves on the feast.

So no matter what the season or section of the state, New Jersey is a haven for birds and bird watchers alike.

*Michael P. Gage, an award-winning bird photographer, is a principal environmental specialist in the Department of Environmental Protection's Hazardous Waste Enforcement Program.*

Each spring, the male seaside sparrow (opposite page) sings from the tallest available branch to proclaim his territory.

The buff-breasted sandpiper (top, left) is the only North American shorebird to have a lek mating system, where they establish a display site and attract females with behaviors including wing raising. After mating, the female leaves the nest and raises the young elsewhere.

The ruddy turnstone (top, right) is aptly named as it turns over stones and shells in search of tiny insects and other tasty morsels.



Semi-palmated sandpipers (top), named for the partial webbing between the toes, can be seen during spring migration.

The range of the purple sandpiper (right) has expanded from New York to Virginia over the past 50 years because of the construction of rock jetties, where it feeds on crustaceans and insects.





The coloration of the killdeer helps the adult (top, left) and eggs (top, right) blend into grasses and fields.

The least bittern (left) will often stretch out its neck or even sway with freshwater grasses in an attempt to blend into the scenery.

Named after its call, which can resemble the rasping of a saw, the northern saw-whet owl (above) usually is found in dense pine groves.



The lesser yellowlegs (top) is distinguished by its bright yellow appendages.

A common loon feeds on a crab in the Manasquan Inlet (right). This species, which breeds in Canada and the northern United States, can be seen in New Jersey in the winter.



# Ecotourism: Seeing the Wild Side of New Jersey

by Paul Kerlinger, Ph.D.

**T**hey had come from as far away as California, Arkansas, Arizona and Michigan in search of the elusive whiskered tern.

A native of Africa and Europe, this rare bird had been spotted for the first time ever in the United States in Cape May in the summer of 1993. And as nervous bird watchers stood together tensely at sunrise, everyone was afraid to ask, "Has it been seen?"

Some visitors, like one man from Arkansas, were lucky. He caught a glimpse of the bird during one of only two or three

sightings that week. For him, it was well worth the nearly \$1,000 price tag for the plane fare, rental car and motel. He chalked up another bird to the list of rare species he has spotted over his lifetime.

Birds attract thousands of visitors to the Garden State each year, adding to a new breed of tourism that is growing internationally. Rooted in the words ecology and tourism, ecotourism is travel for the purpose of seeing and enjoying nature. Also called nature tourism, it includes a myriad of outdoor activities.

Many people associate ecotourism with such glamorous and

faraway places as the savannas of Africa, rain forests of Brazil or the mountains of Colorado. However, New Jersey has enormous ecotourism potential that only now is being realized.

The well-kept secret that New Jersey abounds in wildlife and exquisite outdoor opportunities is rapidly spreading. In New Jersey, ecotourists engage in bird watching, whale watching, scuba diving, mushroom collecting, outdoor photography, camping, hiking, canoeing, touring to see fall foliage

Birdwatching — with its accompanying gear and books — is growing in popularity in New Jersey



PAUL KERLINGER



CLAY MYERS

and studying plants, to name just a few. Fishing and hunting are also forms of ecotourism because they both frequently involve destinations dependent upon nature.

Because there are so many ecotourism attractions in New Jersey, identifying the most popular is difficult. General sightseeing may be the largest attraction. People want to see panoramic views of hills, forests, rivers, lakes, dunes, the ocean and other natural landscapes. Many of these people do not even have an interest in wildlife or in walking down a quiet forest trail. They are satisfied with a scenic roadside view and the knowledge that an area is preserved.

### Fantastic Foliage

One of the attractions that brings many ecotourists to New Jersey is our autumn color. Although New England is known for its fall foliage, New Jersey's forests are every bit as brilliant with their yellows, golds, reds, oranges and purples of autumn. Sweet gum, with its purple leaves, along with red maple, sumac, poison ivy, ash, aspen and birch, provide an unforgettable spectacle, drawing thousands of visitors from nearby urban and suburban

The sundew (right) is one of the unique plants that can be found in Wharton State Forest.

A fin whale breaches off the Jersey coast (opposite page).

areas. In the north, Wawayanda State Park in Highland Lakes and Stokes State Forest in Branchville are two of many places to enjoy the changing leaves. Both are easily accessible to urbanites from New York and Newark. In the south, Belleplain State Forest in Woodbine and several other state forests and wildlife management areas are within a short drive for out-of-state ecotourists from the Wilmington, Baltimore, Maryland and Philadelphia areas.

Ecotourists seeking the solitude of wilderness can find it amidst the Pinelands, the swamp forests and marshes of the Delaware Bayshore or the mountains of Sussex, Warren and



RICK VIZI

Bird watchers (left) gather in the spring in Cape May County.

Passaic counties. These areas offer hiking trails, botanical delights, scenic views, bird watching and excellent photographic opportunities. Longer trails include the Appalachian along the Kittatinny Ridge in northwest New Jersey and the Batona and other Pinelands trails in Lebanon and Wharton state forests in Burlington, Atlantic and Camden counties. These and other trails in New Jersey draw tens of thousands of visitors year-round.

Another way to experience New Jersey's rich cultural and natural world is by camping. Whether your shelter of choice is a recreational vehicle, a cabin, a tent, a lean-to or out under the stars, there are public and private facilities throughout the state to meet your needs. In fact, many of the state's parks, forests and recreation areas provide facilities to help visitors appreciate this colorful state.

## The Birding Capital

Birds seem to be the most popular wildlife in New Jersey, and Cape May has been called the birding capital of the world. Situated at the crossroads of migration in eastern North America, millions upon millions of ducks, geese, shore birds, warblers, herons, hawks, owls and many others traverse our state in spring and fall (see Photo Essay beginning on page 32). They can be seen practically anywhere, although places such as Sandy Hook, Island Beach State Park in Seaside Park, the forests along the Delaware River, Forsythe National Wildlife Refuge in Leeds Point and the creeks and marshes of

Salem and Gloucester counties are great for birding.

Hawks by the thousands can be seen in places such as Cape May Point State Park, where autumn hawk counts conducted by New Jersey Audubon's Cape May Bird Observatory total more than 50,000 in some years. Where else in the world can you see 100 peregrine falcons in a single day? At the opposite end of the state, along the Appalachian Ridge of Warren and Sussex counties, just north of the Delaware Water Gap, dozens of golden eagles and thousands of red-tailed hawks pass each year, affording breathtaking sights.

Birders from as far away as California and England come to New Jersey just to watch the migrations and see birds they cannot find elsewhere. Birders are some of the most dedicated of ecotourists, devoting hundreds of thousands of dollars per year to travel in pursuit of their pastime, not to mention what they spend on binoculars, books and birdseed.

## There She Blows

Birds are not the only wildlife that attract people to New Jersey. We may not have moose, as do Wyoming and Montana, but we have even larger animals. While Maine and Cape Cod are the best known places to see whales in the eastern United States, New Jersey now is cashing in on the whale watching market. Since the late 1980s, a robust business has emerged, with more than a dozen boats sailing from Cape May, Ocean City, Brielle and Atlantic Highlands in search of marine mammals. More than 50,000 people per season (spring through autumn) sail from Cape May alone. In the last decade, whale watching has grown into a million dollar industry in this state, an amazing statistic considering that, in the mid-1980s, very few people even knew that whales could be seen in New Jersey's waters and not one whale watching boat existed here.

New Jersey waters host respectable numbers of fin and hump-backed whales, as well as bottle-nosed dolphins. In the summer of 1992, boat captains estimated that about 30 hump-backed whales took up residence only a few miles off the beaches from Ocean City to Cape May. They could be seen feeding and breaching (leaping almost out of the water) on almost every trip. Fin whales up to 60 feet long are rather common off the coast and are sometimes spotted within sight of the New York City skyline. Even an occasional right whale can be seen migrating through our area.

Just as exciting are the hundreds of dolphins, sea turtles, ocean sunfish, sharks, pelicans and sea birds that are seen on these trips. On summer and early autumn trips out of South Jersey, several dolphins almost always are spotted.

Another way to discover New Jersey marine life is from aboard a party fishing boat or a scuba diving vessel.

Party boats abound along the coast for everything from fluke to big game fish, such as shark and tuna, and New Jersey also boasts a significant fleet for scuba diving. New Jersey is a

CAPE MAY WHALE WATCH AND RESEARCH CENTER



popular dive location, partially because of more than 3,800 wrecks and snags that are found off the coast — including ships, tanks, subway cars, concrete piles or tire formations that have been sunk by the Division of Fish, Game and Wildlife's Artificial Reef Program.

New Jersey wrecks and artificial reefs generally are located close together and in relatively shallow water of 60 to 80 feet. Divers are drawn by the marine life, artifacts or lobsters that can be found there.

## Water, Water Everywhere

The back bays and rivers of New Jersey host a plethora of wild animals and miles of marsh grass. Dozens of small boats, including pontoon boats with medium sized outboards, sail out of Cape May and other harbors. On a normal day, visitors will see diamondback terrapins, pelicans, ospreys on the nest, fiddler crabs, oyster catchers and other wildlife. The captains who guide these trips are often qualified naturalists and provide narratives that are both colorful and educational. Trips often are tailored to family groups who want to see marsh and back bay wildlife up close and learn about marsh ecology.

Another way to enjoy wildlife near water is by canoe. New Jersey has thousands of miles of waterways ideal for canoeing and watching wildlife. Salt marsh creeks leading into the Raritan, Barnegat and Delaware bays and the forest-lined lakes and rivers of the Pine Barrens, as well as the Delaware River, are all easily accessible. Perhaps the least used creeks in New Jersey

are those that wind their way through salt marshes and back bays.

Wildlife is often easier to see from a canoe. Herons and egrets stand in place, otters and muskrats will stop and look curiously at people, and diamondback terrapins will simply continue basking in the sun as a canoe glides by silently. This may be ecotourism at its finest.

## Ecotourism as a Conservation Tool

In addition to the delight ecotourism brings to thousands of visitors each year, it also is being used as a conservation tool. The decision to preserve or develop an area often is decided by weighing the economic benefits of developing an area against the aesthetics of an area or endangered species that may reside there. Until very recently, the economic benefits of wildlife and open space have been overlooked.

A 1993 New Jersey Audubon Society study found that more than 100,000 bird watchers bring some \$10 million each year to Cape May businesses. Birders come to the Cape to watch different species on state lands, including Higbee Beach Wildlife Management Area and Cape May Point State Park, as well as the Nature Conservancy's Cape May Migratory Bird Refuge. If these forests, wetlands and dunes had been developed, the ecotourists would not come to Cape May, nor would they support a healthy portion of the Cape May economy.

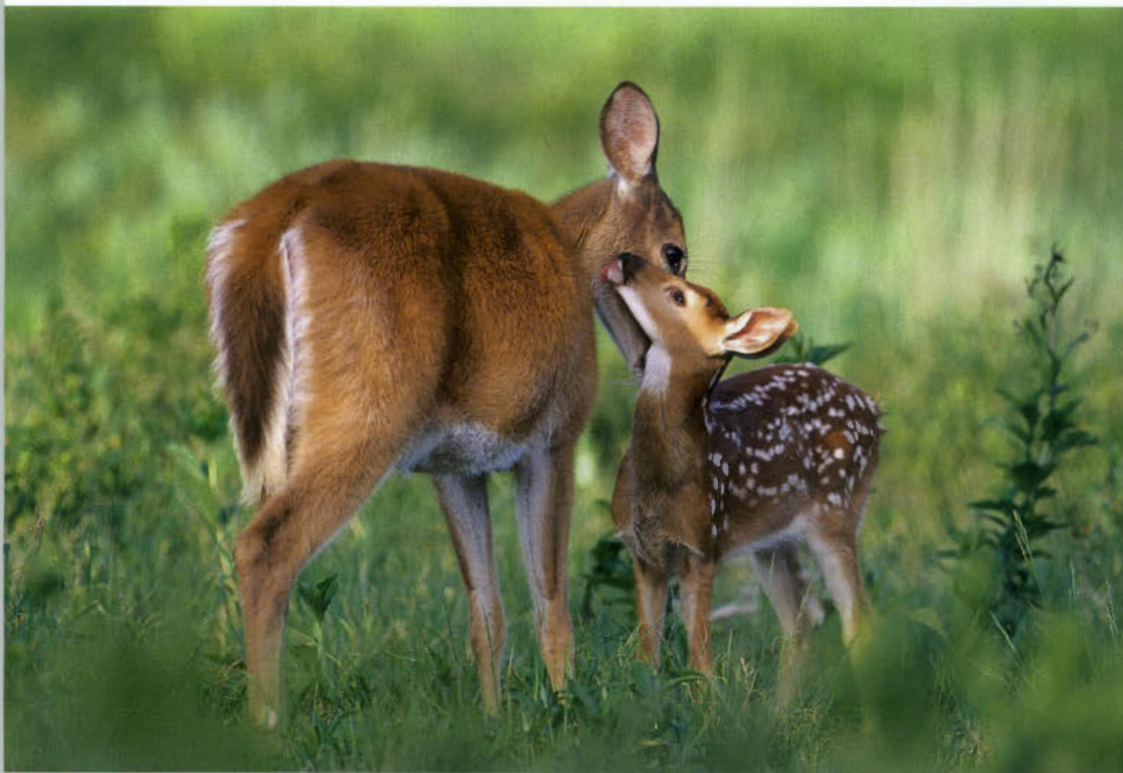
Spending by ecotourists adds up to several billion dollars per year in the United States alone. Birders and other ecotourists support motels, campgrounds, bed and breakfast lodges, restaur-

rants, gas stations, gift shops, tour operators and more.

They buy binoculars, film, books, groceries, clothing and other paraphernalia. Therefore, businesses in places such as Cape May benefit economically from parks, refuges and a clean environment.

How much revenue the Pine Barrens, Wawayanda State Park or other preserved areas attract to local economies is not known, but undoubtedly is substantial. The economic benefits of ecotourism are a potent argument for the preservation of open space. More and

Deer, such as this white-tailed doe and her fawn, are among the abundant wildlife that can be seen in the Garden State.



CLAY MYERS

## New Jersey's Great Outdoors

State and federal agencies have produced a number of free brochures to introduce people to the many great outdoor opportunities and destinations in the Garden State. Following is a partial list of those that are available.

■ **Camping in New Jersey's State Parks, Forests and Recreation Areas**, published by the Department of Environmental Protection's (DEP's) Division of Parks and Forestry, is a directory of cabins, group cabins, lean-tos, shelters, campsites, group campsites and wilderness camping at state facilities. 609-292-2797 or 1-800-843-6420 or TDD 1-800-852-7899.

■ **Events Calendar**, published by the DEP's Division of Parks and Forestry, is a listing of events at state parks, forests, recreation areas and historic sites. The calendar is published twice a year in spring/summer and fall/winter. 609-292-2797 or 1-800-843-6420 or TDD 1-800-852-7899.

■ **New Jersey Coastal Heritage Trail**, published by the National Park Service, is a series of brochures on the wonders of the Jersey coastline from Perth Amboy to the shores of Salem and Gloucester counties. 1-800-JERSEY-7 or 609-785-0676.

■ **New Jersey Outdoor Guide**, published by the N.J. Division of Travel and Tourism, is a directory of places, such as zoos, gardens, parks, beaches and marinas, for such activities as hiking, biking, surfing, swimming, boating, fishing, hot air ballooning and camping. 1-800-JERSEY-7.

■ **New Jersey Travel Guide**, published by the N.J. Division of Travel and Tourism, is an annual magazine dedicated to tourism opportunities throughout the state of New Jersey. 1-800-JERSEY-7.

■ **New Jersey's Wildlife**, published by DEP's Division of Fish, Game and Wildlife, is a checklist of birds, mammals, reptiles and amphibians that can be found in the Garden State. 1-800-777-DEP3.

■ **The Pinelands Guide**, published by the N.J. Division of Travel and Tourism, is a booklet on places to visit and things to do in the Pinelands region. 1-800-JERSEY-7.

■ **Places to Fish**, published by the DEP's Division of Fish, Game and Wildlife, is a list of New Jersey lakes, ponds, reservoirs and streams open for public fishing. 1-800-777-DEP3.

■ **Salt Water Fishing in New Jersey**, published by the DEP's Division of Fish, Game and Wildlife, is a guide to New Jersey's saltwater fishing resources, including where and when to catch fish and where to launch or rent a boat. 1-800-777-DEP3.

■ **State Parks and Forests in New Jersey**, published by the DEP's Division of Parks and Forestry, is a brochure that lists the state parks, forests, recreation areas, marinas, historic sites and natural areas and their facilities. 609-292-2792 or 1-800-843-6420 or TDD 1-800-852-7899.

■ **State Parks, Forests and Recreation Area Guides**, published by the DEP's Division of Parks and Forestry, is a series of brochures and maps for the state's parks, forests and recreation areas. 609-292-2787.

more, this kind of sustainable development is occurring in communities surrounding sensitive habitat.

Because New Jersey is located amidst the largest concentration of human beings in the Western Hemisphere and because of its enormous outdoor opportunities, it is ideally situated as an ecotourism destination. This is even more true now that greater numbers of people are seeking outdoor recreational opportunities.

### The Responsible Ecotourist

Ecotourism, though a potent conservation tool, can have adverse affects when too many ecotourists descend on an area. Within state and federal refuges, the number of visitors is regulated to protect the environment and to ensure a high quality experience, but it is important that ecotourists not degrade habitat or disturb the wildlife.

Ecotourists can help protect open spaces by letting businesses know that they are visiting an area specifically because of its parks, natural lands and wildlife. This promotes good will and helps businesses become aware that preserved land and wildlife are bringing them income.

It is also important to adopt a code of ethics for your own touring. The National Audubon Society's travel ethics recommend that you leave a site the way you found it. This includes such actions as staying on trails, disposing of waste properly, obeying the rules of a particular area and never taking anything from the wild. If the integrity of a destination is not protected, it cannot continue to host visitors in the future.

Ecotourists bring many millions of dollars to New Jersey each year, supporting thousands of jobs. This type of economic development makes lots of sense because ecotourists take little away from the environment, and they require very little in the way of infrastructure or supervision. Furthermore, ecotourism generally is best in areas that are not suitable for traditional forms of development. Thus, ecotourism offers one of the best ways for business and the environment to coexist in harmony.

*Paul Kerlinger, Ph.D., a former director of the Cape May Bird Observatory, is an environmental consultant from New York.*

# Outings

A rider puts a horse through its paces in show jumping at the Essex Horse Trials.



# The Home of Champions

The sun gleams off the horse's chestnut coat as he trots briskly down the center of the ring, then smoothly stops — his front and back feet even and his head held high. Without a word from the formally-attired rider, the horse proceeds in different gaits around the ring, performing a graceful ballet of serpentine curves and pirouettes.

The formal sport of dressage is beautiful to behold, and to watch it at Hamilton Farm in Gladstone, headquarters of the U.S. Equestrian Team (USET) is sheer majesty.

"It's a great place," says Heather Walker, who heads the Gladstone Equestrian Association, an unofficial sister organization of the USET.

The one-time farm of James Cox Brady, an ancestor of former U.S. Treasury Secretary Nicholas Brady, Hamilton Farm encompasses 500 lush acres in one of the most picturesque areas of New Jersey. Surrounding the competition rings, stables and other buildings are old forests with tall trees that almost completely shade out the sun and well-manicured fields where the sun beats down on hot summer days. A creek runs through the property, as do several roads and paths that lead to various parcels where the horses train and show.

## An Olympic Home

The farm is in the heart of North Jersey horse country — the Somerset Hills near the Hunterdon County border — but it is home to more than just champion horses. Actually, the team members' horses do not live at the stable, but stay there during training and competition. However, red foxes, red-tailed hawks and pileated woodpeckers, as well as herds of deer and numerous species of songbirds, also live on the grounds.

Most of the property is owned by Ben-



PHOTOS BY CHARLES ST. CHARLES III

Darren Chiacchia takes his horse Fernando through a water jump.

eficial Management Corp. Beneficial's chairman, Finn Caspersen, also is chairman and president of the USET and competes himself. The team has been headquartered there since 1961.

The site hosts several major events each year, but even when no shows are being held, visitors still can tour the grounds. Almost every weekend, from spring through fall, riders can be seen training.

"The center is always open," says Walker. "People can come in and look at the barn . . . (and) all the wonderful old buildings."

At its peak, between 1911 and 1927, the farm sprawled across 5,000 acres in three counties. Farm hands harvested corn, wheat, oat, rye and hay and raised dairy and beef cattle, sheep, pigs, chickens, ducks and geese.

The stable, where the USET offices are located, was built in 1916 to house Brady's prized collection of Hackney ponies, hunters, Clydesdales and Percheron draft horses. It is a master-

piece of architectural beauty.

The building is brick and concrete, reinforced with steel. A weather vane with a replica of Brady's favorite horse, Hamilton Model, is perched atop a small tower at the center of the red-roofed building. Inside, its carriage room, corridors and harness rooms are done in red tile walls, terrazzo floors and brass fittings. Plaques from international competitions, dating back decades, adorn the wall. A painted glass ceiling above the second floor filters light into the center entryway. There are 54 box stalls, each 12-foot square, which have cork brick floors, oak walls and pale green bars. A trophy room boasts walnut cases, stained glass ceiling lights and an oak floor. In all, this "stable" has 40 rooms, including eight bathrooms. Parts of the stable are open to the public.

Numerous other buildings dot the property. Chief among them is the former Brady mansion, a whitewashed brick Georgian home with 64 rooms, 11

## Outings

fireplaces and two elevators. There's also the former hunting lodge, a creamery, an old forge and a three-story barn built in 1923. None of these buildings are open to the public.

### The Horsey Set

From the top of the property, the view of the farm buildings and the rolling hills is spectacular. This is one of the areas where spectators park and where some high-fashioned tailgaters may enjoy some warm sun and good food — more likely wine and cheese and pate on croissants than beer and pretzels and hot dogs on buns. Depending on the event, spectators may be allowed to park along the course and watch the action.

The first event of each year is Derby Day, held in early May to coincide with the running of the Kentucky Derby. It is the primary fund-raiser for the Somerset Hills Pony Club, the nation's largest pony club with about 100 members aged seven to 18. The rides, which stretch from 8 a.m. to 1 p.m., are competitions of two-to-four horse teams through a five-mile course beginning at Hamilton Farm and winding through adjacent fields around the dirt roads that rim the farm. The course isn't too difficult because it's

The Rocking Horse Ranch team features six Belgian horses.



the first real run of the season for many of these horses, but there are about a half dozen jumps, some flat, open spaces where the horses can fly and some tough terrain through which riders must amble cautiously. Following the race, the pony club hosts a Kentucky Derby party in the stable, where nattily-dressed men and women with large hats eat, mingle and watch the race.

In mid-May, Hamilton Farm is home to the three-day Essex Horse Trials, one of only five combined training events held in the United States sanctioned by the Federation Equestre International. This equestrian triathlon, which is an Olympic sport, was patterned after the training and testing of military steeds. In fact, until 1948, it was the U.S. Army that participated in Olympic events to represent the nation. The USET was founded two years later to fill the gap when the mechanization of the army led to an end of the cavalry.

Each day of the Essex Horse Trials features one distinct competition. On the first day is dressage, in which a rider puts his horse through a series of compulsory movements meant to show balance, flexibility, obedience and harmony between horse and rider. On the



Spectators bring blankets, lawn chairs and lunches to dine beside their favorite jumps in the cross country event.

second day, riders take their horses through the endurance test, a steeplechase. On the third day, the horse and rider must traverse a stadium course peppered with jumping obstacles — fences, land banks and water.

"It's a tough sport," says Barbara Lang, competition secretary for the Essex Horse Trials. "It takes a lot of conditioning for both the horse and rider. It takes a lot of training."

### Festival of Champions

Each June, Hamilton Farm hosts the USET's premier event, the Festival of Champions. This four-day festival features dressage, a grueling 50-mile endurance course and show jumping. Some top riders and celebrities often compete in this event; in the past they included jockey Julie Krone and actor Christopher Reeves. (Reeves was seriously injured in a riding-related accident in the spring.) The winners of next year's dressage and show jumping events will head to Atlanta to compete in the Olympics.

Horse lovers have a hard time deciding which of the events is the most beautiful to watch.

"Show jumping is beautiful because of the colors of the jumps — there are lots of flowers — and it's exciting because the horses are jumping and going fast, and

it's easy for a spectator to understand," says Sally Ike, the USET's director of show jumping activities. "I also think everyone can appreciate the beauty of dressage. It really is ballet for horses."

The festival also showcases combined driving. Instead of a rider mounted atop the horse, driving events are ones in which the horse or horses pull a driver in a formal, large-wheeled carriage. The combined driving events are similar to the three-day event. In the dressage phase, the driver must negotiate his or her horse or horses around a pattern at different gaits. The marathon phase puts the horses through miles of timed walking and trotting, culminating in an obstacle course that includes water, fences — although not for jumping — and hairpin turns. In the final phase, called cones, the driver must steer his or her horse or horses around highway cones spaced just three inches farther apart than the wheels of the carriage. To judge accuracy at required gaits and speeds, tennis balls are placed atop the cones and must not be knocked off.

Combined driving is also the focus of the Gladstone Driving Event, held the last weekend of September at Hamilton Farm. This event includes the World Pair Driving Championship and attracts between 10,000 and 15,000 spectators each year.

"It's just very elegant to see the beautifully turned out horses; the carriage is gleaming — not a speck of dust on horse, carriage or rider. It just adds a different dimension to the sport," says Walker. "Then on Saturday, it's jeans and baseball caps, and they go hell bent for leather across country."

If the beauty and excitement of the horses weren't enough, all of the events offer much more. Each has its own festival atmosphere, with trade fairs for shopping, riding clinics, celebrities and other activities. There's also the enjoyment of a warm day, manicured green fields and views that really do take the breath away.

"I've been to a lot of competitions, and this is as beautiful a showplace as I've ever seen," says Ike.

Hamilton Farm is located on Potterville Road in Gladstone, off Route 206. Admission is free when no events are taking place; the entrance fee to some of the larger shows is about \$10. For more information about the Festival of Champions and other U.S. Equestrian Team events, call (908) 234-1251. For information about the Gladstone Driving Event, call (908) 234-0151. For more information about the Essex Horse Trials, call (908) 234-0555.

*by Colleen O'Dea, a freelance writer who lives in High Bridge*

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Almost every weekend, from spring through fall, riders can be seen training.

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A jousting exhibition from Medieval Times takes place at the USET headquarters.



# Gardens

## The Outdoor Apothecary

James Still was known as the Black Doctor of the Pine Barrens. Although he never got a medical degree, he helped to treat residents suffering from common ailments with remedies concocted from local plants.

In the mid-1800s, James Still — an African American and the brother of abolitionist William Still — learned his craft as an herbalist by watching Native Americans and by reading books written by established physicians. One of his mixtures, it is said, was successful in

treating cancer. James Still compiled some of his findings in his autobiography, published in 1877.

Today, one of his descendants, Dr. Cecil Still, a professor of plant physiology at Rutgers University-Cook College in New Brunswick, is following in his footsteps. He is writing his own book, *Medicinal Plants of New Jersey*, to examine the historical and modern day uses of medicinal and edible plants.

### A Plethora of Plants

While no single plant is exclusively native to the Garden State, New Jersey is home to a plethora of plants that were used medicinally. Cecil Still, who has been involved in plant research for

more than 30 years, has found more than 500 species that had some medicinal value in this state.

Weeds, such as dandelions, cattails and plantains, traditionally have been found throughout the state. These plants proved essential for Native Americans and early American settlers.

Dandelions were used for everything from digestive problems to making wine. The leaves were chewed to ease toothaches, and the flowers were used to make a laxative tonic and to enrich the blood supply of anemics. Tea made from young leaves relieved menstrual cramps; tea made from the root of the plant was taken for stomach pains, nervousness, heartburn and chest pains.



MARY O'CONNOR

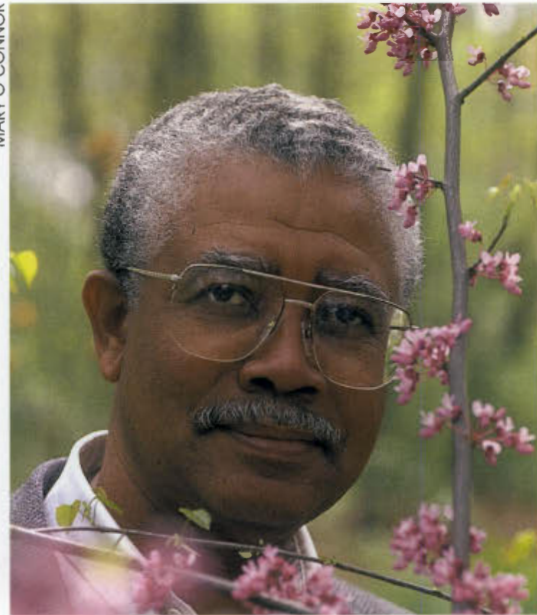
The plantain plant, brought to America by the English, also was known as the white man's foot. This weed, with broad, flat, dark green leaves and greenish-white flowers, was used by Native Americans to treat sore eyes. Mixed as a tea, the plant also was used in infants to treat bowel problems, dysentery and diarrhea. When used in a poultice (a soft, moist mass spread on cloth), plantains soothed burns, blisters, ulcers and insect stings.

"I used it myself," says Cecil Still. "It does a fairly effective job of healing. It's like aloe."

Cattails, members of the *typhaceae* family, typically were found in wetlands throughout the state, growing four to eight feet high. There were two types of



MARY O'CONNOR



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cattails in New Jersey: the narrow-leaved cattail (*Angustifolia*), with its long and narrow green leaves no broader than a 1/2 inch and a cylindrical spiked flower, and the broad-leaved cattail, (*Latifolia*) with its bluish or gray-green leaves up to an inch wide.

Native Americans used the leaves to treat sores, and the stalk was made into a tea as a remedy for whooping cough. The bottom part of the leaf and the dried root were used in a tea to ease abdominal cramps. The root tea also was believed to dissolve kidney stones, to stop bleeding and to heal newborns' navels.

Bleeding hearts (opposite page) is one of nearly 500 plants species in New Jersey that historically was used for medicine.

Celandine poppy (top, left), which came from Europe, was used to treat warts, eczema, ringworm, corns and cancer.

Dr. Cecil Still poses with redbud (top, right).

The root of coltsfoot (center) was part of a compound used in cough medicine.

Native Americans used Jacob's ladder (bottom, left) in compound as a diuretic and cathartic preparation. It also came in handy as a hair and scalp wash.

## The Cure-All

Although a host of other weeds were used as medicine, flowering plants served that purpose as well.

One of the more common plants was sweet flag (*Acorus calamus*), "a cure-all root." It was chewed, smoked or rubbed on the skin to treat most any illness. Growing in colonies in swamps and along streams throughout the state, it was identified by its small greenish-yellow flowers that appeared in spring or early summer.

The sweet flag root was chewed for colds, headaches, sore throats, diarrhea, worms, dropsy, gravel, toothaches, fevers, earaches, tuberculosis, lung ailments, rheumatism and irregular periods. It also helped induce sweat and urination. Today, it is characterized as an antispasmodic and anticonvulsant and also has been found to lower serum cholesterol in animal experiments.

Another plant, chocolate-root (*Geum rivale*), was believed to cure many ailments. A member of the rose family, this plant with its bell-shaped, droopy, or nodding, purple flower was found in wetlands in the far northern reaches of the state.

In the early 19th century, this cocoa-



MARY O'CONNOR

flavored plant was considered a panacea by doctors. Native Americans used it as a tea to cure many ailments, including fevers, diarrhea, dysentery, coughs and colds.

### New Jersey Tea

New Jersey also had its own tea to help cure what ailed early settlers.

Called redroot, this tea was made from a shrub with white flowers found in dry, open areas in the north and inner coastal regions of southern New Jersey.

The tea, used mainly for its medicinal purposes, was a common substitute for English tea before the Revolutionary War. Native Americans used it to cure stomach problems. It also came in handy as a wash for leg or foot injuries,

snake bites and other open wounds.

Another plant used for ailments was fire weed, found in abundance in the Pinelands.

"It's a very attractive plant with dark squarish pink petals," Cecil Still says. "It grows after fires in the Pinelands. The fire allows the seeds to germinate."

When crushed and roasted, fire weed was applied to reduce swelling. A fresh or dried leaf was applied to bruised skin or used to remove splinters. As a dried leaf or root tea, fire weed was used by Native Americans for bowel hemorrhages, sore throats, gastritis and urinary tract problems, among other ailments.

### An Apple a Day? . . .

Persimmon is a medicinal fruit that was found in New Jersey. Grown in dry open areas throughout the state, this orange plum-like fruit was used to treat liver ailments, venereal diseases, thrush and sore throats. The bark of the tree was chewed for heartburn.

Many of these plants are still found in New Jersey, but few continue to be used for medicinal purposes. Cecil Still is hoping to rediscover their varied uses and take us back to a simpler time when people depended on the land for food, water, shelter and medicine.

*Medicinal Plants of New Jersey* is scheduled to be released in 1996 by Rutgers University Press. For more information, call 1-800-446-9323.

by Antoinette M. Ford, a reporter with *The Times of Trenton* and a freelance writer from Washington Township



NEW WAVE PHOTOGRAPHY

Coltsfoot (top) produces a magnificent flower.

Dandelion, which was used for various ailments, is pictured in mouse-eared chickweed (bottom).

# Bowhunting for the Woodlot Whitetail

by Kerry Hart

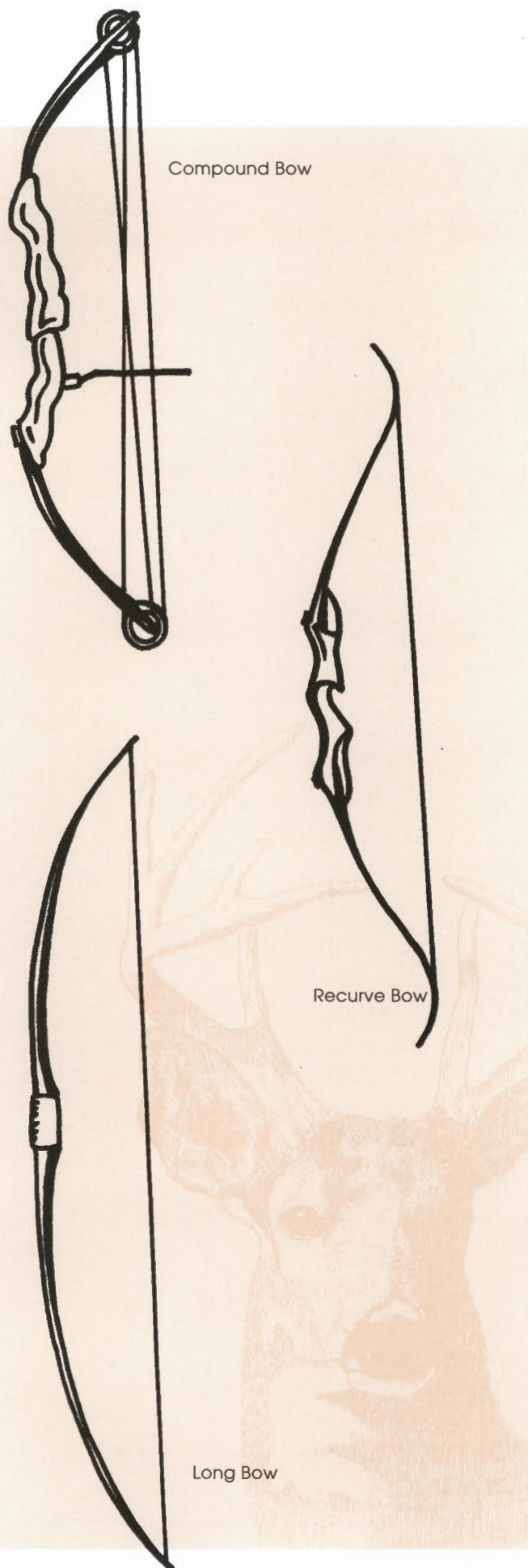
The buck emerged from the tree line near the edge of a golf course, its majestic rack glistening in the early morning light. Off in the distance, a raven cawed loudly, as the buck lifted its muzzle and searched the still air for any hint of danger. A closer look at his rack revealed six perfectly symmetrical points, each tine the thickness of a man's finger.

Unseen, I slowly pulled my 65-pound compound bow back to full draw, settled the pin just behind the buck's shoulder and let it fly. I heard, as well as saw, my arrow strike home. The buck jumped to his left and took off, only to crash heavily to the ground 30 yards away.

I took that buck from a small woodlot in Hunterdon County. At 120 pounds, it meant more to me than larger bucks I've taken with a firearm. I had seen this buck many times during the season and, through a combination of skill and luck, I managed to take it cleanly with one shot.

Most of my bowhunting takes place in western New Jersey, within an hour's drive of my home in suburban Wayne. To the uninitiated, New Jersey may not seem to be prime hunting area. But despite being the most densely populated state in the nation, New Jersey offers surprisingly good hunting, especially for deer. Development in the state has created many small pockets of isolated woods and fields, sometimes connected by low-lying wetlands, where further development is prohibited. These pockets provide ideal deer habitat, offering food, cover and





Compound Bow

Recurve Bow

Long Bow

water. Deer flourish in these areas, often becoming a nuisance to themselves by overgrazing or by venturing on to busy roadways.

With this abundance of deer, a long hunting season and liberal limits, it's easy to see why New Jersey bowhunters enjoy excellent opportunities.

### Where to Bowhunt

Public hunting lands, such as many of the state's wildlife management areas, offer good opportunities for deer. And many private landowners, who cringe at the thought of hunters carrying shotguns on their property, may be more likely to admit a bowhunter, especially if it is one who appears courteous and well-dressed. When seeking permission, be sure to leave off the camouflage gear and the face paint.

Being successful with a bow, even under ideal conditions, requires more than just luck. I've known beginning gun hunters who stumbled across a deer their first day and dropped it with a load of buckshot. But I've yet to hear of a beginning bowhunter doing the same thing. Bowhunting requires deer to be close, usually within 30 yards. Even then, it's all too easy to miss on occasion.

Regardless of where you live, the two most essential ingredients of a successful hunt occur pre-season: practicing daily with your bow and thoroughly scouting your intended hunting area. I usually start shooting seriously sometime in late August. By October, I can keep my groupings tight out to 30 yards, which is the maximum range I will attempt a shot. Early practice sessions with field points are okay, but switch to your hunting points later on, since broadheads often fly to a different point of impact.

### Armed for the Hunt

There are three basic types of bows being used today: compound, recurve and longbow. The longbow is the most ancient and made the English archer supreme before the advent of gun powder. It is simply a slender bow, usually made of wood, that averages 70 inches in length.

Recurve bows are similar to the longbow, but they are generally shorter with curved wooden or laminated limbs. Recurves are able to store more energy than longbows and were once the premier hunting equipment.

Compounds are the newest addition to the archery scene. A compound is handheld like the recurve, but utilizes a system of wheels or cams on the limbs. This reduces the effort needed to hold the bow at full draw by 50 percent or more. Heavier and more complicated than other bows, they are nonetheless highly accurate and are used by the majority of hunters.

Arrows, likewise, have undergone a lot of changes — from wooden arrows with feather fletching used with longbows and recurves to today's aluminum or carbon arrows with plastic fletching or "vanes." The latest arrows can shoot straight to

within .005 inches or less and are extremely durable and accurate.

Broadheads are the business end of the arrow, and they demand the hunter's fullest attention. While selection in the past was limited, hunters now can choose from an array of razor sharp hunting pieces suited to their specific needs. Broadheads usually range in weight between 80 and 145 grains, with 125 grains being the most popular. Lighter arrowheads give you greater speed. Two, three, four and even five blade models are available. Blade models may help with accuracy and penetration of the target, depending on the bow being used and the hunter's style of shooting. Each bow will shoot differently, so it is up to the archer to try several different types of heads. Remember to check your broadheads every few weeks to make sure they don't lose their razor sharp edge.

In addition to the standard equipment, most hunters now employ some sort of elevated tree stand. Portable stands, which attach to trees via chains or straps, increase a hunter's mobility and do not harm trees. Since there are many types of stands on the market, ask other hunters for recommendations.

If you are hunting from a tree stand, it is important to practice from one. Most bowhunters tend to shoot several inches higher when aiming downward at a deer.

Finally, you need a Bowhunters Safety Course and a license to hunt in New Jersey. The courses are offered several times a year at various locations throughout the state. Hunters should also consult the *New Jersey Fish & Wildlife Digest* to get the latest information on seasons and bag limits. For more information, call the Department of Environmental Protection's Division of Fish, Game and Wildlife at (609) 292-9450.

## Scouting Locations

Pre-season scouting should be done well in advance of the regular season. Get out and walk through the woods, carefully noting trails and feeding areas. Look for acorn producing trees or any similar food source that will attract deer. Last year, acorns were scarce, but several old apple trees acted as magnets for deer.

Around October, bucks, or the adult male deer, begin rubbing their antlers against small trees or pawing the ground, creating a "scrape" anywhere from two to six feet in diameter. These signs can tell you when a buck is in the area.

Early in the fall hunting season, female deer, called does, and their young travel together in loose groups, openly feeding in fields and meadows. Bucks tend to stick to thicker cover until the onset of the breeding season (or rut) around the second week of November. Then, for about two weeks, bucks will be out all the time. Locate the doe, and the bucks will not be far behind. This is also the time when a quality "doe-in-heat" lure may be effective. Follow the manufacturer's directions when laying out a scent line and be sure to wear rubber boots to avoid leaving a human scent.

If you are hunting from a tree stand, placing it 10 to 12 feet

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off the ground when the trees still have leaves is sufficient. As the foliage disappears, it may be necessary to climb to 15 feet or more. Always make sure to wear your safety harness.

Even in a tree stand, camouflage is important, although it is sometimes over-emphasized. Unlike firearms hunters, bowhunters are not required to wear the orange safety colors, so often just a drab green shirt and faded jeans will do, especially during the early season. As leaves fall and visibility increases, more effective camouflage is needed. For light complexioned hunters, some sort of face covering is essential because nothing will spook deer quicker than an exposed face. Folklore may say that deer never look up, but in hard hunted New Jersey, they sure do.

One more tip — if you are in the habit of taking a practice shot while hunting, be sure to retrieve it. I once missed a nice deer that had started walking directly toward my stand when it spotted the arrow and stopped abruptly. It stamped its foot, snorted and turned tail. No shot; no deer.

When that first deer finally materializes near your tree, force yourself to remain still. Make no sudden movements that may alarm the deer. Wait until the deer is well within range before drawing your bow. (Most veteran hunters pace off the yardage surrounding their stands using trees and rocks as reference points before they begin hunting.) Make sure you have a clear shot, since even the smallest twig will deflect an arrow. Finally, never shoot an approaching deer. Wait until it turns broadside or is quartering away, maximizing your target area.

The appeal of bowhunting is the challenge it represents. Even with modern equipment, it takes a great deal of patience, skill and luck to be successful year after year. With a bow, any legal deer — buck or doe — is a hard earned trophy.

It's nice to dream about those massive, heavy-racked bucks, but for the average hunter reality usually dictates otherwise. Even on those hunts when no deer are seen, there are few better ways to spend a fall afternoon than watching the evening shadows lengthen over the color-splashed woods.

Kerry Hart is a freelance outdoors writer from Wayne.

# Research

## Common Sense Pest Control

*“Fleas”  
Adam had ‘em*

— e.e. cummings

The signs are all there — you are itching around the ankles, and your cat is scratching more than usual. You suddenly notice “salt and pepper” specks in kitty’s favorite napping spot in the family room. Ugh! They’re fleas.



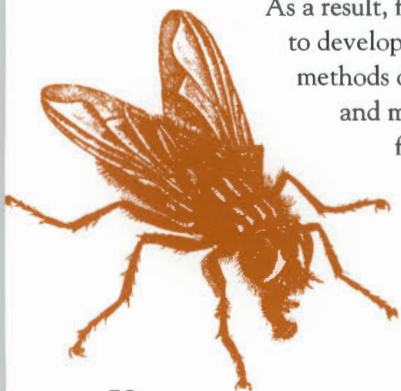
Or, you may sneak into the kitchen for a late night snack. As soon as you flick on the lights, little dark critters scurry for cover. Yuk! It’s an invasion of roaches.

Fleas have been around since the appearance of the first warm-blooded furry rodents. Roaches have been here even longer. But hold it. Before you reach for that can of spray, how about trying a common sense approach to pest control? You may be able to drop that spray can or flea powder for a host of other methods to rid your home of pests.



Called integrated pest management (IPM), this new method got its start in agriculture, where pest resistance to pesticides was becoming a problem.

As a result, farmers had to develop other methods of control and move away from their dependence on chemicals. Today, the public is



becoming more aware that chemicals, by their very nature, can be dangerous, particularly for children and pets, and so IPM has been expanded to control household and industrial pests.

IPM uses physical, mechanical and biological controls, along with sanitation and education, to deal with pest problems. This contrasts with traditional methods, which rely on continued applications of chemicals. IPM allows the use of chemicals, but only after all other methods have failed.

### Identify the Pest

The first step in IPM is to identify the problem. Know your enemy. Read up on the life cycle and habits of your resident pest. It may be obvious that your cat has fleas, but roaches could be another story. Roaches don’t mean you’re a bad housekeeper; they can sneak into your dwelling in bags or boxes from the store or office or in your suitcase after a trip.

“There are four types of roaches common to this area (the German cockroach, the Oriental cockroach, the American cockroach and the Pennsylvania wood roach), each with different habits and survival needs,” says Douglas Mampe, an entomologist and consultant to the New Jersey Pest Control Association. “Knowing the exact identity of the pest will allow you to determine the best methods for its control.”

If you need help identifying the offending creature, contact your local county agricultural extension agent. They’re listed in the phone book under county government. During your visit, you may want to bring a specimen for positive identification.

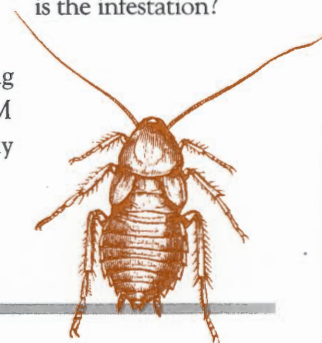
But cockroaches and fleas are not the only pests that

may invade your home. You may be plagued by mice, mosquitoes, ants or flies, to name just a few. Rest assured; many of the IPM methods or concepts may help you.

### Monitor the Problem

The next step in IPM after identification is to monitor the problem. Be a pest detective. Where are the pests most active? How bad is the infestation?

One of the basic monitoring tools in any IPM program is sticky traps. Set up in strategic locations,



IPM uses physical, mechanical and biological controls, along with sanitation and education, to deal with pest problems.

they can give you a good idea of where pests are concentrated, where they are taking shelter and where your pest management efforts should be directed. Later on, they can be used to determine if your pest control efforts are working.

### Control Infestation

Your next step is to establish a course of action to control the infestation. Start with the obvious. How are they getting into your home? What is there that makes them want to stay?



Pests have the same basic needs we do — food, water and shelter. Prevent access to any of these, and you will “stress” the pest. This will discourage them from setting up housekeeping in your home.

You can make changes in your home environment to make it difficult for these pests to survive. Prevent entry by sealing and caulking any cracks where roaches may hide. Install screens in vents and windows. Repair water leaks. Be a fastidious housekeeper. Clean up any spills and food crumbs. Store food in tightly sealed containers. Make sure pet food and water are put away after every meal.

There are also some common household items that can be used to combat pests. Spread chili powder around to stop ants in their tracks; you also can kill them with soapy water or a soapy sponge. To remove insects from your household plants, wash the plants in a weak mixture of soapy water, but be sure to rinse them with clean water when you are through.

To keep a flea situation in check, make sure your pets are clean and well groomed. Limit your pet’s access to certain areas in your home. This will make it easier for you to control the infestation.

*Common-Sense Pest Control*, a handbook for the least toxic pest control solutions for the home, garden and community (see *The Library* on page 55), recommends regular grooming, using a fine-toothed metal flea comb, for removing these pests from cats, dogs and other furry pets. Flick the fleas into a container of soapy water; they’ll sink to the bottom and drown. Keeping track of the number of fleas captured each combing is a good way to monitor the success of your efforts and the status of the population. You also may want to

wash your pet’s bedding once a week.

When used along with other physical controls, a household vacuum cleaner can be an excellent IPM tool. Roaches and their egg cases can be vacuumed out of hiding places under appliances and furniture. When full, remove the vacuum bag, place it in a plastic bag, seal it and discard.

To keep down the flea population, vacuum the carpet and furniture regularly. Steam cleaning or shampooing the carpet will supplement the vacuuming and drastically reduce their numbers.

Let good bugs perform the biological pest control in and around your home. Spiders and centipedes, though repulsive to some people, are predacious creatures that will feed on flies, mosquitoes and other insects that are usually more pesky for you and your family. If you see these beneficial creatures in your home, leave them be and let them do their job.

### Least Toxic First

If you must wage chemical warfare on pests, start with the least hazardous pesticides first. Think about the potential for exposing yourself and your family to these products. Consider not only the pesticide’s toxicity, but also the method of application.

All pesticides products have a signal word on the label indicating toxicity, with “caution” for the least toxic, “warning” indicating a moderate toxin, and “danger-poison” representing the highest toxic levels. But a low toxicity pesticide applied as an aerosol or surface spray may prove to be more of a hazard than a moderately toxic one applied only in cracks and crevices.

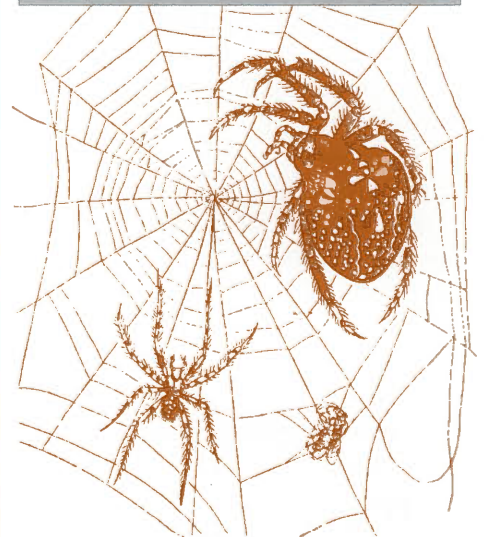
“In general, a good first choice is containerized baits,” says Mampe. “It may be weeks before you see results, but they



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Let good bugs perform the biological pest control in and around your home. Spiders and centipedes, though repulsive to some people, are predacious creatures that will feed on flies, mosquitoes and other insects that are usually more pesky for you and your family.

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## Research

work very well, when used correctly.”

If baits do not work, the next level of chemical control is direct application to cracks and crevices. Only after that has failed should you resort to bug bombs and aerosols. Make sure you are aware of the hazards associated with these applications.

“In the home situation, there should be no need to use these bombs or surface sprays, especially if the other methods of control have been used properly,” says Mampe.

### Hire a Professional

If you find that, despite your best efforts at IPM, the pest population still is intolerable, consider hiring a licensed, professional pest control company that practices IPM. Beware of the person or company that gives you a list of chemicals with an accompanying spray schedule before he or she has thoroughly inspected the site and monitored the situation. A schedule of visits for monitoring the problem should be the norm. Don't sign on the dotted line until you're sure that an IPM claim is not just a marketing tool or an excuse to charge more for the same service.

The New Jersey Department of Environmental Protection's Pesticide Control Program offers a free consumer fact sheet on what to look for in a pest control company. Among its recommendations are to check the following: the company is licensed by the Pesticide



Control Program; it has a good

reputation (talk with neighbors or the Better Business Bureau); it is affiliated with a professional pest control association; and representatives are willing to discuss treatments proposed for your home. They should also provide you with a consumer information packet containing pesticide information, phone numbers for emergencies and health-related questions. To obtain a copy of this fact sheet, call (609) 530-5199.



Keep in mind that

IPM is an ongoing process. It is not a one-time, quick fix solution. It integrates different methods of prevention and control requiring patience, education and your active participation. With IPM, you may not see the dramatic results usually found in chemical sprays. However, long term control has been achieved using IPM methods, without the excessive use of chemicals. It also carries the added benefit of a healthier home environment for you and your family.

So why not give IPM a try. Your home may turn into Eden once more.

*by Carmen V. Valentin, outreach coordinator for the DEP Pesticide Control Program*

## A Pest-Free Government

Beginning this year, the Department of Environmental Protection (DEP) headquarters in Trenton will conduct a one-year pilot program to provide technical and economic information for the possible use of integrated pest management throughout state buildings.

In the wake of concerns over indoor air pollution, Executive Order No. 113 required DEP and a state task force to study the potential for the increased use of IPM by state agencies. The DEP has been using IPM since 1993 and, since then, integrated pest control companies have been hired for some additional state buildings.

The pilot program at DEP will assist in developing model contract language for use of IPM pest control services in other state buildings.

The DEP program will combine the use of pest monitoring, good sanitation practices, appropriate solid waste management, building maintenance and alternative physical, mechanical and biological pest controls.

Chemical pesticides will be used only as a last resort.

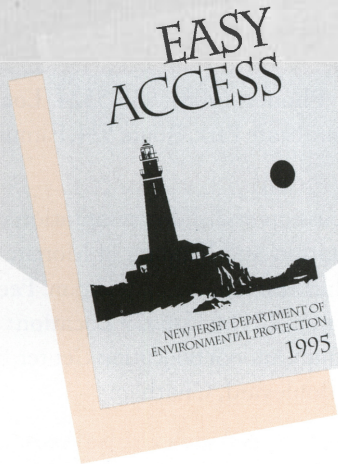


IPM is an ongoing process. It is not a one-time, quick fix solution.



# The Library

**Art on Site: Country Artworks from Maine to Maryland**, by Marina Harrison and Lucy D. Rosenfeld, published by Michael Kesend Publishing, Ltd., is a guide to 48 country sites with artistic displays throughout the Northeast corridor, including Superrealistic Sculptures by Johnson Atelier of Mercerville, The Folk Art and Modern Craft Workshop at Peters Valley in Layton, the Masterworks on Campus at Princeton University and the Art to Enhance Corporate Corridors at Johnson & Johnson in New Brunswick. *The cost is \$16.95. Available from Michael Kesend Publishing at 212-249-5150.*



**The Best of Blueberries**, by R. Marilyn Schmidt, published by Pine Barrens Press, is an informative guide to growing blueberries, including such varieties as high bush, low bush and rabbiteyes. Also includes recipes and information on using blueberry bushes as ornamental plants. *The cost is \$7.95. Available from Pine Barrens Press at 609-494-3154.*

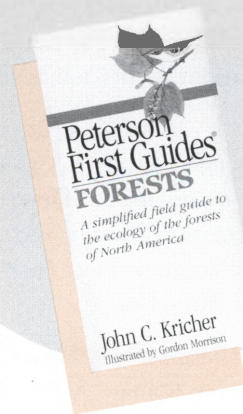
**Camping in New Jersey's State Parks, Forests and Recreation Areas**, by the Department of Environmental Protection's Division of Parks and Forestry, State Park Service, is a directory of cabins, group cabins, lean-tos, shelters, campsites and wilderness camping at the state's public facilities. This booklet also

contains a glossary of camping terms, information on reservation procedures, discounts for the disabled and senior citizens and general rules. *The booklet is free. Available from the Division of Parks and Forestry at 1-800-843-6420.*

**Common Sense Pest Control**, by William Olkowski, Sheila Daar and Helga Olkowski, published by Taunton Press, is a guide to the least toxic solutions for pest control in the home and garden. *The cost is \$39.95. Available at home centers, gardening and landscaping stores and from Taunton Press at 1-800-283-7252.*

**Easy Access**, published by the Department of Environmental Protection, is a booklet that provides an overview of the organizational structure of the department and phone listings for its programs. *The booklet is free. Available from the DEP Public Access Center at 1-800-777-DEP3.*

**50 Hikes in the Hudson Valley**, by Barbara McMartin, James McMartin Long and Peter Kick, published by Backcountry Press, is a guide to 50 known and little-known scenic areas in the Ramapos, the Hudson Highlands, Taconics and Catskills. *The cost is \$14. Available from the New York-New Jersey Trail Conference at (212) 685-9699.*



**A Guide to Health Advisories for Eating Fish and Crabs Caught in New Jersey Waters**, published by the New Jersey Departments of Environmental Protection and Health, is a brochure discussing toxic contamination found in several species of fish or crabs from some state waters. This brochure provides advisories on consumption of certain species as well as preparation and cooking guidelines to reduce exposure to some contaminants. *The brochure is free. Available from the DEP Public Access Center at 1-800-777-DEP3.*

**1996 New Jersey Scenic Calendar**, photographed by J.J. Raia, published by Westcliffe Publishers, Inc., is a 12-month calendar featuring some of the best scenes New Jersey has to offer — from Stokes State Forest to the Pine Barrens — from the collection of a frequent *New Jersey Outdoors* contributor. *The cost is \$10.95. Available from Westcliffe Publishers, Inc. at (800) 523-3692.*

**Peterson's First Guide to Forests**, by John C. Kricher and Gordon Morrison, published by Houghton Mifflin Company, is a guide to the trees, shrubs, wildflowers, birds, mammals, reptiles and amphibians characteristic of the forests in the United States and Canada. *The cost is \$4.95. Available at bookstores or from Houghton Mifflin Company at 1-800-225-3362.*

# Events

## September

### 1 Madame Alexander's First Ladies Dolls

(Through Sept. 30, Thursday through Sunday) See dolls costumed in replicas of the clothing worn by the First Ladies for the inaugurations from George Washington to John F. Kennedy. **Time:** 11 a.m. to 3 p.m. **Fee:** Free; Reservations required **Phone:** (609) 890-3630 **Location:** Kuser Farm Mansion, Newkirk Avenue, Hamilton

**2 Indian Ways** Learn what the Lenape Indians did in their daily lives. **Time:** 1 to 4 p.m. **Fee:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

**2 Smokey Bear's Birthday** Celebrate Smokey's 51st birthday during this annual forest fire prevention seminar. **Time:** Call for information **Fee:** Free **Phone:** (609) 861-2404 **Location:** Belleplain State Forest, Lake Nummy, Woodbine

**2-3 Jersey Shore Volleyball Tournament** (Also Sept. 16-17) **Time:** 8 a.m. to 7 p.m. **Fee:** Spectators, free **Phone:** (908) 506-9449 **Location:** Beach Area, Seaside Heights

**2-3 Planetarium Sky Shows** (Also every Saturday and Sunday year-round) **Time:** 1, 2 and 3 p.m. **Fee:** \$1 **Phone:** (609) 292-6308 **Location:** New Jersey State Museum, W. State Street, Trenton

**2-4 2nd Annual Sandcastle Festival** Sandcastle building, demonstrations and fun. **Time:** Call for information **Fee:** Adults, \$9.95; students and seniors, \$8.45; children ages 3-11, \$6.95; children under 2, free **Phone:** (609) 365-3300 x230 **Location:** Thomas H. Kean New Jersey State Aquarium, Riverside Drive, Camden

**2-4 Sheep Dog Trials** Border collie handlers from throughout the Northeast will put dogs through their paces. **Time:** 10 a.m. to 4 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6-16, \$2; children under 6, free **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**3 Kaleidoscope Kids Family Days** (Also Oct. 1 and Nov. 5) Hands-on workshops for children ages 6-12. **Time:** Noon to 5 p.m. **Fee:** Free **Phone:** (609) 292-6308 **Location:** New Jersey State Museum, W. State Street, Trenton

**3 Laundry Days in the 1830s** **Time:** 1 to 4 p.m. **Fee:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

**3 Sunday Family Planetarium Shows** (Also every Sunday year-round) Shows on the night sky, including laser shows and those for pre-schoolers. **Time:** 2 and 3:30 p.m. **Fee:** \$3 **Phone:** (908) 789-3670 **Location:** Trailside Nature & Science Center, New Providence Road, Mountainside

**3 Sunday Family Program** (Also every Sunday year-round) Nature-related activities for families, including hikes, birding, crafts and more. **Time:** 2 p.m. **Fee:** Donations accepted **Phone:** (908) 789-3670 **Location:** Trailside Nature & Science Center, New Providence Road, Mountainside

**4 1830s Parlor Games & Outdoor Amusements** **Time:** Noon to 4 p.m. **Fee:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

**4 Hikes** (Also Oct. 1, 22, Nov. 12, Dec. 9, Jan. 1) Hike 5, 7 or 20 miles along a flat cinder trail. **Time:** 10 a.m. **Fee:** Free **Phone:** (908) 852-0597 **Location:** Halsey Park Lot, Routes 519 and 626, near Newton (Sept. 4., Oct. 1, 22, Nov. 12); Footbridge Park, Route 94, Blairstown (Dec. 9, Jan. 1)

**9 4th Annual Sailfest Regatta** **Time:** 1 p.m. **Fee:** Spectators, free **Phone:** (908) 929-0011 **Location:** Yacht Club, Island Heights

**9 Seasonal Visitations** (Also every Saturday through October) Astronomy and telescope observations. **Time:** 8:30 p.m. **Fee:** \$1 donation **Phone:** (908) 638-8500 **Location:** Voorhees State Park, Observatory Road, High Bridge

**9-10 Diet Pepsi MS-100 Bike Tour** A 100-mile race from Ramsey, N.J. to Port Jervis, N.Y. **Time:** 8 a.m. **Fee:** Participants, \$40;

spectators, free **Phone:** (201) 967-TOUR **Location:** Ramsey Train Station, Ramsey

**9-10 Sandy Hook Heritage Festival** Traditional shore and farm crafts, food, music and history. **Time:** 11 a.m. to 6 p.m. **Fee:** Free **Phone:** (908) 872-0115 **Location:** Fort Hancock, Sandy Hook

**9-10 3rd Annual Sportman's Field Day** Hunting seminars and state field day championships in archery, muzzleloading and shotgun shooting. **Time:** 9 a.m. to 5 p.m. **Fee:** Free, but nominal shooting fees **Phone:** (908) 735-7088 **Location:** Fort Dix Road & Gun Club Grounds, Range 14, Range Road, Fort Dix

**10 Annual Railroaders Day** Displays, exhibits, live music, shop tours, slide shows, multiple steam and diesel trains and more. **Time:** Noon to 5 p.m. **Fee:** Free; \$2.50 train fare **Phone:** (908) 938-5524 **Location:** Allaire State Park, Route 524, Farmingdale

**10 Butterflies and Butterfly Banding** Discussion and slide presentation on the migration and banding of Monarch butterflies. **Time:** 10 a.m. to 2 p.m. **Fee:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

**10 Dolphin Watch Cruise** Assist marine mammal experts in counting, photographing and identifying bottlenose dolphins along New Jersey's coast. **Time:** 1 to 4 p.m. **Fee:** Adults, \$15; children under 10, \$7.50 (Advance purchase required) **Phone:** (609) 266-0084 **Location:** Princess Cruise Lines, Park Place, Sea Isle City

**10 3rd Annual New Jersey Storytelling Festival** Modern and traditional tales for children and families. **Time:** Noon to 4 p.m. **Fee:** Adults, \$5; children under 16, \$3 **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

**10 Grandparents Day** Cider pressing demonstration. **Time:** 1 to 4 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6-16, \$2; grandparents, free **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**15-17 Becoming an Outdoors-Woman** Hands-on weekend workshop to learn skills for hunting, fishing, shooting, archery, outdoor survival, outdoor photography, camping, backpacking, tracking or bird watching. **Time:** Noon Friday to 12:30 p.m. Sunday **Fee:** \$125 (includes food, lodging, instruction and materials) **Phone:** (609) 893-4646 **Location:** School of Conservation, Wapalanne Road, Branchville

**15-17 Wings 'n Water Festival** Wildlife artists, carvers, photographers and environmentalists. **Time:** 6 p.m. (Sept. 15); 10 a.m. to 5 p.m. (Sept. 16); 10 a.m. to 4 p.m. (Sept. 17) **Fee:** Adults, \$10; children 4-12, \$4 **Phone:** (609) 368-1211 **Location:** The Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

**16 Annual Fall Night Run** A lantern run on the Pine Creek Railroad. **Time:** 6 p.m. **Fee:** \$2 **Phone:** (908) 938-5524 **Location:** Allaire State Park, Route 524, Farmingdale

**16 Fall Birding Hike in New Jersey Highlands** Guided hike through the northern Highlands; learn about warblers and about efforts by the New Jersey Conservation Foundation to preserve this region. **Time:** Call for information **Fee:** Members, \$10; non-members, \$20; reservations requested **Phone:** (201) 539-7540 **Location:** Call for information

**16-17 New Jersey Organic Country Fair** Seminars on growing and cooking techniques, a farmer's market, a garden doctor and more. **Time:** 10 a.m. to 5 p.m. **Fee:** Adults, \$8; seniors and children 3-13, \$5 **Phone:** (609) 737-6848 **Location:** The Stony Brook-Millstone Watershed Nature Reserve, Titus Mill Road, Pennington

**17 Bird Banding** Seminars on techniques of catching and banding songbirds in order to study migration patterns, population changes and more. **Time:** 8 to 9:30 a.m. **Fee:** \$5 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

**17 Budweiser Jet Ski Races** **Time:** 11 a.m. **Fee:** Spectators, free **Phone:** (908) 388-5517 **Location:** Bayfront, Seaside Heights

**17 Cider Pressing Day** (Also Oct. 1, 8, 14 and 15) **Time:** 1 to 4 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6-16, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**17 Fall Family Festival** Musical entertainment, games for children, food and tours of the Hermitage. **Time:** Noon to 5 p.m. **Fee:** Adults, \$5; children, \$1 **Phone:** (201) 445-8311 **Location:** The Hermitage, N. Franklin Turnpike, Ho-Ho-Kus

**17 25th Annual Hey Rube, Get a Tube** Inner tube race and parade. **Time:** Noon, parade; 2 p.m., race **Fee:** Spectators, free **Phone:** (908) 892-5200 **Location:** Point Pleasant Beach

**17 Jersey Shore Sea Kayaking & Bay Canoeing Show** Beginners' clinics, test paddling, bay canoeing clinics, manufacturers' demonstrations, nature cruises and rolling clinics. **Time:** 10 a.m. to 4 p.m. **Fee:** Free **Phone:** (609) 971-3085 **Location:** Berkeley Island County Park, Berkeley

**17 Making Merry: Music, Singing and Dancing in the 1830s** **Time:** 1 to 4 p.m. **Fee:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

**17 Manasquan Reservoir Hike** See waterfowl and upland bird species during this 5-mile hike around the reservoir. **Time:** 10:15 a.m. **Fee:** Free **Phone:** (609) 267-7052 **Location:** Manasquan Reservoir Visitor's Lot, Windeler Road, Howell

**17 North Hunterdon Rotary Triathlon** Competition includes swimming, bicycling and running. **Time:** 9 a.m. **Fee:** Pre-registration: \$50 individual; \$105 relay team; at door: \$55 individual, \$110 relay team; spectators, free **Phone:** (908) 832-2124 **Location:** Spruce Run Recreation Area, Van Syckels Road, Clinton

**17 Wheel to Heel Bike Tour** Bike races of 25, 50 or 75 miles. **Time:** Call for information **Fee:** Participants, \$25; spectators, free **Phone:** (201) 339-1482 **Location:** Liberty Oak Park, Freehold

**17 Wheel 4 Anne** Bike races of 25, 40, 50, 60 or 100 miles. **Time:** Call for information **Fee:** Call for information **Phone:** (908) 225-4827 **Location:** Colonial Park, East Millstone

**20 The Ups and Downs of the Bustle** Victorian clothing; learn how the bustle was used. **Time:** 7 p.m. **Fee:** Free; reservations required **Phone:** (609) 890-3630 **Location:** Kuser Farm Mansion, Newkirk Avenue, Hamilton

**21 Wetlands Management Short Courses** (Also Sept. 22-23, 28, Oct. 6-7, 12, 13-14, and 23-25) Courses focus on different aspects of wetlands delineation, hydrology, plant identification and construction. **Time:** Call for information **Fee:** Call for information **Phone:** (908) 932-9271 **Location:** Cook College Office of Continuing Professional Education, New Brunswick

**23 Grindathon** See how a mill operated in the 1880s. **Time:** 1 to 3:30 p.m. **Fee:** Donation requested **Phone:** (908) 879-5463 **Location:** Cooper Gristmill, Route 24, Chester

**23 Jersey Devil Century** Bike rides of 25, 50, 75, 100 or 125 miles through Cumberland, Gloucester and Salem counties. **Time:** 8 a.m. **Fee:** Pre-registration, \$10; at door, \$12 **Phone:** (609) 848-6123 **Location:** Parvin State Park, Pennsville

**23 Kids Biathlon Sprint** A half-mile run, a two-mile bike race and another half-mile run. Awards presented in three age groups and for top male and female. **Time:** 8:30 a.m. **Fee:** Pre-registration, \$10, late registration, \$12 **Phone:** (908) 830-7260 **Location:** Hiering Avenue and the Boardwalk, Seaside Heights

**23-24 Apple Day** Celebrate the apple picking season. **Time:** 9 a.m. to 5 p.m. **Fee:** Free **Phone:** (609) 924-2310 **Location:** Terhune Orchards, Cold Soil Road, Princeton

**23-24 Jersey Shore Volleyball Association Intergalactic Championship** **Time:** Throughout the day **Fee:** Spectators, free **Phone:** (908) 506-9449 **Location:** Beach area, Seaside Heights

## Events

**23-24 Old Time Barnegat Bay Decoy and Gunning Show** More than 400 exhibitors, including antique decoys, new decoys, duck calling and more. **Time:** 8 a.m. to 5 p.m. **Fee:** Free **Phone:** (609) 971-3085 **Location:** Tip Seaman County Park, Pinelands High School and Pinelands Middle School, Tuckerton

**24 Harvest Festival** Colonial crafts and encampment, demonstrations, live music, kids games, entertainment and food. **Time:** 1 to 5 p.m. **Fee:** \$3 donation **Phone:** (908) 789-3670 **Location:** Trailside Nature & Science Center, New Providence Road, Mountainside

**24 Irish Heritage Day** Potato harvesting, thatched roof demonstrations and special tours focusing on Irish immigrants who worked at the farm. **Time:** Noon to 5 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6 to 16, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**24 Rockport Pheasant Farm Open House** See where almost 50,000 pheasants are raised each year for stocking on public land. **Time:** 10 a.m. to 4 p.m. **Fee:** Free **Phone:** (908) 637-4125 **Location:** Rockport Pheasant Farm, Rockport Road (Route 629), Hackettstown

**24 Seaside Biathlon and Triathlon** Adults sprint in a half-mile swim, 20-mile bike race and 5K run. Awards presented in 14 age groups and for top male and female. **Time:** 7:30 a.m., biathlon; 8:15 a.m., triathlon **Fee:** Pre-registration, \$40; late registration, \$50 **Phone:** (908) 830-7260 **Location:** Hierarchy Avenue and the Boardwalk, Seaside Heights

**24 Walking Tour of Victorian Ho-Ho-Kus** Features some of the older homes in this community, Zabriskie Dam, the first public school and other sites. **Time:** 1 to 3:30 p.m. **Fee:** Adults, \$8; children age 6-12, \$4 **Phone:** (201) 445-8311 **Location:** The Hermitage, N. Franklin Turnpike, Ho-Ho-Kus

**30 Corn Husking** (Also Oct. 7) Help pick and husk this year's corn crop. **Time:** 1 to 3 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6-16, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**30 The Jersey Devil Run** Bike races of 25, 50, 75, 100 or 125 miles. **Time:** Call for information **Fee:** Call for information **Phone:** (609) 848-6123 **Location:** Parvin State Park, Centerton

**30 LBI Chowderfest Weekend** (Through Oct. 1) Chowder cookoffs, a seafood festival, entertainment and a merchant's mart. **Time:** 10 a.m. to 4 p.m. **Fee:** Adults, \$6; children 12 and under, \$2 **Phone:** (609) 494-7211 **Location:** Taylor Avenue Bayfront Park, Beach Haven

**30 Steam Powered Weekend** (Also Oct. 1) Last run of the steam powered engine for the season at Pine Creek Railroad. **Time:** Noon to 4:30 p.m. **Fee:** \$2 **Phone:** (908) 938-5524 **Location:** Allaire State Park, Route 524, Farmingdale

## October

**1 Big "C" Day** Nature walks and clinics, slide shows and beach seining. **Time:** 8 a.m. to 4 p.m. **Fee:** Free **Phone:** (908) 270-6960 **Location:** Cooper Environmental Center, Cattus Island Park, Cattus Island Boulevard, Toms River

**1 Governor's 4th Annual Surf Fishing Tournament** Prizes in several categories and for the largest fish. **Time:** 6 a.m. **Fee:** Adults, \$10; teens 13-18, \$5, children under 12, free **Phone:** (908) 637-4125 **Location:** Island Beach State Park, Seaside Park

**4 Tobacco and Tobacco Products** Lecture and display on the history of tobacco. **Time:** 7 p.m. **Fee:** Free; reservations required **Phone:** (609) 890-3630 **Location:** Kuser Farm Mansion, Newkirk Avenue, Hamilton

**7 Belleplain Beacon** Bike race of 30, 50, 60, 80 or 100 miles. **Time:** Call for information **Fee:** Call for information **Phone:** (609) 390-9184 **Location:** Belleplain State Forest, Woodbine

**7 Fall Festival of Fine Arts and Crafts** See displays, demonstrations and sales of 19th century and contemporary art. **Time:** 10 a.m. to 4 p.m. **Fee:** Adults, \$2; children under 12, free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

**7 LBI Surf Fishing Tournament** (Through Nov. 19) Six week surf-fishing tournament for bluefish and striped bass with more than \$20,000 in prizes. **Time:** Anytime **Fee:** Adults, \$25; children 14 and under, \$15 **Phone:** (609) 494-7211 **Location:** All ocean and bay beaches, Long Beach Island

**7 Watershed Wheeling Bike Tour** Scenic tours of 25, 50 or 100 miles through the South Branch Watershed. **Time:** 8 a.m. **Fee:** \$10 **Phone:** (908) 782-0422 **Location:** St. Paul's Church, Route 31 and Gauntt Road, Flemington

**7-8 Harvest of Quilts Show and Sale** Modern and antique quilts; features the work of Jessie Cantrell. **Time:** 10 a.m. to 5 p.m. (Oct. 7); 9 a.m. to 3 p.m. (Oct. 8) **Fee:** \$3 **Phone:** (908) 899-7326 **Location:** St. Peter's School, Foreman Avenue, Point Pleasant Beach

**7-9 Annual Fall Juried American Indian Arts Festival** More than 150 artists and entertainers, including a hoop dancer, the Aztec dancers, and the Allegheny River Dancers; live buffaloes and wolves. **Time:** 1 to 6 p.m. **Fee:** Adults, \$7; children and seniors, \$3 **Phone:** (609) 261-4747 **Location:** Powhatan Renape Nation, Rankokus Indian Reservation, Rancocas Road, Westampton

**8 American Heritage Festival** Civil War re-enactments, exhibits, lectures, demonstrations, food, music and dance. **Time:** 11 a.m. to 6 p.m. **Fee:** Free **Phone:** (201) 915-1212 **Location:** Liberty State Park, Exit 14B off the NJ Turnpike, Jersey City

**8 Wood Stove Cooking and Cider Making Demonstrations** **Time:** 1 to 4 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6-16, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**14 Civil War Encampment** The 33rd New Jersey Infantry Regiment demonstrates the camp life of Civil War soldiers. **Time:** 1 to 4 p.m. **Fee:** Donation requested **Phone:** (908) 879-5463 **Location:** Cooper Gristmill, Route 24, Chester

**14 Fall at Fosterfields** Fall farm tasks, including blacksmithing, bee keeping, butter making and corn husking. **Time:** 10 a.m. to 4 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6-16, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**14 Fall Foliage Hike** Along the Paulinskill Valley Trail. **Time:** 10 a.m. **Fee:** Free **Phone:** (908) 852-0597 **Location:** Footbridge Park, Footbridge Lane, Blairstown

**14 Pine Barrens Jamboree, Melodies & Memories** Music and traditional crafts of the Pine Barrens. **Time:** 10 a.m. to 5 p.m. **Fee:** Free **Phone:** (609) 971-3085 **Location:** Wells Mills County Park, Waretown

**14 Second Annual Hoedown** Learn country line dancing; fundraiser to benefit the Marine Mammal Stranding Center. **Time:** 6 to 11 p.m. **Fee:** \$12 **Phone:** (609) 266-0084 **Location:** Ocean City Music Pier, 7th Avenue and Broadway, Ocean City

**14 2nd Annual Wildlife Carvers and Artisans Show and Sale** Display and sale of items from local carvers and artists. **Time:** 10 a.m. to 4 p.m. **Fee:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

**14-15 Family Harvest Festival** Pick-your-own apples and pumpkins, hayrides, live music, fresh-pressed cider, barefoot grape stomping, wine cellar tours and tasting. **Time:** 10 a.m. to 5 p.m. **Fee:** Free **Phone:** (908) 475-3872 **Location:** Matarazzo Farms, Route 519, Belvidere

**15 Lord Stirling 1770s Festival** Twenty crafters and traders, 18th century ballads, storytellers, New Jersey's Third Colonial Regiment, cider making, colonial snacks and artifacts. **Time:** 10:30 a.m. to 4:30 p.m. **Fee:** \$1 **Phone:** (908) 766-2489 **Location:** Somerset County Park Commission's Environmental Education Center, Lord Stirling Road, Basking Ridge

**15 Unseen New Jersey** Discussion and slide presentation on the many beautiful places you can visit in New Jersey. **Time:** 2 p.m. **Fee:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

**20-21 Chatsworth Cranberry Festival** Featuring the Pine Barrens historic theme "Stage Coach Days" and bog tours, cranberry goodies, Piney music, arts and crafts and more. **Time:** 10 a.m. to 5 p.m. **Fee:** Fee for tours and parking **Phone:** (609) 859-9701 **Location:** Chatsworth

**21 Blacksmithing** Demonstration by professional blacksmith Andy Drysdale. **Time:** 1 to 4 p.m. **Fee:** Donation requested **Phone:** (908) 879-5463 **Location:** Cooper Gristmill, Route 24, Chester

**21 Chicken and Eggs** How chickens were raised on the farm 100 years ago. **Time:** 10 a.m. to 4 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6-16, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**21 Fall Half Marathon and 5K** Half-marathon or 5K race; awards are presented in eight groups and for top male and female. **Time:** Half marathon, 9 a.m.; 5K, 9:30 a.m. **Fee:** Half marathon, \$15; 5K, \$12 **Phone:** (908) 830-7260 **Location:** Aztec Motel, Ocean Terrace & Sheridan Avenue, Seaside Heights

**21 Fall Stream Cleanup** Help remove litter from waterways throughout the South Branch Watershed. **Time:** 9 a.m. to noon **Fee:** Free **Phone:** (908) 782-0422 **Location:** South Branch Watershed Association office, Emery Avenue, Flemington

**21 Kids Workshops** Blacksmithing, wood working and more, as well as hands-on activities, such as glassblowing and quilting. **Time:** 10 a.m. to 5 p.m. **Fee:** Adults, \$6; seniors, \$5.50; children admitted free with an adult **Phone:** (609) 825-6800 **Location:** Wheaton Village, Glasstown Road, Millville

**21 Tour of the Morris County Parks** Discussion and slide presentation on the many beautiful parks you can visit in Morris County. **Time:** 2 p.m. **Fee:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

**21-22 Halloween Party** **Time:** 9 a.m. to 5 p.m. **Fee:** Free **Phone:** (609) 924-2310 **Location:** Terhune Orchards, Cold Soil Road, Princeton

**22 Authors' Day** Learn about the four authors that made their home at the Willow Mansion at Fosterfields and see cooking over a wood stove. **Time:** 1 to 4 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6-16, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**27-28 Haunted Night Hikes** Stroll through Kateri Woods' pumpkin lit trails as you see and hear the legend of Irish Jack. **Time:** 6:30 p.m. **Fee:** \$8; reservations required **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

**28 Autumn Lantern Tour of the Historic Village** Led by a historical interpreter. **Time:** 6 to 9 p.m. **Fee:** \$5; reservations required **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

**28 Going Batty** Facts about bats. **Time:** 11 a.m. **Fee:** \$4 **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

## Events

**28 A Miller's Halloween** Come in costume for surprises and tricks at the store and Halloween stories. **Time:** 1 to 3 p.m. **Fee:** Donation requested **Phone:** (908) 879-5463 **Location:** Cooper Gristmill, Route 24, Chester

**28-29 Civil War Weekend** Living history encampment featuring infantry drilling, Civil War medicine, cavalry demonstrations and a memorial service for General Joseph Revere. **Time:** 10 a.m. to 4 p.m. **Fee:** Adults, \$4; seniors, \$3; children 6-16, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**29 All Hallow's Eve in the 1830s** An old-fashioned Halloween celebration. **Time:** 1 to 4 p.m. **Fee:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

**29 Historical Ghost Hike** Enjoy ghost stories of train wrecks on this 5-mile hike along the Paulinskill Valley Trail. **Time:** 10 a.m. **Fee:** Free **Phone:** (908) 852-0597 **Location:** Halsey Intersection, Routes 519 and 626, near Newton

**30 Annual Halloween Express** A spooky ride aboard the Pine Creek Railroad. **Time:** Noon to 4 p.m. **Fee:** \$2; children in costume under 12 ride free **Phone:** (908) 938-5524 **Location:** Allaire State Park, Route 524, Farmingdale

## November

**1 Great Pumpkin Sail** Enjoy storytelling, a campfire, sing-alongs and more as you float your carved jack-o-lantern on Echo Park Lake. **Time:** The evening **Fee:** \$5; pre-registration required **Phone:** (908) 789-3670 **Location:** Trailside Nature & Science Center, New Providence Road, Mountainside

**4 Hawks of New Jersey** Discussion and slide presentation on the habits and habitats of hawks. **Time:** 2 p.m. **Fee:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

**8 Embellishments** Accessories used to embellish clothing over the last 100 years. **Time:** 7 p.m. **Fee:** Free **Phone:** (609) 890-3630 **Location:** Kuser Farm Mansion, Newkirk Avenue, Hamilton

**9 Legend of the Leaf Monster** Children celebrate the beauty of autumn with games and crafts and a walk through the woods to identify leaves. **Time:** 4 to 5:30 p.m. **Fee:** \$5 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

**9-10 School's Out** Children from preschool to 8th grade can enjoy special workshop, planetarium shows and more during these days off from school. **Time:** 10 a.m. to 1 p.m. **Fee:** Call for information **Phone:** (908) 789-3670 **Location:** Trailside Nature & Science Center, New Providence Road, Mountainside

**14 Harvest Wreath** Create a wreath from dried flowers and herbs to decorate your holiday table. **Time:** 7 to 9 p.m. **Fee:** \$15 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

**18 Hike and Historical Tour** Enjoy this hike along the Paulinskill Valley Trail or take a car tour of historical sites. **Time:** 10 a.m. **Fee:** Free **Phone:** (908) 852-0597 **Location:** Halsey Intersection, Routes 519 and 626, near Newton

**18-19 Four Sisters Winery 11th Anniversary Celebration** Wine cellar tours and tasting, refreshments and new wine releases. **Time:** 11 a.m. to 4 p.m. **Fee:** Free **Phone:** (908) 475-3671 **Location:** Matarazzo Farms, Route 519, Belvidere

**19 An 1830s Thanksgiving** **Time:** 1 to 4 p.m. **Fee:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

**19 26-Mile Hike** Hike the entire 26 miles of the Paulinskill Valley Trail. **Time:** 8 a.m. **Fee:** Free **Phone:** (201) 728-0110 **Location:** Halsey Intersection, Routes 519 and 626, near Newton

**24 Grand Christmas Exhibit** (Through Jan. 7) How Christmas trees have changed over the years. **Time:** 10 a.m. to 5 p.m. **Fee:** Adults, \$6; seniors, \$5.50; students, \$3.50; children under 5, free **Phone:** (609) 825-6800 **Location:** Wheaton Village, Glasstown Road, Millville

**25 Holiday Hoopla Christmas Bazaar** Unique gifts, crafts and books with nature themes; crafts for children. **Time:** 10 a.m. to 4 p.m. (Sept. 17) **Fee:** Adults, \$4; children 4-12, \$2 **Phone:** (609) 368-1211 **Location:** The Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

**26 Annual Christmas Express** (Also every weekend through Dec. 17) Join Santa for a ride aboard the Pine Creek Railroad. **Time:** Noon to 3 p.m. **Fee:** \$2.50 **Phone:** (908) 938-5524 **Location:** Allaire State Park, Route 524, Farmingdale

**29-30 'Twas the Night Before Christmas** (Also Dec. 1-3 and 6-10) See antique dolls from 100 years ago. **Time:** 6 to 9 p.m. (Nov. 29-30, Dec. 1, 3, 6-8 and 10); 1 to 5 p.m. (Dec. 2 and 9) **Fee:** Free **Phone:** (609) 890-3630 **Location:** Kuser Farm Mansion, Newkirk Avenue, Hamilton

**30 9th Annual Holly Walk** (Through Dec. 3) See Morristown's finest historic house museums decorated for the holidays and enjoy cooking over a wood stove at the Willows at Fosterfields. **Time:** Noon to 4 p.m. **Fee:** Call for information **Phone:** (201) 326-7645 **Location:** Call for information

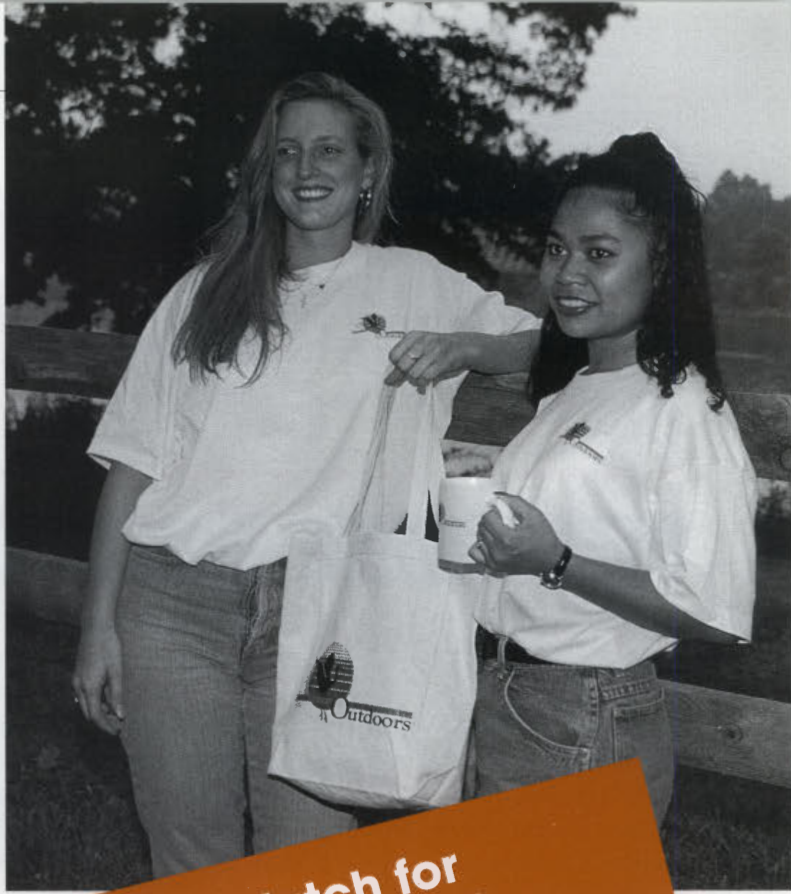
## December

**2-3 Allaire Village Days of Christmas Past** **Time:** Call for more information **Fee:** Call for information **Phone:** (908) 938-2253 **Location:** Allaire State Park, Route 524, Farmingdale

## January

**1 Pine Creek Railroad First Run of the Year** **Time:** Noon **Fee:** \$2 **Phone:** (908) 938-5524 **Location:** Allaire State Park, Route 524, Farmingdale

# Marketplace



- Sweat Shirt featuring the *New Jersey Outdoors* logo of the threatened great blue heron at sunrise. Cotton/polyester blend.
- Canvas Carry-all featuring the NJO logo.
- Baseball Hat featuring the NJO logo. Cotton twill. One size fits all.
- Ceramic Mug featuring the NJO logo. White only.
- Colorful Poster (shown below) featuring fall leaves. 2' x 3'.

**Watch for  
NJO's NEW  
Silk-screened T-Shirts  
and Other Fun Products  
Coming Soon!**

## Poster Blowout Sale!

**Only \$1.50** (half price)

*While supplies last!*



NEW JERSEY  
**OUTDOORS**  
MAGAZINE

### NJO Marketplace Order Form (Fall '95)

- Sweat Shirt (\$24.95)
- Endangered Species T-shirt (\$12.95)
- Fin Whale T-shirt (\$12.95)
- Canvas Carry-all (\$9.95)
- Hat (\$10.95)
- Ceramic Mug (\$4.95)
- Colorful Poster (~~\$3~~) **Sale Price \$1.50**

Adult Sizes/Quantity					Total Quantity	Total Price
S	M	L	XL	XXL		

<input type="checkbox"/>						
<input type="checkbox"/>						<b>SOLD OUT</b>
<input type="checkbox"/>						<b>SOLD OUT</b>

Product sales help support NJO

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

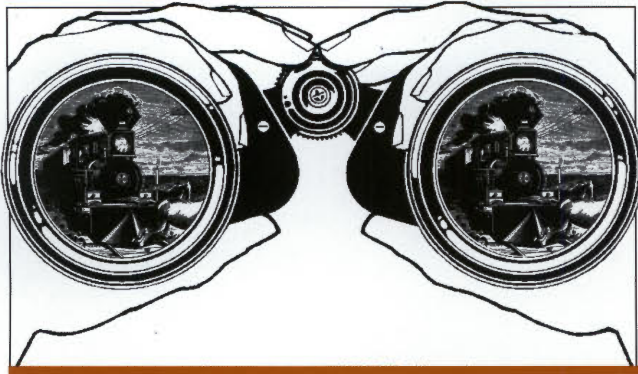
State \_\_\_\_\_ Zip \_\_\_\_\_

Phone (\_\_\_\_) \_\_\_\_\_

Merchandise Subtotal
Shipping (see chart below)
<b>TOTAL AMOUNT DUE</b>

Shipping & Handling Chart	
Orders up to \$3.00 .....	Add \$2.00
\$3.01-\$10.00 .....	Add \$3.50
\$10.01-\$15.00 .....	Add \$3.95
\$15.01-\$25.00 .....	Add \$4.95
\$25.01-\$35.00 .....	Add \$5.75
\$35.01-\$50.00 .....	Add \$6.75
Orders over \$50.00 .....	Add \$7.50

**Send order form with check or money order payable to: New Jersey Outdoors, DEP Bureau of Revenue, CN 417, Trenton, NJ 08625-0417. (Allow 3-4 weeks for delivery)**



# Explorer

## Hey, Explorer!

### Full Steam Ahead!

From the 1700s to the early 1900s, steam helped to power a lot of equipment, including trains that carried people and goods across the country. But did you ever wonder how those steam engines worked?

Most steam engines used the pressure of steam to push a piston up and down in a cylinder. Steam created by boiling water over a fire made from coal, wood or oil.

Steam from the boiler was released into the top of the cylinder by a valve. The steam expanded and pushed the piston down. When the piston reached the bottom, the valve changed position, letting the steam escape and feeding fresh steam into the bottom of the cylinder. This pushed the piston back up. When the piston reached the top, the process began all over again.

Steam engines worked best with high pressure steam. To withstand the pressure, the boiler, pipes and cylinders had to be very strong. In some engines, there was even a condenser to collect and cool the escaping steam. The condenser turned the steam back to water, and the water was returned to the boiler, where it was used again. With a condenser, a steam engine could work longer without running out of water.

The first working steam engine was built by Thomas Newcomen in England in 1712. It was used to pump water from mines. In 1785, James Watt improved Newcomen's design so that the crank could change the up-and-down motion

of the piston into a round-and-round movement. This allowed steam engines to be used to drive machinery, the power behind Britain's mills and factories during the Industrial Revolution.

In 1804, Richard Trevithick used the concept to build the first steam locomotives. The steam locomotives were really nothing more than a steam engine mounted on wheels. The biggest part of the locomotive was the boiler. The cylinders and valves were located on the side of the locomotive, above the front wheels.

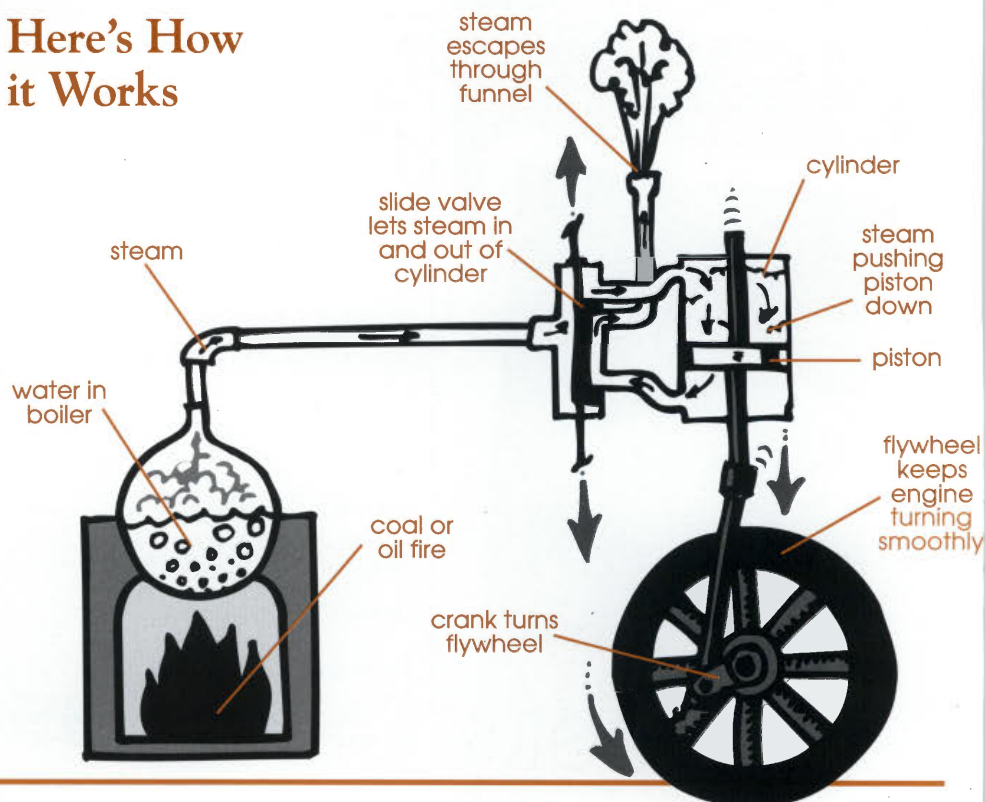
Steam locomotives ruled the railways until the 1940s (for more information on the heyday of railroading in New Jersey,

see "Railroad's Golden Age," on page 12.) But with the advent of electric and diesel trains, the steam locomotive soon became obsolete.

Electric and diesel locomotives are more efficient and less expensive to operate than steam engines, and they are also better for the environment. Because steam engines used coal to stoke the fire, they created air pollution.

New technologies may be even better for the environment. High speed trains of the future will have no wheels, but instead will glide on a cushion of air driven by a magnetic force, a process called magnetic-levitation.

### Here's How it Works



## Stay on Track with This Word Search!

Try to find all the steam power related words hidden in this fun puzzle.

N C S I P F O A P E S N H U N L R M  
 A E N P A E I E I T E O E H E H E L  
 L H I T B T S R W B L H R E E E E E  
 E O T T A I T X E A M U O W R E A F  
 O F C E C I E D W E O K E B H T R E  
 A Y H O N E A A K L N I C W I E P A  
 E N E T M N M O R D E E Y D W T S E  
 B U C R N O M L M A V L R O C O A L  
 O M L A S S T I A Y F A P G P T F T  
 I N C C E T E I U N I O L E Y E L E  
 L E H K A E T P V E Y A E V D E N N  
 E F M S E S H U L E O R N D E I D T  
 R R Y P B E A E O O U E F A G C I S  
 E P T I Y T A G K S O D W N E E T G  
 T I E S F O E N S N P R E E T A D R  
 Y E I T T O A E E H T C F E E O P E  
 E A P O R R R A I L R O A D R J E F  
 U H E N C P O W M O D E L W E H E I

Boiler  
 Coal  
 Crank  
 Energy  
 Engine  
 Fire  
 Flywheel  
 Heat  
 Hero  
 Locomotive  
 Piston  
 Power  
 Pressure  
 Railroad  
 Smoke  
 Steam  
 Tracks  
 Valve

## Fun Facts

The first steam engine was invented by Hero, a Greek who lived in Egypt nearly 2,000 years ago. Hero's engine released steam from spouts and made a sphere spin on its axis. But Hero did not know what he had discovered — his engine was merely a toy that was never put to work.

*by Marvin B. Ross of the Department of Environmental Protection's Environmental Education Unit*

## The Power of Steam

To better understand the power of steam, here is a simple experiment you can try at home. Be sure to ask your parents for help and keep your fingers away from the steam, or you may get a bad burn.

1. Put a kettle partially filled with water on the stove and heat until steam jets out of the spout.
2. Hold a pinwheel so that the steam hits the blades. The force of the steam should keep the wheel spinning.



## Puzzle Solution

U H E N C P O W M O D E L W E H E I  
 E A P O R R R A I L R O A D R J E F  
 Y E I T T O A E E H T C F E E O P E  
 T I E S F O E N S N P R E E T A D R  
 L E H K A E T P V E Y A E V D E N N  
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 R R Y P B E A E O O U E F A G C I S  
 E P T I Y T A G K S O D W N E E T G  
 B U C R N O M L M A V L R O C O A L  
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 I N C C E T E I U N I O L E Y E L E  
 L E H K A E T P V E Y A E V D E N N  
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 R R Y P B E A E O O U E F A G C I S  
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 T I E S F O E N S N P R E E T A D R  
 Y E I T T O A E E H T C F E E O P E  
 U H E N C P O W M O D E L W E H E I

# Wildlife in New Jersey

## The Star-Nosed Mole

Looking as though it just walked off the set of a 1950s science fiction flick, the star-nosed mole is unlike any other mammal on earth.

Classified as an insectivore (although not exclusively) and related to the shrew and hedgehog, the star-nosed mole easily is distinguished by the unique pink tentacles surrounding its snout, an enormous tail and a pair of scaly forefeet as long as they are wide. It also is known as the long-tailed mole, black mole or swamp mole and even its Latin name, *Cronodylura cristata*, refers to its unique features of a long tail and crested nose. It is found throughout northern New Jersey and in the bogs and swamps in the southern and eastern parts of the state.

The tip of its circular snout is fringed with a total of 22 fleshy projections or tentacles (11 symmetrically placed on each side) that serve as sensitive feelers, much like the antennae of an insect or the tongue of a snake. Because its senses of eyesight and smell are so poor, the animal relies on this flat, disk shaped "star-nose" to find food.

The thick, soft fur of the adult is black or blackish brown, gradually becoming paler on the underside. Molting occurs twice a year, in summer and fall. The tail is long, scaly and practically hairless. In winter, it becomes enlarged and serves as a fat reserve for the breeding season. The male and female are equal in size, measuring approximately seven inches long with a three-inch tail, and weighing between 1.4 and 1.7 ounces.

The star-nosed mole does not have external ears, though openings are present and hidden under fur. The eyes are quite tiny, each about the size of the head of a pin, a testament to the mole's poor eyesight.

Adapted to living underground, the

mole possesses powerful shoulders and clawed forefeet for digging tunnels in the soil. In fact, one study claims this species can dig at a rate of seven to eight feet an hour. Its tiny, portly body with dwarfish hind legs enables it to turn around easily in narrow spaces. It is also an expert swimmer and the same broad, flat feet that are so highly specialized for digging serve equally well for swimming. In fact, when used in conjunction with the rudder-like tail, the feet serve much like the oars of a rowboat.

At home in the water and underground, the star-nosed mole prefers damp, mucky soil in wet meadows, bogs, swamps and marshes, and it occasionally is found near ponds and streams. It lives within an intricate network of self-created underground tunnels, which may plummet as deep as two feet, rise suddenly to just below the ground's surface, fall again and end below water level. Mice, shrews and other small mammals occasionally capitalize on the mole's laborious effort, using this series of tunnels for travel.

The star-nosed mole is dependent on water, feeding mostly on aquatic insects, earthworms, slugs, crustaceans and small fish. The mole is preyed upon by red-tailed hawks, owls, skunks, foxes, weasels and snakes. Because of its affinity for water, the mole also may fall victim to pickerel, muskellunge, pike and black bass.

Its nest is a flattened pile of dead grass, straw and leaves about four inches high and six inches in diameter. It is built on elevated ground, usually beneath a log, stump or fallen tree, carefully protected from the threat of flooding.

The star-nosed mole is active throughout the year, day and night. In winter, it burrows in the snow and can be seen scurrying atop the frozen crust. Not a solitary creature, star-nosed moles

live in small colonies of 10 or more. Males and females pair up and will remain together until the young are born. The gestation period lasts 45 days, with three to five young born hairless, pink and blind in May and June. A mere two inches long at birth, their unique nose tentacles already are visible.

The young grow rapidly and reach about two-thirds of their adult size when they leave the nest — fully furred and weighing 1.2 ounces — at three weeks of age. By late summer, they are fully grown. They become sexually mature at one year of age.

Because the chance of sighting a star-nosed mole in the wild is extremely rare, one way to observe its presence is to look for low ridges or mounds created by the animal as it pushes up earth moving through its underground tunnels. Burrow entrances and exits are well camouflaged, so the only way to locate an active tunnel is to gently press down the ridges of earth in several places and later observe which ones have been raised.

The star-nosed mole may become a nuisance by digging in lawns and golf courses. However, these creatures provide benefits, such as devouring insects and aerating soils, that far outweigh any potential disturbances.

Though star-nosed moles have been found in Bergen, Burlington, Cape May, Essex, Morris, Ocean and Passaic counties, their population status is undetermined.

*by Kathy Porutski, a public information assistant with the Department of Environmental Protection's Division of Fish, Game and Wildlife*



WATERCOLOR BY IRENE BOWERS

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The gable of the Hancock House in Hancocks Bridge bears the initials of its first owners — William and Sarah Hancock — as well as the year it was built — 1734. Learn how to restore historic homes in New Jersey in the winter issue of the magazine.

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