

NEW JERSEY Outdoors

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Spring 1995



Celebrating the Twenty-Fifth Anniversary of
Earth Day & the Department of Environmental Protection

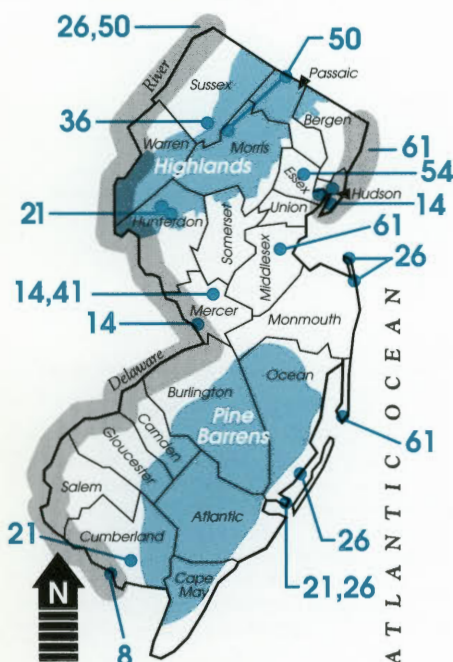
A thistle found
in Green Brook
Sanctuary, Tenaflly



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Front: The Earth is but a tiny sphere in a vast universe as seen in this 1969 photo taken near the Moon during the Apollo 11 mission. As we celebrate 25 years of Earth Day, learn more on page 4 about efforts by the New Jersey Department of Environmental Protection to save this precious planet. *Photo courtesy of NASA*
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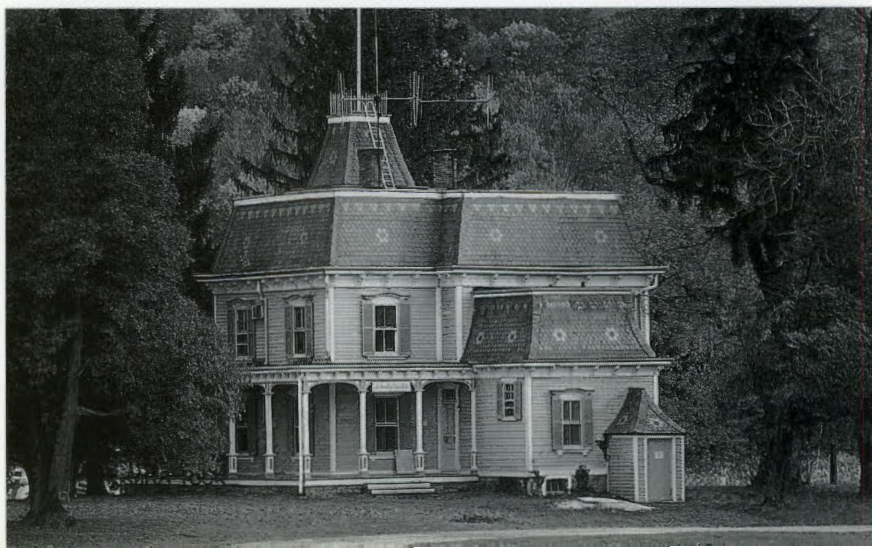
Looking for a career in the environment? Learn about growing opportunities in the environmental field and the best ways to reach your goals.

50 Guided Fishing Tours in New Jersey

by Oliver Shapiro

New Jersey offers a variety of freshwater fishing opportunities, but to find the best places to fish or the best techniques to use, you may want to consider hiring a guide.

This Victorian home, once a clubhouse for the Aeroflex Fishing Club, now greets visitors at the entrance to Kittatinny Valley State Park. See page 36 for more of the natural and historic features of New Jersey's newest state park.



MICHAEL S. MILLER



Christine Todd Whitman, Governor

A Legacy of Protecting the Environment

Twenty-five years ago, we set a course for protecting the natural and historic resources of the Garden State with the creation of the Department of Environmental Protection. Since that day, we have made great strides.

New Jersey has been a pioneer in protecting the air we breathe, the water we drink, and the land where we live. We were the first to establish a statewide mandatory recycling program. We have worked with businesses to clean up contaminated sites. We protected our waterways by adopting laws to control pollution and oil spills. We protect our drinking water supply with vigilant testing standards. And we were the first to inform the public about the storage and production of hazardous materials with the Right to Know law.

Development near freshwater wetlands and the Jersey Coast has been controlled, the Monksville Reservoir was created, underground aquifers were preserved for drinking water, and water quality monitoring programs were established at the Shore.

The quality of our air has improved with emissions to the air decreasing over the last 25 years. We also have aggressively pursued an information campaign on radon, a colorless odorless gas that is found in many homes.

But perhaps our greatest accomplishments can be seen in our natural resources. Since 1970, there has been a resurgence in many rare species, some on the verge of extinction, including the bald eagle, the black bear, the bobcat and the wild turkey. Through Green Acres bond issues and other initiatives like the Farmland Preservation Act and the Pinelands Protection Act, we have protected thousands of acres of open space for our children and grandchildren.

I am proud of the legacy we have left for the Earth in New Jersey, but there is still much to do. I pledge to do all I can to carry out the motto of the Department of Environmental Protection — Let's Protect Our Earth — for the future.



Robert C. Shinn, Jr., Commissioner

Let's Continue Protecting Our Earth

As we celebrate 25 years of Earth Day and the Department of Environmental Protection and the many accomplishments that have been achieved, it is time to set our sights on the next 25 years.

What will New Jersey be like in the year 2020? What issues will arise in the areas of air, water, land and wildlife? The DEP has begun laying the framework to answer some of these long term concerns.

We are beginning the process of developing a plan for our environment. Taking a page from the Netherlands, we will work with the business and environmental communities to establish long term goals to be reached through cooperative efforts.

The Geographic Information System, a statewide computer mapping model, will provide vital information on the location of natural resources, critical habitat and contaminated sites. This system will serve as a basis for future planning, allowing the DEP to look at the "big picture" before making critical decisions.

As development and the population in the state continue to grow, we have begun searching for a stable source of funding to acquire open space. The GIS will allow us to focus our efforts to those areas critical for the preservation of species and the drinking water supply.

The DEP is working with industry to provide a clean and healthy environment. Last year, we issued the first facility wide permit in an attempt to streamline the process, while reducing the amount of pollution generated. Additionally, we started a process to settle our disputes over a negotiating table, rather than in a courtroom.

Together, citizens, businesses and government can establish a vision for the Garden State's environment and set the course for the next century.

State of New Jersey
Christine Todd Whitman
Governor



Department of Environmental Protection

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Commissioner

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New Jersey Outdoors

Spring 1995, Vol. 22, No. 2

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

A Winter Delight

The winter 1995 edition of *New Jersey Outdoors* is truly one of your most informative editions. I especially enjoyed the articles on the Road Rally, American Revolution, Ice Harvesting and Star Gazing.

Keep up the good work of presenting these kinds of interesting and informative articles.

Vincent J. Covello, Jr.
Park Ridge

An Environmental Education

While I was at the library looking for information concerning environmental protection, I came across your magazine. My unfamiliarity with *NJO* led to my curiosity in it, so I began to flip through a few issues.

I would like to take the time to praise your efforts because I believe that this magazine introduces or, at the very least, enhances an understanding and appreciation for nature. More people need to be educated about nature and the environment, and your magazine does just that. I was especially pleased with the fact that *NJO* lists upcoming events, in which people can participate locally.

Please continue the wonderful work you are doing. It is efforts like yours that will help the environment and, for that, I am sincerely grateful.

Sara Kinney
Newton

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.

Aw Shucks — Clams!

The shellfish pictured in "The Ancient Arts of the Baymen" (*NJO*, summer 1994) are definitely not oysters. They look like cherrystone clams. I've fished the Delaware Bay for 25 years and know what an oyster is — those shellfish are clams. When you tong oysters, the tong used is angled differently than a clam tong. A Shinnecock rake won't get you many oysters.

Leonard Lomas
Leesburg

Editor's Note: The shellfish pictured on page 19 of the summer 1994 issue are indeed clams. Thanks for taking the time to call our attention to the error.

Fishing for Stories

As a subscriber for many years, I would like to commend you on the great magazine that you publish. Most articles are very interesting.

The main reason that I am writing, however, is that it appears that you are missing the very point that this magazine originally appealed to sportsmen. I, for one, am interested in articles on fishing and hunting. . . .

This magazine should educate and encourage people to use our resources. Keep up the good work, but remember the above.

Donald L. Loder
Mount Laurel

Editor's Note: *New Jersey Outdoors* remains committed to including articles on hunting and fishing. Our mission is to cover the natural and historic resources of the state — and the many ways to enjoy these resources.

Your Opinion Counts!

Fill Out
& Mail the
Postage-Free

**READER
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Today!

(see inside back cover)

A Champion of Conservation

Donald B. Jones, an avid conservationist who was profiled in the winter 1994 issue of *New Jersey Outdoors* ("The Guardian of Historic Hunterdon"), died on Nov. 12. He was 83 years old.

Jones, a lawyer, businessman and farmer, was instrumental in preserving several historic structures in the state, including Green Sergeant's Bridge, the only surviving covered bridge in the state; the Prallsville Mills, a grist mill along the Delaware and Raritan Canal; and the Locktown Church, an old Baptist church in Hunterdon County. Jones was a member of the New Jersey Conservation Foundation, the Delaware and Raritan Canal Commission, the Hudson River Planning and Development Commission, the Delaware Township and Hunterdon County planning boards, the New Jersey Tidelands Resource Council and the Hunterdon County Shade Tree Commission. He was a true champion of conservation in this state and will be greatly missed.

Let's Protect Our Earth

Earth Day 1970. Amidst the plethora of demonstrations, seminars and teach-ins taking place across the nation on ways to save the planet, state officials in New Jersey gathered to usher in the new era by establishing the Department of Environmental Protection (DEP).

It took only 16 days after the sponsoring bill was introduced in the Legislature for it to be signed into law by Gov. William T. Cahill on April 22, 1970. The new department, which was one of the first in the country to consolidate all state efforts to protect the environment, was formed from units within the departments of Health and Commerce and Economic Development.

"It was a reaction to the public's renewed interest in the environment," says Richard J. Sullivan, DEP's first commissioner. "It took the occasion of Earth Day to accomplish it."

New Jersey had begun to get tough on pollution damaging the environment in the late 1960s by enforcing laws against direct sources of air and water pollution. Although the public's environmental concerns centered on cleanups, the fledgling agency already recognized a new challenge — one which it continues to address 25 years later.

"Just looking at pollution was not enough," Sullivan says. "You have to look at the integrity of the environment. Everything is connected to everything else."

To symbolize this growing awareness, the DEP logo was changed in 1971. What before had been a bird

1970

Department of Environmental Protection (DEP) established.

Wetlands Protection Act is approved to protect marshlands.

1971

The second of seven Green Acres Bond Acts eventually totaling \$1.1 billion is approved to preserve the state's natural and historic resources.



DIV. OF FISH, GAME & WILDLIFE

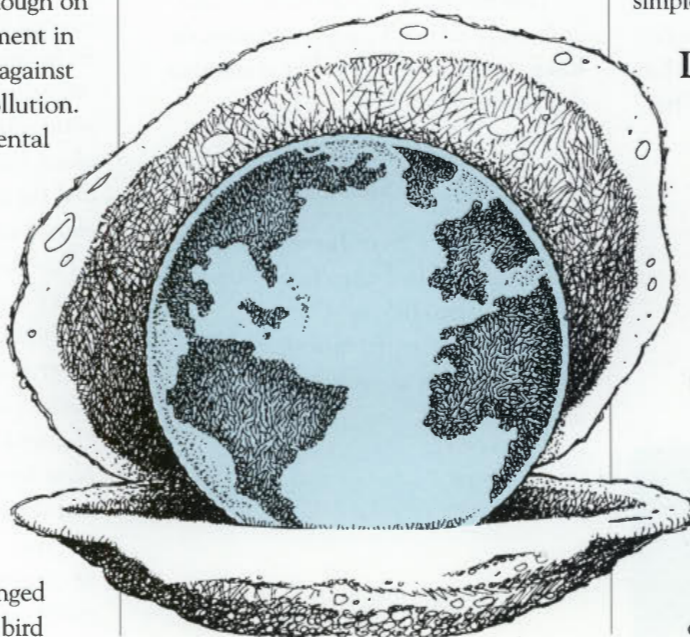
Wetlands Protection Acts have helped preserve marshes and freshwater wetlands for a variety of species.

and a wave declaring "Keep Our Air and Water Clean" became a bird and a wave contained in a globe. The message was simple, "Let's Protect Our Earth."

Land Use Control

During the 1970s, the DEP did just that with several laws addressing land use. These included laws to protect wetlands, the shore and the Pinelands. Voters did their part by supporting the continuation of the Green Acres initiative, which started providing funds for the purchase of parks in 1961.

One example of those efforts took place in 1976, when abandoned piers along the Hudson River waterfront were converted into Liberty State Park, a gift to the nation on its bicentennial.



1973

The Endangered and Nongame Species Program (ENSP) is established to protect and manage rare and nongame species.

The Coastal Area Facilities Review Act (CAFRA) is signed into law to control development along the coast.

"Prior to the DEP, the philosophy of the state was to develop the shoreline. Now it is more along the line to preserve the shoreline," says Bernie Moore, administrator for Engineering and Construction who joined the department when it began.

The Coastal Area Facilities Review Act (CAFRA), signed in 1973, controlled development along the shore by regulating industrial construction and residential developments of more than 24 units along the coast. This helped to protect the state's 127 miles of shoreline, a mecca for the tourism industry and the economy.

The DEP also began steps to protect

1975

The Solid Waste Management Act is passed, delegating solid waste planning to the county level and economic regulation to the Board of Public Utilities.

rare species. The Endangered and Nongame Species Program was born in 1973 to protect and manage species in danger of becoming extinct. Over the years, the program has undertaken projects to restore such species as the peregrine falcon, osprey, wild turkey and bald eagle to the state.

"We have gotten wildlife to be the focus of some of the environmental matters," says Robert McDowell, director of the Division of Fish, Game and Wildlife, who joined the former Department of Conservation and Economic Development in 1967.

The early DEP did not forget its pollution control roots. In 1972, the state introduced a motor vehicle inspection program to control pollutants emanating from cars. It also began to tackle issues like pesticides, noise and

1976

New Jersey creates the first statewide program to clean up hazardous waste sites under the Spill Compensation and Control Act.

solid waste management. And when there was a proposal to drill for oil off the coast, a spill control law was enacted, the predecessor of federal legislation on the same issue.

Growing Responsibilities

As the department moved into its second decade, there were many new issues to address. There was a growing awareness of hazardous waste, which included the identification of Superfund sites.

"As science became more exact, we added more and more disciplines and more and more concerns to the department," says Nicholas Binder of the Municipal Wastewater Assistance Fund, who has worked in the department in its water division since its inception.

New Jersey was at the forefront of these issues nationwide.

"We were setting the standards for the country," says former Commissioner Robert Hughey, who served from 1982 to 1985. "It was hard. You were frequently faced with questions that couldn't be answered."

New Jersey was the first state in the country to adopt "right to know" laws to inform the public about hazardous chemicals and laws to require the clean-up of contaminated properties before they could be sold or transferred. In addition, New Jersey was able to garner much of the federal funding available to clean up



DIV. OF PARKS & FORESTRY

Liberty State Park in Jersey City was a gift to the nation on its bicentennial.

1979

The Pinelands Protection Act is signed into law, protecting this unique natural area from uncontrolled development.

Superfund sites within its borders.

During the mid 80s, the state and the country were in the midst of a garbage crisis. There was trash on the streets, and landfills were closing for lack of space.

New Jersey's answer was the first statewide mandatory recycling program in the country. In 1987, a new law required all municipalities to compost leaves and to recycle at least three other items, including metal, glass, paper, plastic containers, cardboard, newspapers, magazines or high grade office paper. New landfills were constructed, resource recovery facilities were built, and a fund was established to finance litter pickup and recycling programs.

"We had the best programs for solid waste and hazardous waste," says former Commissioner Richard T. Dewling, who served from 1986 to 1988.

By the late 1980s, another crisis washed up on Jersey shores — literally.

1983

The Environmental Cleanup Responsibility Act (ECRA) is passed, requiring industrial sites to be cleaned up before the property can be sold or transferred.

The "Right to Know" Act becomes law, helping to inform employees, residents, DEP and local emergency response officials about chemicals used and stored at New Jersey facilities.

Amendments to the Safe Drinking Water Act make New Jersey the first state to require testing of major water supplies for toxic contamination.

Garbage and medical waste were souring our beaches, and a mysterious virus was killing dolphins offshore. Beaches, critical to the tourism industry, were closed on numerous occasions. This led to a package of bills, called the Clean Ocean Act, that regulated medical waste, sewage infrastructure, combined sewer

1987

New Jersey adopts the first statewide mandatory recycling law in the nation.

The Freshwater Wetlands Protection Act is passed, establishing a systematic review of activities in and around freshwater wetlands.

overflows, marine heads and marine dumping. In addition, New Jersey became the first state in the country to establish a program to test the cleanliness of ocean waters.

New Challenges

The 1990s is bringing its own set of new challenges. Under the federal Clean Air Act Amendments, efforts have begun to upgrade motor vehicle inspections and re-focus efforts on mass transit.

As the economic climate continues to improve, there is a renewed interest in preserving and enhancing our natural resources while maintaining sustainable growth.



MARVIN ROSS



DAVE MCPARTLAND, OFFICE OF ENFORCEMENT

Glass (left) is among the items being recycled in New Jersey.

Volunteers from the Adopt A Beach program, like these children in Loch Arbour (above), have helped clean the state's shoreline since 1993.

1991

The Pollution Prevention Act becomes law, ushering in a new environmental ethic of toxic use reduction and waste minimization as opposed to waste management and treatment.

The Highlands of northern New Jersey, which supplies 50 percent of the state's drinking water, is one area of particular concern. Recent efforts to view our regulatory responsibilities through watershed-based planning currently is being examined as a more effective way to measure actual impacts on water resources.

Through regulatory reform and facility-wide permitting, the state is taking a proactive approach toward reviewing environmental impact and is streamlining the permitting process.

All of these diverse areas take planning. One of the initiatives of DEP's Commissioner Robert C. Shinn Jr. is to develop an environmental master plan to determine how decisions made in the department affect our state. Shinn hopes to base future planning at both the state and local levels on information available through the Geographic Information System, a complex computer model that can "map" key features of the state.

New Jersey also is moving forward toward implementing the approach approved by the Netherlands, which has moved away from "command and control" to a system of establishing long-term emission reduction goals that industry has agreed to meet. Shinn says the state needs to establish a vision for New Jersey's environmental future and to work with industry to meet those goals, which will provide companies with the predictability they need to prosper and the department with the mechanisms to achieve significant environmental gains.

1992

A law is passed dedicating an annual fund of \$15 million from the realty transfer fee for shore protection, including beaches, dunes, bulkheads, seawalls or the acquisition of land.

The DEP submits its first plan under the federal Clean Air Act identifying how it plans to reduce pollutants in the air.

"Our focus is 'big picture' problem-solving and innovation between the department and the environmental and business communities," Shinn says. "The development of environmental technologies will work toward the goals of a healthy economy and environment while attracting environmentally-friendly businesses to the state."

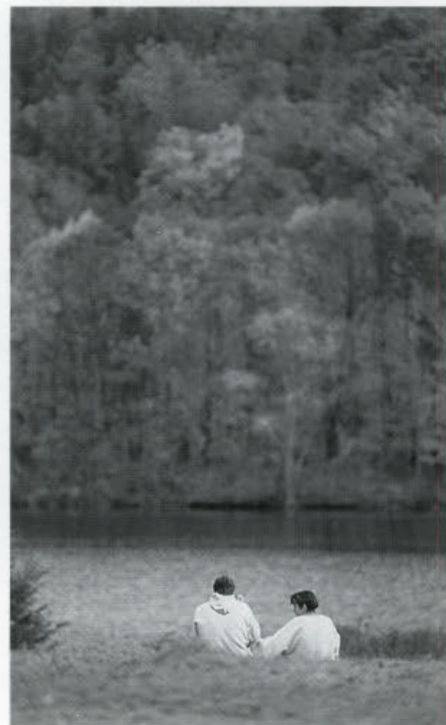
Celebrating the silver anniversary of Earth Day and the birth of DEP, New Jersey citizens can expect the next quarter century of environmental protection to provide new challenges and unique opportunities for improving the quality of life.



1994

Kittatinny Valley State Park opens, bringing the total acreage in the state park system to 308,798.

Kittatinny Valley State Park in Andover (below) is rich in natural and historic resources.



The state is trying to reduce the number of cars on the road (left) to decrease ozone pollution.

The Pinelands in early morning (below).





COURTESY OF MARC BOGLIOLI

Marc Boglioli reflects on his trek across New Jersey on the shore at Cape May Point State Park.

A Funny Thing Happened On the Road to Fortescue

More than 200 miles — and six weeks — after embarking on my walk from High Point to Cape May, I found myself standing at yet another fork in the road. To the right was Newport, a town along the Delaware Bay. Straight ahead was Fortescue, a fishing village on the edge of a state wildlife management area.

Newport seemed like the shorter route and, with six or seven hours of walking already under my belt, that was an appealing prospect. But Fortescue, surrounded by 900 acres of salt marsh and wildlife, beckoned me to take the five-mile detour off the beaten path.

Fortescue, in Cumberland County,

had been highly recommended. It touts itself as the “Weakfish Capital of the World” and is a haven for charter boats in search of white perch, fluke, sea bass, black drum and crabs. The area is open to hunting for small upland game and waterfowl and also is a wintering ground for snow geese. This, coupled with the fact that I was only a few days from the sands of Cape May Point State Park — that tiny green spot on the tip of the map that had drawn me like a magnet since late August — I figured I should tough it out and go all the way to Fortescue. I knew the odds were stacked against the prospect of my ever walking the length of

New Jersey again, and I certainly didn't want to look back with regret knowing that I simply had been too lazy to get the most out of this once-in-a-lifetime trip.

About an hour later, I wondered if I should have just called it a day back at the turn for Newport. I felt like I was walking on a conveyor belt. But just as my hopes started to sink, I saw the beautiful swaying grasses of the salt marshes that border the Delaware Bay, and I instantly thanked myself for not giving up on Fortescue.

Soon, I walked over the bridge into town. The marina was filled with boats, but this certainly was no Seattle. I felt foolish for having such unrealistic expectations for Fortescue. Now I understood what a friend had meant when he described Fortescue as an "authentic" fishing village.

Despite the abundance of boats, I noticed a distinct lack of human beings. As a matter of fact, I saw only one — a little kid riding a bike with a crab trap tied to the back. At one point, the boy got off and started adjusting the trap, tying and untying different pieces of rope. I was struck by his handiness and realized this wasn't exactly suburbia.

The main drag of Fortescue is one of those typical, extra-wide roads that run along marinas. I could view the town's entire length in one glance, a quarter-mile stretch containing three stores. One of the stores was open, and I started toward it. Inside, I learned about a local boarding house called Ruthy's, and I headed off to find a place to rest my head.

On the way to Ruthy's, I ran into a couple of guys talking by their boats. They were the only people around. One of them said that he had passed me on the road while he was driving. (As he spoke, I recognized his car — the ominous black El Camino that had passed me several times on Route 537.) They asked me what I was doing and, no sooner had I told them of my walk across New Jersey, one of them offered me his boat for the night. I couldn't

believe it — talk about a storybook ending to a long, hot day.

I scrapped the plans to go to Ruthy's and gladly accepted Vernon's invitation to his boat — and to empty his cooler.

After Vernon had set up the bow as a bed, I walked back over to the store to use the phone. By the time I got back, dusk was setting in, and Vernon's friend was tending to his crab boat. He was big and burly, with a wind-burned face and curly red hair. He was 30 and had already been crabbing for a decade.

"When I first started out," he said, "I thought I'd be a millionaire in ten years. Ten years later, I'm still not a millionaire yet."

Apparently, the last couple of years were lean ones for the crabbers on the Delaware Bay. The weathered crabber wasn't really sure why, but one thing he did know was that he wasn't making much money for the incredible number of hours he was working.

"That's the only thing I've gained in ten years. That truck and this," he said, pointing to his boat. "But I'm happy. I like the work." Before long, the crabber rode away in his truck. I never knew his name, and I knew I would never see him again, but I doubted that I would forget him.

As darkness fell, the world was turned over to the creatures of the night, and I prepared for bed. Strange screeches and cries drifted over the marsh, and the boat rocked softly on the receding tide. Before long I was enjoying a peaceful sleep.

Unfortunately, the remainder of the night did not proceed so smoothly. It started to rain hard sometime after I fell asleep, and all night long the boat was tossed against the pilings as I tried to dodge drops of water.

I was up and packing by 8 a.m. Outside, one of the worst storms to hit Fortescue in years — the Great Nor'easter — forced me to call off that day's walk. I spent the day relaxing at Ruthy's, drinking tea and drying out. Compared to the previous night, I was living in the lap of luxury.

Strange screeches and
cries drifted over the
marsh, and the boat
rocked softly on the
receding tide.

That night I joined Ruthy, her boyfriend and a neighbor, Chris, for dinner. We all had a good time and, at the end of the night, Chris invited me to his place for breakfast.

In the morning, Chris was waiting, oatmeal ready, when I arrived. In his late twenties, Chris was smart and interesting. We talked about all kinds of stuff over breakfast, and he offered me a ride out to the main road to Cape May to save me the five miles of back tracking. I loaded my gear into his jeep, and off we were.

Chris wasn't the average person one would expect to find living in a town like Fortescue. He was young, single and not a native. What could this whisper of a town have to offer him? (It was a 20-mile drive just to see a movie in Fairton.)

Nevertheless, while he drove, Chris talked about how much he enjoyed living in Fortescue. He wanted to live in a place where the natural surroundings would provide him tranquillity, and his neighbors would be plain-talking and down-to-earth. For Chris, Fortescue was that place.

Riding along, listening as he pointed things out along the way, I began to envy Chris. I hoped that some day, even if just for a little while, I might feel as content someplace as Chris felt in that little fishing town tucked away in the marshes of the Delaware Bay.

by Marc Boglioli, a graduate student at the University of Wisconsin and a freelance writer who grew up in Hunterdon County

Conservation Officer Tim Cussen helps a youngster with his catch.



ALIVANY, DIV. OF FISH, GAME & WILDLIFE

Protecting New Jersey's Wildlife Resources

by Adam Turow

Today's conservation officers are part police officer, part detective, part wildlife specialist, part public relations manager and part educator.

The conservation officer of the 1990s has a set of duties much more varied than the public's perception of a game warden. In days past, conservation officers removed dead deer from the roadways, inspected crops for damage and coordinated the state Hunter Education Program. But now they are more specialized in law enforcement. In fact, they must complete a New Jersey State Police or municipal police training program before

Conservation Officer Frank Virgilio checks a hunting license during bow season.

they are appointed in order to enforce federal and state laws within New Jersey.

That is a tall order in a densely populated state that covers 7,500 square miles. In fact, there are only 50 full-time conservation officers and 90 part-time volunteer deputies to oversee the activities of 125,000 licensed hunters and 250,000 anglers in the Garden State.

Don Cole of the North Region of the Division of Fish, Game and Wildlife's (DFG&W's) Bureau of Law Enforcement is a typical example of a modern day conservation officer. Cole's patrol area covers almost 400 square miles in Hunterdon County, a county with some of the highest quality habitat in the state.

"It's no secret we don't have enough people to place behind every tree to catch every violation," Cole says.

"Most of my apprehensions occur as a result of calls from the public, which I rely on a great deal."

In addition to the traditional roles of checking licenses and making sure bag limits are observed, Cole gets calls ranging from trespassing offenses to dog shootings to poaching to nuisance game animals. As a result, his daily routine is extremely varied, often requiring him to work long and odd hours.

Each conservation officer writes about 200 citations a year, most of these hunting and fishing violations, such as improper licenses, stamps or permits. Fishing without a license is the most common offense.

Educating the Public

But a majority of the stops and checks are not for violations. In fact, they are a good opportunity to educate the public.

"Most people become a little nervous and intimidated when approached by an officer in uniform, but they quickly relax after realizing they are not doing anything wrong," Cole says. "(They) engage us in conversations on a variety of outdoor issues and topics that are beneficial to both of us."

Many hunters and anglers get valuable insight from conservation officers. These officers know about the fish and wildlife in



LAURIE PETTIGREW, DIV. OF FISH, GAME & WILDLIFE

the area, discuss wildlife management, share information on activities sponsored by the DFG&W and update sportsmen and women on recent changes to fish and game rules and regulations.

In return, hunters and anglers often share information on illegal activities in the area or rare species that are sighted.

Educating the public is one of the biggest challenges facing the DFG&W.

"We need to continue to educate the hunting and non-hunting public about the basic principles of natural resource management, and the role hunting plays in wildlife management," says Rob Winkel, chief of the Bureau of Law Enforcement at the DFG&W.

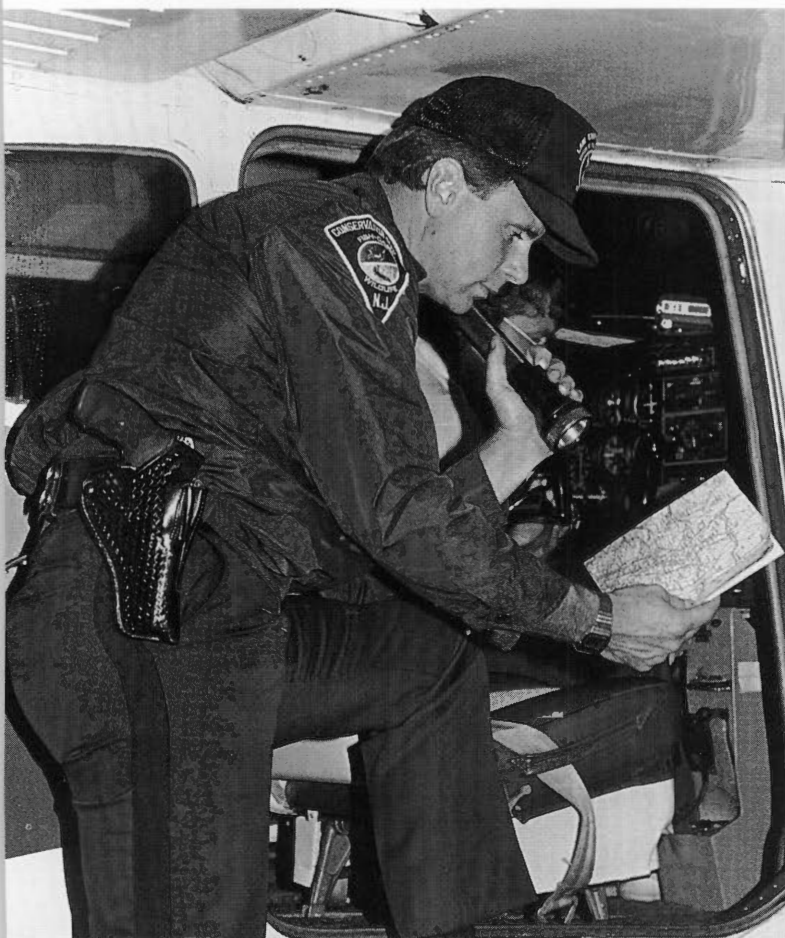
Deer hunting is a prime example.

"We have experienced an increase in hunter and homeowner conflicts," Winkel says. "On one hand, we have residents who do not want to hear a gunshot within two miles of their homes. On the other hand, we have deer populations that need to be controlled right next door."

Stewards of Wildlife Habitat

In addition to their other duties, conservation officers are responsible for patrolling and enforcing the law on New Jersey's

Conservation Officer Glenn Hawkswell prepares for an aerial surveillance for illegal hunting activities.



LAURIE PETTIGREW, DIV. OF FISH, GAME & WILDLIFE

Conservation Officer Joe Meyer of the Marine Enforcement Unit checks crab pots.



designated wildlife management areas, which cover 210,000 acres throughout the state. In the fall and winter, these areas are popular destinations for hunters; in the spring and summer, they also receive a lot of use from other outdoor adventurers.

"The conservation officer's duties resemble that of a park ranger, providing information, maintaining good public relations, responding to emergencies and enforcing rules and regulations that are not wildlife related," says Captain Bruce Young of the South Region office.

A conservation officer's work is extremely varied. Many patrol at night for illegal hunting or fishing activities. Some are up before dawn checking turkey hunters or responding to complaints. Others spend time on lakes, streams, rivers and reservoirs looking for violations of fishing laws.

The daily activities of conservation officers vary across the state, depending on the region, habitat or species of fish or game present in a given area.

Officers in the South and Central regions may get involved in the enforcement of non-game and endangered species laws because of the illegal taking and sale of certain rare species of snakes, turtles and salamanders for the pet trade. These areas also feature prime waterfowl habitat, leading to a greater enforcement of migratory bird laws.

Marine Fisheries Enforcement

There is also a Marine Enforcement Unit. This regional office, located in Atlantic County, handles enforcement of recreational saltwater fishing activities along the bays, rivers and coast as well as commercial fishing activities offshore.

Laws governing the taking of finfish are more complex and change more rapidly than their freshwater counterparts. In fact, the marine unit is currently revamping its operations as a result of new federal laws and regulations on migratory marine species.

"During this time of year (spring), we begin to look for people taking striped bass illegally with nets, to check size and bag limits from the first weakfish runs on the Delaware Bay, and to make sure that fluke are not being taken before the season opens in May," says Captain Edward Markowski of the Marine Unit. "Other activities we engage in include patrolling the waterways for illegal clamming activities and conducting flights in conjunction with the U.S. Coast Guard to determine compliance with the state's two-mile, no trawling line law to make sure that boats operating between the two- and three-mile line are licensed and obeying regulations."

Add to those duties, checking lobster boats for undersized

Out in the Field

Following is a list of field offices for the Division of Fish, Game and Wildlife's Bureau of Law Enforcement.

■ North Region

RR 1, Box 383
Hampton, NJ 08827
(908) 735-8240

■ Central Region

Box 386
Clarksburg-Robbinsville Road
Robbinsville, NJ 08691
(609) 259-2120

■ South Region

220 New Brooklyn
Blue Anchor Road
Sicklerville, NJ 08081
(609) 629-0555

■ Marine Unit

P.O. Box 418
Port Republic, NJ 08241
(609) 748-2050

Conservation officers patrol and enforce the law on 210,000 acres of wildlife management areas.

catches and monitoring on a daily basis a shellfish resource recovery program which permits clams from polluted waters to be relocated for future harvest.

Today's conservation officer is a multi-talented individual charged with a very important mission — possessing knowledge in a variety of disciplines and having an extremely diverse set of responsibilities. Although the officer has become much more specialized in law enforcement and police work, he or she is just as likely on any given day to engage in activities that resemble the duties of a teacher, a wildlife manager or a corporate public relations officer.

So the next time you see a conservation officer or deputy in the field, make a point to introduce yourself. By doing so, you may get some hot tips on the best places to hunt and fish in your area and some insight into the economic and aesthetic values of a well managed and protected wildlife resource.

Adam Turow is a freelance writer and photographer from Parsippany.

Volunteering for Conservation

When the deer season is in full swing or the fish are running, a group of dedicated volunteers hang up their guns, bows and fishing poles to help preserve the state's wildlife.

There are 90 volunteer deputies in the state who work side by side with paid conservation officers. Many put in hundreds of hours each year patrolling the woods, fields and waterways around the state, searching for violations of hunting and fishing laws as well as educating the public about the state's conservation efforts.

"I guess I wanted to give something back to the conservation movement," says Constantine Kiamos Jr., a state corrections officer from South Jersey and a volunteer deputy for 12 years. "If we don't take a stand and enforce the laws, there won't be any hunting in the future."

Greg Szulecki, a self-employed contractor from Manalapan, grew up hunting, fishing and trapping. He uses his experiences in the field to help track down those who would break the law. He hopes some day to become a full-time conservation officer.

"We have a strong commitment to preserving the resources of the state," Szulecki says. "Lots of times,

people see us as the bad guys. . . . If it wasn't for us being out there, they wouldn't be able to do what they do."

Volunteers must undergo the same rigorous law enforcement training given to the full-time conservation officers, including qualifying with a firearm four times a year. In addition, they must supply their own uniforms and sidearm and be willing to patrol at least 80 hours a year.

For many volunteers, it is an investment in the sports they love. For them, it is ensuring the opportunity will be available for the generations to come.

"You try to get people to understand what conservation really means," says John Manfredi of North Brunswick, a deputy since 1977. "You are doing your part for conservation and nature. . . . You are taking care of nature, the land and all the natural resources."

For more information about becoming a volunteer deputy, call the Division of Fish, Game and Wildlife at (609) 633-3616.



Ray Dandridge of the Newark Eagles, 1942. One of the greatest third basemen in history.

FROM HATTERS TO HITTERS

An English Woodcut depicting BASE-BALL in 1744.

That Old Ball Game in New Jersey

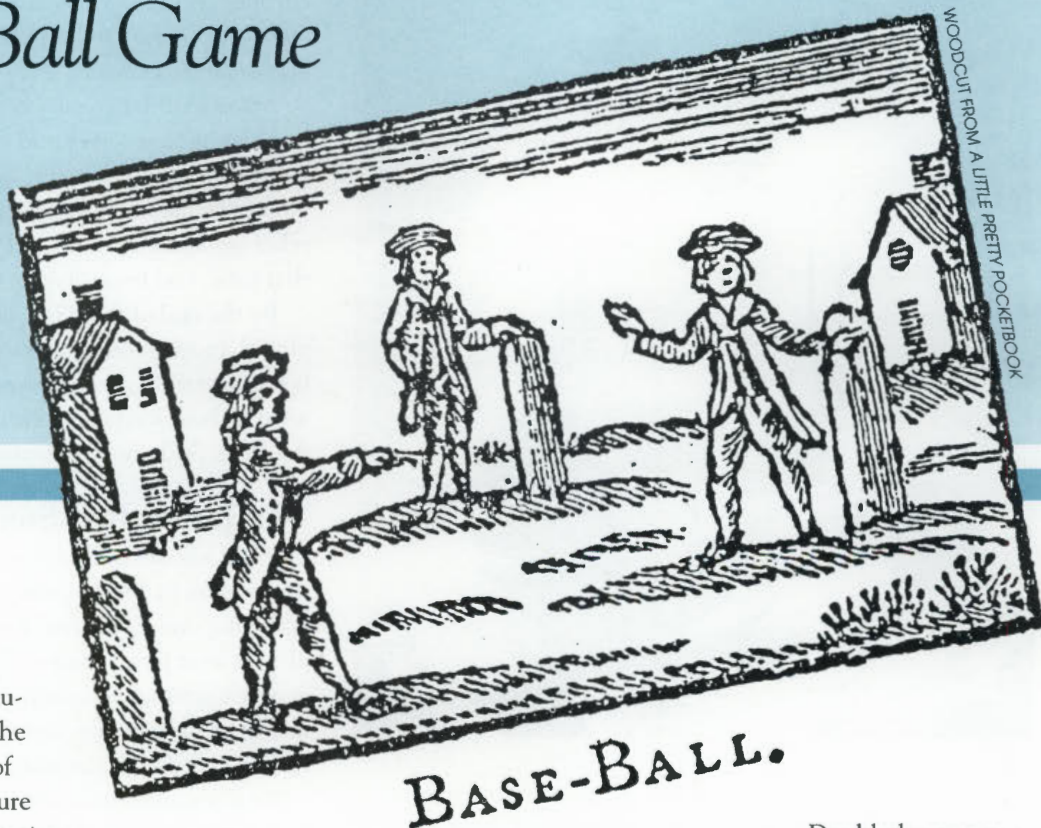
by John T. Cunningham

Off season, that dreadful period between the World Series (or an August strike) and spring training, is the time baseball fans argue the merits of past seasons, present players and future prospects. It's the time to compare statistics or to spout arcane questions and opinions on radio call-in shows, as if baseball were merely an extended trivia game.

Sooner or later, usually later, someone might wonder who "invented" baseball, the so-called "great American game." Actually, no one invented this pastime; it is as natural an activity as little boys and girls throwing small objects (preferably round) at one another or fending off the object with long wooden sticks. The "American game" didn't even begin here — a woodcut pictured in a 1744 book published in London shows boys playing BASE-BALL.

If there must be an American beginning, focus on Oct. 21, 1845. That day, young idlers from Brooklyn and New York met on the cricket grounds at Hoboken's Elysian Field to play the first game of baseball under complex and enduring rules devised by New York bank clerk Alexander Cartwright.

The persistent myth that Abner Doubleday brought baseball into instant being in 1839 dies slowly, and even Cooperstown's (Baseball) Hall of Fame doesn't believe it any more. Briefly, the story was concocted in 1907 by organized baseball as it sought solidity, then reinforced in 1939 on the "100th anniversary" of baseball's "beginning."



BASE-BALL.

Doubleday was a West Point cadet in 1839, not likely to be granted a summer furlough, even for so important a deed as inventing baseball. In fact, he was not even in Cooperstown that summer, and in the 60 or so diaries that he left, baseball was not mentioned once.

Until that October day in 1845 in Hoboken, "baseball" was largely a frantic exercise for any number of young men (from two to forty or more) randomly hitting or chasing the ball until they or the flimsy sphere wore out. It was aimless and scarcely the kind of thing young, upper middle class doctors, lawyers, brokers and top level clerks should be doing on a fall afternoon in a time when almost everyone else worked.

Order to the Game

Cartwright brought order to the game. Most important, his playing field was a diamond, with bases set on the four corners, 90 feet apart. That rule alone was remarkable; the 90-foot spacing has never changed, and anyone who ever saw Jackie Robinson racing from home to first on a slow infield grounder knew he would be safe or out by a split second in what sports writers call "the game of inches."

Princeton graduate Moe Berg of Newark. Played 15 years in the major leagues, spoke eight languages and was an American spy during World War II.

COURTESY OF THE NEWARK PUBLIC LIBRARY



Other enduring Cartwright rules still control the game: each team has nine players; each player has a prescribed position and bats in rotation; three strikes are an out; three outs comprise an inning; and each team must have equal innings. It was baseball, American style, not English “rounder,” cricket or variations thereof.

Cartwright’s rules have been picked at and amended for 150 years, but never abandoned as baseball’s backbone. Only the pitching rules have undergone significant change, from Cartwright’s underhand pitch 45 feet from home plate to today’s varied overhand throws 60 feet, six inches from home base.

The first Hoboken ballplayers had no intention of instituting a game for everyone. They saw their sport as an upper class preoccupation, too advanced for the working masses who didn’t get weekday afternoons off. Still, if anyone asked for the rules, Cartwright sent them.

Soon, exclusivity vanished. By 1860, more than 130 teams, comprised mostly of manual laborers and immigrants with speed and good muscles, played Cartwright (or “New York”) baseball. Self-styled aristocrats usually organized the teams, supervised practices and arranged Saturday games.

The College Circuit

Surprisingly, because of its distance from New York, the College of New Jersey (later Princeton University) led the way, almost entirely because three young men, identified in Princeton sports history as “L.W. Mudge, H.S. Butler, and H. Sampson,” enrolled in 1858. Mudge, Butler and Sampson happened to be one-third of the vaunted Brooklyn Stars, one of the nation’s best organized teams.

Seton Hall University became the second college to take up baseball in New Jersey and the first to play an intercollegiate contest, edging Fordham, 20-16, on Oct. 22, 1863. Rutgers University did not have an official team until 1870 when, among other ignominious things, it lost to Princeton, 47-7. Princeton, by that time, had been playing the college circuit for six years.

By the end of the Civil War, baseball had become a disciplined, tough — and thoroughly democratic — sport. Young laborers used their splendid physical conditions to advantage. Soon some of them accepted money to play ball, seeing no reason to reject the offers. Such moral dithering was for college boys.

The Jersey Red Stockings?

The Cincinnati Red Stockings became the first fully professional team in 1869, touring the nation and winning 50 games and tying one. *Cincinnati Red Stockings?* Three of the nine players were Jersey men — Doug Allison, 22, a Jersey City marble cutter and catcher; Andrew Leonard, 23, a Newark hat maker and left fielder; and Charles Sweasy, 22, another Newark hatter and second baseman.

New Jersey seemed destined to supply players for major teams, as typified by Camden and Trenton minor league teams organized in 1883. The Camden Merrit, named for state senator Albert Merrit, sent most of its players to a Brooklyn organization, a predecessor of the Brooklyn Dodgers.

Comparing 19th century players with modern players is difficult because of the changes in pitching rules. Pitchers also learned to throw curves, that bugaboo of most hitters through all generations.

There is solid reason to believe F.P. Henry of Princeton’s Nassaus may have been the first curve baller; the *New York Clipper* reported in September 1863 that Henry’s slow pitches had “a great twist.” Later, in 1876, another Princeton hurler, J.M. Mann, worked out a theorem on why a ball curved — a simple matter of velocity and atmospheric pressure, he wrote. Batters found no clues on how to overcome the velocity and pressure.

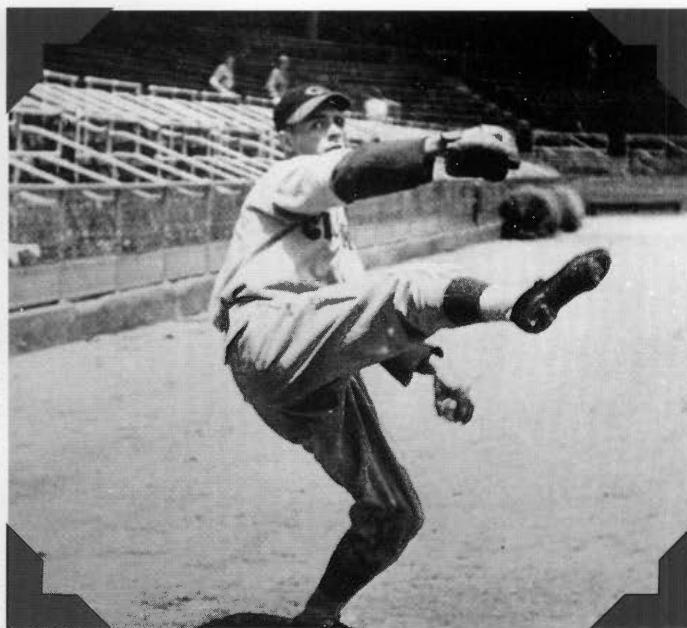
Many 19th century New Jerseyans certainly would have starred under any rules. Three must suffice to underscore the point — Mike Kelly, erstwhile Paterson mill hand, and Billy Hamilton and George Stovey of Newark. They played in different ways and in sharply contrasting social conditions.

Undoubtedly, the most controversial and most exciting 19th century big leaguer was Michael (King) Kelly, a Paterson

Amateur teams parade before the opening game for the Newark Peps in 1915.



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COURTESY OF THE NATIONAL BASEBALL LIBRARY, COOPERSTOWN

Johnny Vander Meer of Midland Park pitched consecutive no hitters in 1938

loomer until Cincinnati signed him in 1878. His rambunctious, skillful play on the field was matched by incessant off field partying and gambling. He lasted for 16 major league seasons (with Cincinnati, Chicago and Boston), had a lifetime batting average of .308 (.388 in his peak year) and became such a spectacular base stealer that a songwriter memorialized him in a popular song, "Slide, Kelly, Slide."

Kelly had a song and charisma, but Hamilton had far better statistics in 14 seasons after Kansas City hired him in 1888. Billy batted .344 lifetime, and his 915 stolen bases were almost three times as many as Kelly pilfered, earning him the telling nickname "Sliding Billy." He and Kelly made the Baseball Hall of Fame at Cooperstown.

For a time it seemed the "American game" might encourage black players, such as George Stovey, who in 1887 was headed for stardom with the New York Giants. A smooth left hander, minor leaguer Stovey had won 30 games for Jersey City in 1886 and had a 33-14 mark in 1887 when he pitched for Newark. His catcher at Newark, Moses (Fleet) Walker, had played 42 games at Toledo in 1884, making him the first black major leaguer.

Cap Anson, the adept Chicago first baseman, made himself a redneck hero when he threatened to pull his team off the

field if Stovey pitched against his team in an exhibition game at Newark in the summer of 1887. The pitcher was ordered to "rest his arm." Later that season, when the Giants sought Stovey, Anson revived this threats. Thereafter no black player made the big leagues until Jackie Robinson signed in 1946.

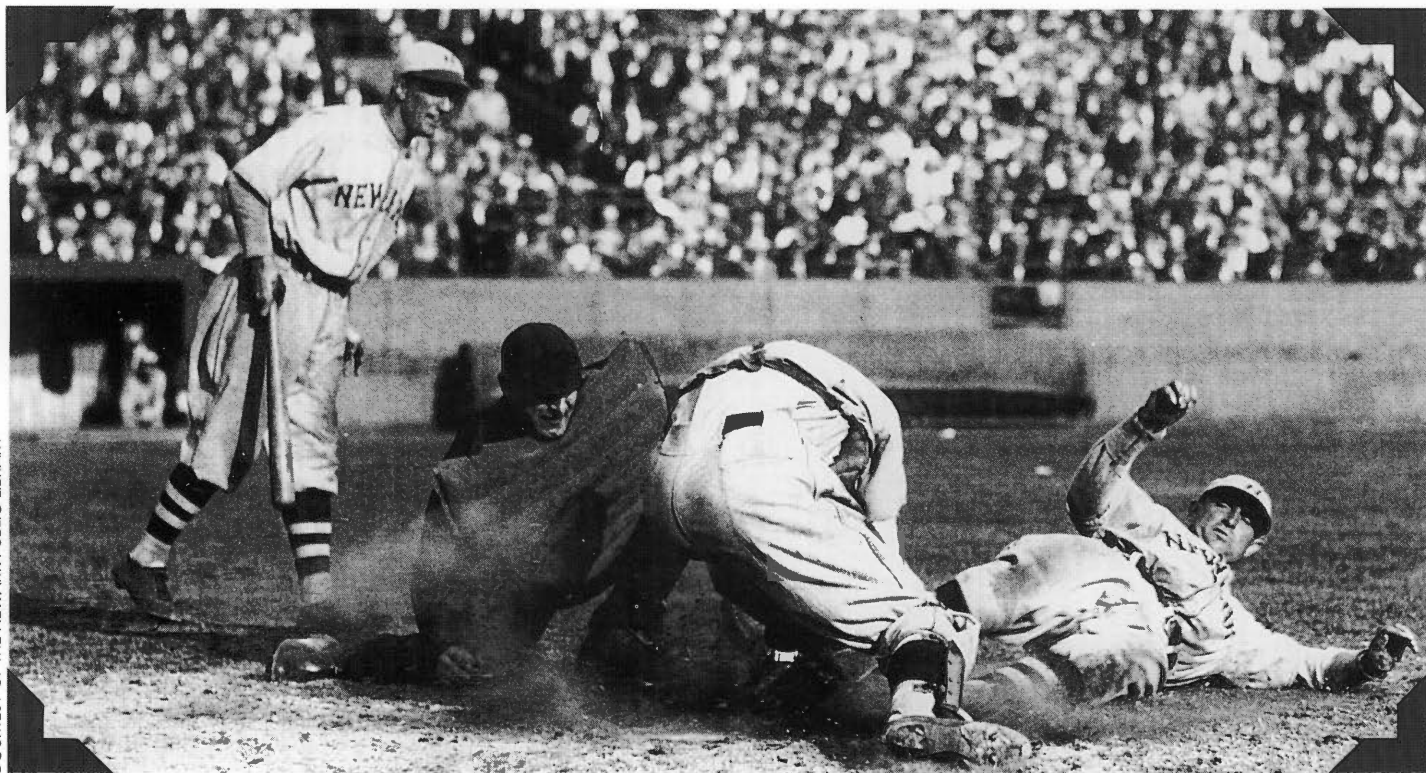
The best professional team ever to play in New Jersey undoubtedly was the high-powered 1937 Newark Bears — although there are fans who think the 1932 Bears might have been as good, if not better. Both played in Newark's Ruppert Stadium, so named in 1932 when Colonel Jacob Ruppert, owner of the New York Yankees, bought both the Bears and the stadium.

Ruppert spent considerable amounts of his beer money in Newark. Results were immediate. The 1932 Bears outdistanced all International League competition, winning 109 games and losing only 59 in the regular season, and capping that by winning the Little World Series. Fourteen players on the roster went on to play major league ball.

The Yankees rebuilt well. In 1937, the rampaging Bears took the league pennant by 25-1/2 games, won 109 and lost only 43, and won the Little World Series in a dramatic comeback after being down, three games to one. Every regular on that "wonder team" later played major league ball.

↙ The 1934 Newark Bears take on the Philadelphia Phillies.

COURTESY OF THE NEWARK PUBLIC LIBRARY



The Newark Peps

Only one New Jersey team ever made the major leagues — the Newark Peps of 1915.

The Peps came to Newark circuitously. First the renegade Federal League was founded in 1914 by a group of millionaires who yearned for the prestige of being owners of big league teams. Led by W.K. Wrigley, Chicago's chewing gum tycoon, the group poured some of their huge incomes from beer, oil, gum, restaurants and white bread into creating new franchises and building new ball parks.

Newark hit the big time in the spring of 1915 when oil man Harry F. Sinclair moved his Federal League champion Indianapolis Hoosiers to Newark to challenge the New York market. Actually, he chose Harrison, buying a huge tract between the Pennsylvania and Hudson & Manhattan railroads, a ten-minute walk from downtown Newark.

The Hoosiers became the Peps, as puerile a major league name as ever existed. When ground was broken for a new ball field on March 1, 1916, the team had an opening date of April 16. Workers labored 24 hours a day, using arc lamps to turn late winter and early spring nights into a reasonable imitation of daytime.

The Peps opened in their brand new wooden facility as scheduled, attracting 32,000 people on opening day, one of the largest crowds ever to see a baseball game in New Jersey. The Peps wound up the second and last Federal season in fifth

place. Before the 1917 season began, the money men in all three major leagues met, killed the Federal League and settled back to the more comfortable two leagues.

Baseball soared to peak popularity during the 1920s and 1930s, at least as far as the numbers of active players were concerned. Thousands of sandlot teams played long, serious seasons from mid-April to mid-October. These were 10- to 17-year old boys, seldom uniformed, who organized their own leagues, arranged schedules, supplied umpires from their own ranks and acquired baseballs, bats, spikes and gloves with as little adult supervision or sponsorship as possible.

Young working men played in high level weekend leagues or "twilight" leagues arranged from Sussex to Cape May. Large corporations hired players as the nucleus of company teams. Two or three times each summer, mid-sized towns such as Morristown or Vineland hosted barnstorming professionals — the Black Yankees, Cuban Giants, Homestead Grays, the House of David, the Bloomer Girls and others. The visitors often brought their own lights mounted on ladders with portable generators supplying the energy.

Those were the years when big leaguers came mainly from that kind of local baseball. Three New Jerseyans helped prove the point — Goose Goslin, a Salem farm boy who performed brilliantly in 18 seasons at Washington and Detroit from 1921 to 1938, batting .316 lifetime; Ducky Medwick, who left industrial Carteret and stayed in the major leagues with St. Louis,

Kay "Swish" Blumetta of North Plainfield played for the Fort Wayne Daisies in the late 1940's. →

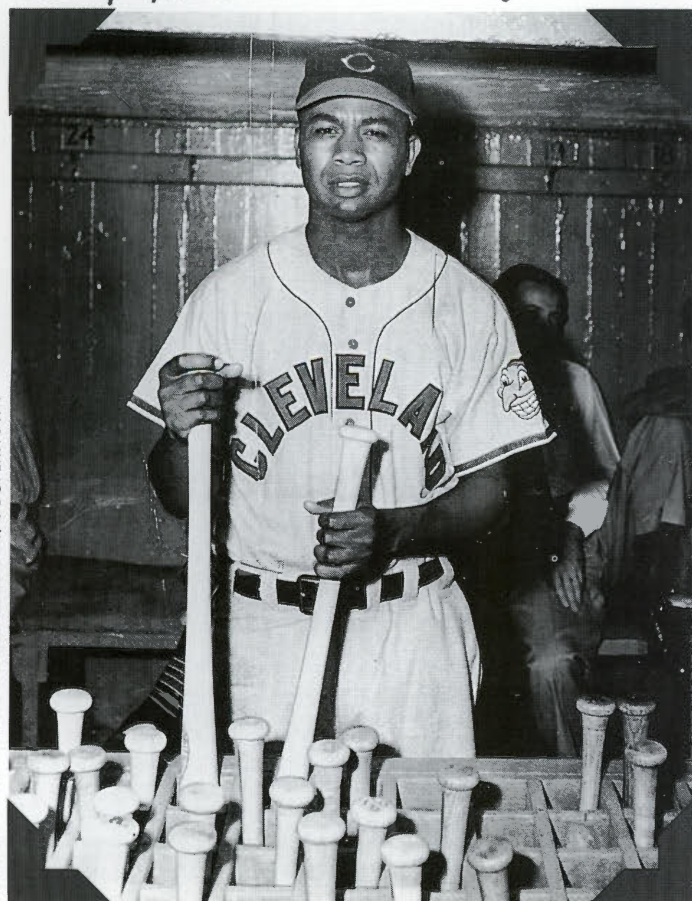
Brooklyn and New York from 1932 until 1948, achieving a .324 average through 17 years; and Johnny Vander Meer, the left hander from suburban Midland Park in Bergen County, who astounded the baseball world by pitching consecutive no-hit, no-run games for Cincinnati on June 11 and June 15, 1938.

Those also were the years when great players came into their own in topflight Colored League competition. Scores of those players could have sparkled anywhere, anytime. John (Pop) Lloyd of the Atlantic City Bacharachs usually was compared favorably with the superb white shortstop, Honus Wagner, a compliment for both of them. Ray Dandridge, Monte Irvin, Larry Doby or others on the Newark Eagles could have helped any major league team of the 1920s or 1930s except for the unwritten major league rule that excluded black players.

The Eagles, owned and operated by Mrs. Effa Manley, played in the Newark Bears' park when the Bears traveled, winning consistently and taking the Negro National League pennant in 1946. The Eagles roster included such as Dandridge, Irvin, Doby, Don Newcombe and Billy Johnson.

Except for the Bears and Eagles, New Jersey's best post-war professional nine was the 1947 Trenton Giants, purchased in 1945 by the New York Giants. After two lackluster seasons,

↳ Larry Doby of Paterson, the first black player in the American League.



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COURTESY OF NORTHERN INDIANA HISTORICAL SOCIETY

the 1947 Giants surged dramatically, soaring from last place in May to an 88-50 record and the Interstate League pennant in September. The last shining time came in 1950 when a marvelous 19-year-old prospect named Willie Mays played in Trenton before moving on to major league stardom. The next year, the franchise was transferred to Salisbury, Maryland.

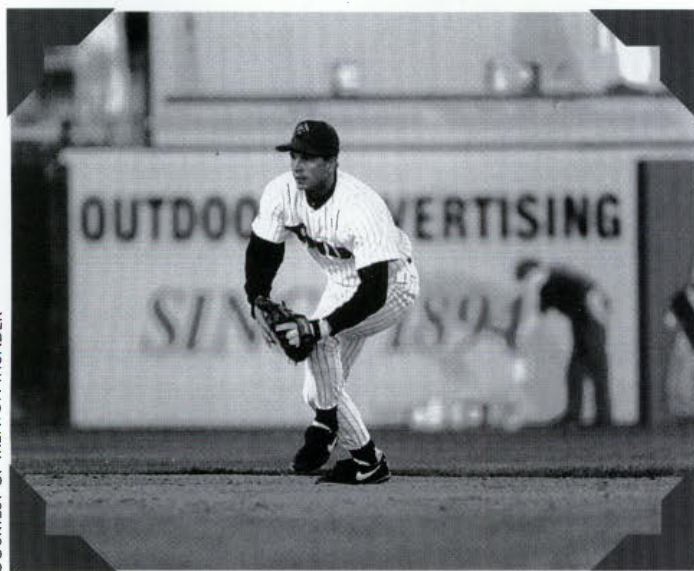
The Watershed

World War II became the watershed between past and present. When many veteran major leaguers marched off to war, the major leagues played on, "aiding civilian morale" by combining over-the-hill veterans and high school boys to keep the uniforms filled. The New York Giants, New York Yankees and Boston Red Sox came to New Jersey for spring training — adequate but a far cry from Florida's palm trees.

War also gave athletic young women a chance to shine on the national baseball scene. At least eight New Jerseyans — including Kay (Swish) Blumetta of North Plainfield, Jeannie Ventura Manina of Garfield, Jane Moffett of Toms River, Joan Knebl of Lodi, Lois Baker of Chester, Ernestine Petra of Barnegat, Carol Habben of Ringwood and Noella Alverson of Leonardo — left to play in the All-American Girls Professional Baseball League in the midwest (as featured in the movie, "A League of Their Own"). The league started as hard pitch softball in 1943, quickly became real baseball, and by the time it ended in 1954, it was tough hardball played in

*Trenton Thunder Shortstop
Kirk Mendenhall in action. 1994.*

COURTESY OF TRENTON THUNDER



short skirts — a bruising, skin-burning handicap on hard hook slides into any base.

Baseball hit the peace trail in high gear but by 1950, signs of deterioration were visible. Television had begun to bring baseball into the home, a game or two each week, then eventually games day after day. Management benefitted handsomely, and the era of the millionaire players began after 1980. Televised major league games dimmed the lights in many minor leagues.

In addition to television, high school boys and girls had money and automobiles, powerful inducements to ignore baseball. Twilight leagues had all but disappeared by 1960. Company

teams vanished. The touring barnstormers stopped coming.

Little League ended sandlot baseball by substituting uniforms, well manicured fields and adult-supervised schedules that end in July, meaning there is virtually no kid baseball for half the summer.

Baseball is far from dead on the local scene. For the first time since the Jersey City Jerseys stopped playing ball in 1961, minor league teams returned to the state in 1994 with the Trenton Thunder and the Sussex County Cardinals. High school and college teams are better than ever and play as many as 30 games in the short spring season. Women finally are getting a chance to play vigorously in hard pitch softball, thanks more to affirmative action than school enthusiasm. The once-macho Little League permits little girls to compete after decades of refusal.

The game is much the same. Alexander Cartwright would recognize today's baseball. But major league baseball is a slick package. Big leaguers are ultra-rich images polished by agents. Little League has none of the spontaneity, much less the imagination or initiative of old-fashioned (and non-existent) sandlot games.

Where are the Elysians Fields of yesteryear? Where are the sounds of summer — the crack of a bat smiting a ball and roaring fans as evening fades on a thousand New Jersey diamonds or the soft hum of portable generators shedding light on barnstormers in town to play the local "all stars?"

Where are sliding Billy Hamilton, King Kelly or George Stovey; Goose Goslin, Pop Lloyd, Ducky Medwick or Ray Dandridge when we need them? Where, for that matter, were all the boys of summer as the season of 1994 whimpered to an end?

Come back, Alexander Cartwright.

John T. Cunningham, an author of 34 books and freelance writer from Florham Park, is the guest curator of the "History of Baseball" exhibit at the New Jersey State Museum.

The History of the Game

Even if there is no spring training in March, there will be baseball at the New Jersey State Museum. The exhibition, "Baseball in New Jersey," documenting the state's key role in the history of the game, runs Feb. 28 to May 31.

Historic photographs, uniforms and equipment associated with specific New Jersey teams and important people who played amateur, semi-professional and professional baseball in the state

are the focus of the history of the sport during the last 150 years. By viewing the exhibit, you can also examine the importance of baseball in the lives of players, their families and communities ever since New Jerseyans began to play the game under rules developed by Alexander Cartwright.

The exhibit invites you to experience, for example, the famous contest between the New York and Brooklyn

Base Ball Clubs at the Elysian Field in Hoboken in 1845; New Jersey's professional teams, including the 1925 Atlantic City Bacharach Giants, the 1932 and 1937 Newark Bears, the 1946 Newark Eagles, and the 1947 Trenton Giants; the state's only major league team, the Newark Peps; and its native Hall of Fame players, Leon "Goose" Goslin and Michael "King" Kelly.

The exhibition opens

with a party and panel discussion featuring New Jersey players, coaches and sports writers. The panel discussion is co-sponsored by the New Jersey Historical Commission. The New Jersey State Museum is located at 205 West State Street in Trenton. Hours are 9 a.m. to 4:45 p.m. Tuesday through Saturday and noon to 5 p.m. Sunday. Admission is free. For more information, call (609) 292-6308.

Soar with New Jersey's Eagles

by Colleen O'Dea

To many bird watchers, the American bald eagle is neither the most beautiful nor the rarest of birds. Yet nothing can compare to watching an eagle in flight — its dark body cutting across a clear sky, its wings stretching wide in a near straight line and, of course, its striking white head.

"People really seem in awe of what they are experiencing; they really feel they are in the presence of something special," says Joan Walsh, a New Jersey Audubon Society biologist.

Bill O'Hearn of the New Jersey chapter of the Sierra Club agrees: "The bald eagle is still so rare, it's a precious thing to see. You feel really fortunate."

While it is still rare to spot the country's symbol in New Jersey and most places throughout the United States, sightings are becoming more common. With the help of zoologists and environmentalists, the eagle has soared back from the brink of extinction — so much so that federal officials want to remove

it from the federal endangered species list. And New Jersey has worked as hard as any state for more than a decade to protect its eagles and re-populate the state with birds from Canada.

Those efforts have finally begun paying off. In the early 1970s, there was only one pair of nesting eagles left in the state at Bear Swamp in Cumberland County, the legacy of the insecticide DDT (dichloro-diphenyl-trichloroethane) and other toxic chemicals. The chemicals severely hampered the eagle's ability to produce an eggshell strong enough to ensure hatching.

By 1994, there were nine pairs of eagles nesting in the Garden State — just one of many recent state eagle records that was shattered last year, says Kathleen E. Clark, a principal zoologist with the Endangered and Nongame Species Program (ENSP) of the New Jersey Department of Environmental Protection's Division of Fish, Game and Wildlife. And for the first time in decades, two nests — one at Wading River in Atlantic County and the other at Round Valley Recreation Area in Hunterdon County — were spotted outside South





During the early 1980s, bald eagle eggs were incubated by bantam hens at the Patuxent Wildlife Research Center in Maryland (top) and were returned to New Jersey nests shortly after hatching.

This two-week-old bald eagle at Patuxent (bottom) is fed raw chicken fortified with vitamins, minerals and enzymes.

U.S. FISH AND WILDLIFE SERVICE



U.S. FISH AND WILDLIFE SERVICE

Jersey's Delaware Bay region. The latter is the first eagle's nest identified in North Jersey in at least 40 years, says Don Freiday, a Hunterdon County park naturalist.

"They eat fish at Spruce Run and Round Valley reservoirs," says Freiday. "Some of the fish caught (by anglers) are too small to keep and are released. . . . Fishermen have seen the eagles diving between boats, apparently getting those fish."

The Hunterdon eagles fledged two young, meaning the eaglets were cared for until they were able to fly on their own. Those two fledglings, which generally are preyed upon by turkey vultures, hawks and other predators, were among 12 produced from New Jersey's nests in 1994, double the number from 1993. These growing numbers of young eagles may return to the same areas in four to five years to build their own nests.

Even the annual number of eagles which spend the winter in New Jersey seems to be increasing. Bird watchers counted 92 eagles wintering here in 1994, 14 more than were counted the previous winter. Clark says 22 eagles were counted on just one roost in Cumberland County. And participants in the Cape May Bird Observatory's fall hawk watch spotted more

than 100 migrating birds compared with a previous high of around 80, says Walsh.

"The eagle numbers are way up," Walsh says. "That's good news for eagles all over the place, since some of these guys are from New York State or Massachusetts."

Many eagles leave the northern states in winter in anticipation of their hunting grounds freezing. They migrate south in search of open water in which to hunt for fish, fowl or even muskrats. Walsh says eagles generally settle where there's a safe place to perch, often in dead trees far from civilization and away from other territorial birds.

A National Resurgence

The resurgence of the eagle in New Jersey has paralleled a national rebound, which has led the U.S. Fish and Wildlife Service to propose changing the bird's status from endangered to threatened. Endangered means that the species is in peril of becoming extinct; threatened means that a species may become endangered if steps are not taken to protect it. A final decision on the bird's status is not expected until July, when a one-year public comment period expires. However, the eagle remains on New Jersey's endangered species list.

Georgia Parham, a Fish and Wildlife spokeswoman, says the eagle population in the 48 contiguous states — Alaska has always had a thriving population — has shown a "dramatic increase" from just 417 nesting pairs in 1963, the first year they were counted, to more than 4,000 in 1993. And the most recent count does not include "probably several thousand" juvenile birds who have not yet begun to nest.

While the near total ban on DDT use in the United States in 1972 started the bird on the road to recovery, Parham says many states, like New Jersey, undertook aggressive measures to protect their remaining eagles and to bring in new ones. Federal funds at one time helped state efforts, but now New Jersey's program is funded solely through an income tax checkoff, donations and proceeds from a wildlife conservation license plate. In fact, the ENSP has proposed featuring the bald eagle on its 1995 plate.

The state's efforts began small when, in 1982, biologists with the ENSP decided to help the Bear Swamp eagles successfully hatch young. For six years, biologists had seen the female lay eggs but not be able to incubate them because DDT contamination had made the shells too thin. So the biologists entered the nest and replaced the eggs

with plaster replicas. The eggs were then brought to the U.S. Fish and Wildlife Service's Patuxent Wildlife Research Center in Maryland, where they were hatched.

"We brought the chicks back when they were 13 to 15 days old, took the (fake) eggs out and put the chicks in," says Clark. "In that way, the eagle pair was able to fledge young."

That effort continued successfully until 1988, when the female died and was replaced with a new one which was able to produce and incubate her own eggs successfully.

Meanwhile, beginning in 1983, the state's ENSP conducted what is called a "hacking" program. Young eagles were brought from Manitoba, Canada, to the Dividing Creek area of Cumberland County and released in hopes that some would establish territories and build nests. Clark says 60 birds were hacked between 1983 and 1990, and three more eagles were released in Cape May County in the last two years.

"We wanted to give a jump start to the population," Clark says. "Since young take five years to mature and nest, it would have been a long wait, with just having our single nest produce one or two young every year. I suspect some of our hacked birds are nesting here."

The eagle
has soared
back from
the brink of
extinction

Spotting an Eagle

Eagles are exciting to view, although sometimes the inexperienced bird watcher may see an eagle and not even know it.

It's virtually impossible to mistake an adult eagle with its bright white head and tail feathers and dark body with a wingspan of six feet or more. The male and the female are identical, except the female is slightly larger. But until the eagle matures, which occurs at four or five years old, it's not quite so identifiable and is sometimes mistaken for a turkey vulture.

Eagle chicks hatch around May, and the birds are chocolate brown for their first year. A two-year-old eagle is still mostly brown, but has white on his belly and under his wings, which is visible during flight. Around age four, the head changes from all brown to a mixture of brown and white before it turns pure white.

There are several

differences between a young eagle and a turkey vulture. The eagle has a longer head and neck, but a shorter tail than the vulture. The bottom edge of an eagle's outstretched wings appear to form almost a straight line, while the vulture's wings are scalloped. The vulture's underwing is gray, rather than the white of the eagle's. And in flight, the vulture's wings form a "U" or "V" shape, while the eagle's appear virtually flat.

"Eagles in flight really have a flat profile," says Clark. "That's one of the best ways to tell them. They don't rock back and forth."

State officials encourage responsible eagle watching and ask people who spot eagles, particularly those who may see nesting birds beginning around February of each year, to contact the Endangered and Nongame Species Program at (609) 628-2436.

Turkey vulture
silhouette



Bald eagle
silhouette



The head of a young bald eagle is chocolate brown (below) until it begins to turn white at about four years of age.

A New Threat on the Horizon

But while the state's eagle population continues to grow, not every bird is thriving. Clark says residual amounts of DDT and DDE (a DDT derivative) and more recent contamination by PCBs (polychlorinated biphenyls) leaching into the Delaware Bay from nearby federal Superfund sites may be preventing two eagle pairs in the Gloucester County area from producing healthy eaglets. Although PCBs have been banned, a great deal of the toxin remains in the environment.

"Toxic levels of PCBs can cause the embryo to die in the egg or the young eaglet to die," says Clark. "One egg sample we collected in 1993 had high levels of PCBs. . . . We are very concerned about the long-term effects of this, and the Endangered Species Program continues to monitor contaminants in young eagles and the productivity of nesting pairs."

People pose another major problem for eagles. The birds generally nest in remote locations and can't tolerate human disturbance — some eagles will abandon a nest if they see humans get too close. State officials and naturalists generally won't disclose the exact locations of eagle nests because they don't want people to upset the birds.

"If you ever come upon a nest, you should immediately back-track and get out of there," says Walsh. "Some are extremely sensitive."

An eagle's nest, called an aerie, is unmistakable. Freiday says a nest is about six feet across and several feet deep, usually

built high in a large tree with an open air approach. It is usually located close to water.

Clark says farmers and other land owners have helped to preserve eagles' nests on their land by allowing state biologists to observe the birds and by preventing others from getting too close. Only once or twice in the last few decades has the state had to step in to save a nest.

In the most recent case during the mid-'80s, the state condemned the land around Bear Swamp — site of last remaining nest at the time — to prevent a sand-mining operation from destroying the critical habitat for eagles, Clark says.

A Bright Future?

Designated as the emblem of the United States by Congress in 1982, the eagle was first protected in 1940 by the federal Bald Eagle Act. Greater protection came in 1970 with the passage of the Endangered Species Act, which made it illegal to harm, injure or kill any animal, plant, insect or bird designated as endangered.

But while the eagle may appear to be on the road back to recovery, Clark says officials must keep an eye on toxic chemicals, trying to identify the source of pollution and cleaning it up whenever possible. It would be even better to prevent the release of toxins into the environment in the first place.

"It's something we're very concerned about," she says. "What we might see, as we saw in the '60s, is birds maintaining their nests and their nest attempts fail."

But despite the potential dangers, Walsh is optimistic about the future of the eagle in New Jersey.

"There probably will be more pairs that pop up," she says. "The eagles are not done populating the state of New Jersey. In 20 years, we may have a whole slew of them."

The ENSP is supported through a state income tax checkoff for wildlife (line 46B on the 1994 form), the proceeds from an endangered species wildlife plate and donations. To order the wildlife conservation plate, which costs \$50, call 1-800-W-PLATES. For more information on how you can support ENSP programs, including the American bald eagle project, call (908) 735-8975 in northern New Jersey and (609) 628-2436 in southern New Jersey.

Colleen O'Dea is a freelance writer who lives in High Bridge.





An eagle's nest (above), called an aerie, is built in a large tree and is generally six feet deep and six feet across.

The Eagle Has Landed

There are several places in New Jersey to catch a glimpse of the magnificent symbol of the United States. It is best to start your eagle watch in the mid-to late-morning when the birds are out fishing in one of the large bodies of water in the state.

In North Jersey, wintering eagles can be seen up and down the Delaware River. Some also have been spotted at several reservoirs in the state including the Wanaque and

the Monksville in Passaic County as well as Yard's Creek in Warren County. The Hunterdon eagles can be seen year-round at Spruce Run or Round Valley reservoirs. Hunterdon County naturalist Don Freiday suggests scanning the shorelines with binoculars early in the morning while the birds are perched. Later in the morning, they may be seen diving for fish and waterfowl.

Joan Walsh of the Audubon Society says that during the eagle migration, warm days with a north or northwest wind are best. In cloudy weather, the eagles fly lower and may be easier to spot. If it's sunny, "they're going to get way up there," she says. Although eagles may be spotted

beginning in mid-August, October through early November is the peak migrating time.

Most of the best eagle watching opportunities are in South Jersey on the Delaware Bay or inland waterways such as the Maurice and Cohansey rivers. Wintering eagles can often be seen in the wetlands off Maple Avenue in Dividing Creek.

While it's unlikely eagles will take up residence in highly populated counties like Hudson and Essex, biologists do believe undeveloped areas in North Jersey, particularly in the Highlands region, will host eagles in the not too distant future.

For people who really want to see a nest, one South Jersey site is visible, yet protected. At Stow Creek, near Canton, a nest is surrounded by wetlands and a farm so it's not accessible, yet it can be seen from a distance.

"You can park alongside the road and see this very photogenic bald eagle's nest," says Kathleen Clark of the Endangered and Nongame Species Program. "We will be developing a viewing area there so people can learn about eagles."

Get Ready to Go . . .



PHOTO COURTESY OF ANDREW DUBRUL

Andrew DuBrul carries his sea kayak along the coast.

Sea Kayaking

If you like being on open water, but don't like dealing with noisy engines or troublesome sails, sea kayaking may be for you.

Sea kayaks, long enclosed boats powered by paddles, originated thousands of years ago in the icy waters of the North and were used by Eskimos and Asians. These boats had wooden frames wrapped in caribou or seal skins and were made to keep out the cold Arctic waters. The boats were called "sea" kayaks because they were designed to cut through waves and handle varying ocean conditions.

But today, similar vessels can be found on almost every New Jersey waterway — from inland rivers and lakes to calm bays and inlets to the pounding surf at the beach. This is one sport that can shift

with your mood and get you away from a humdrum daily life.

These unique boats offer a great opportunity for naturalists to view wildlife. While slicing silently through the water, one can observe diamond-back terrapins, ospreys, cormorants, mergansers, red-tailed hawks and even seals.

Sea kayaking is a sport that can be enjoyed by all ages. But before you venture on your first expedition, it is important to find the right boat for you and get lessons from a professional instructor.

The Equipment

Sea kayaks are different from other white water kayaks because they are longer and specifically designed to cut through waves. Unlike a canoe, they are fully enclosed with a deck on the upper half of the shell. This allows the

kayaker to paddle through surf without the threat of the boat filling with water. Also, the occupant stays warmer and drier, making this an excellent year-round sport.

But even among sea kayaks, there are many varieties to meet your needs. Smaller kayaks are best for short excursions. Longer kayaks, which can range from 15 to 18 feet, are best for extended camping trips.

There are several basic pieces of equipment for sea kayaking — the boat, the paddle, a spray skirt which attaches you to the vessel, and a life jacket.

Kayaks cost between \$500 and \$3,000; paddles range from \$30 to \$300; spray skirts are priced from \$40 to \$100; and a life jacket runs from \$40 to \$70.

Before investing in this hobby, it is best to rent or borrow sea kayaks until you find a comfortable fit and one that meets your specific needs.

Sea kayaks are made for tracking, which means they generally hold a straight line while paddling and are difficult to turn. The more rocker, the curve on the underside of the boat, the easier it is to turn. White water kayaks are made to turn quickly and thus have a great degree of rocker to the hull. Wider boats offer greater stability. If speed is what you want, choose a long and narrow boat with no rocker.

The shell of a kayak can be made of wood, fiberglass, polyethylene plastic or canvas. Plastic and fiberglass boats are the most durable, but wood and canvas kayaks are generally cheaper. A canvas kayak will "give" better in waves, but there is a greater danger of it puncturing. Wooden boats look nicer and more natural, but plastic boats are the most durable and are built to take a beating. Kayaks are either open or fully enclosed. An open kayak is designed with no cockpit, but rather an indentation in

the hull where the paddler sits. These boats can't be swamped and are for those who do not like the idea of being attached to a kayak.

The enclosed kayak allows a spray skirt to be fitted around the cockpit and attached to the paddler's waist to prevent water from entering the boat. It also facilitates the use of the Eskimo roll, an advanced procedure that allows overturned paddlers to right themselves without leaving the boat. But if this procedure has not been mastered, the spray skirt can be released with a quick upward jerk for an easy escape.

The spray skirt keeps the inside of the kayak virtually dry and blocks out cold air, a great asset during the cooler months. A skirt can be made of either nylon or neoprene, a synthetic rubber used to make wet suits, and should fit tight enough around the cockpit so that waves won't knock it off, but loose enough so that it can be easily removed.

Kayakers use a unique double paddle that allows the boat to be moved backwards or forwards. Longer paddles provide more power, while shorter paddles allow greater maneuverability. Adjustable paddles let the kayaker switch from the feathered style, where one blade is perpendicular to the other for use with a head wind, to the

While slicing silently
through the water,
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diamondback terrapins,
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GREGORY M. MCDERMOTT



A sea kayaker returns from a trip at Townsend's Inlet between Avalon and Sea Isle. Sea kayaks often compete with big motor boats in open water.

unfeathered style, where the blades are parallel to one another. The latter is used when the wind is blowing into the side of the craft.

In addition, some sea kayaks are equipped with a rudder system that is used by the paddler to steer with his or her feet. The rudder is located at the stern of the boat and is connected to the paddler's feet with braces using a series of internal wires.

A life vest is also a must when kayaking. In addition to keeping a person afloat, it helps to provide warmth.

Other useful equipment for sea kayakers includes an air horn, whistle, flares and a waterproof flashlight to signal distress; a bailer made of a bleach bottle cut in half and/or a hand-held bilge pump to remove excess water; a wet suit, dry suit, waterproof jacket, extra clothing and/or pogies (gloves that cover the hands but allow direct contact

with the paddle) to keep dry or provide warmth; and an extra paddle and 50 feet of rope for emergencies.

Learning the Art of Sea Kayaking

It is best to learn sea kayaking from a well-trained instructor. Lessons cost about \$40 an hour for private instructions or about \$80 a day for group instruction. Many instructors will teach courses in a pool or calm, protected body of water. Paddlers should venture out to the rough waters such as open bays and surf only after they have mastered basic skills.

Entering or exiting the kayak without getting wet can take some skill. If you are entering from a calm shore bank or a low deck, lay the paddle on the land or dock directly behind the cockpit. This brace helps to steady the boat, and you can gently lower yourself

Get Ready to Go . . .



PHOTO COURTESY OF ANDREW DUBRUL

To begin your journey in the surf, position the kayak perpendicular to the water and use your fist to gently push off from the shore.

into the cockpit. If you are beginning your journey in the surf, climb in the craft, positioning the kayak perpendicular to the shoreline, and wait for a wave to carry you out or manually lift and push yourself out with the aid of the paddle and your fist.

Sea kayaking includes a few basic strokes, sweeps and braces. By pushing or pulling the paddle, a kayaker can move the boat backward or forward. The craft can be turned by using long, outward sweeps; that is, dragging the blade across the surface of the water with downward pressure. A brace is a recovery move used to bring a near-capsized boat back up to a stable position. A firm slap with the back of the paddle on the water can be used for stability when you are thrown off balance or when you encounter a wave.

Even the best kayakers tip over, and there are two options available to right

yourself. The first is to release the rip cord on the spray skirt and allow gravity to drop you out of the boat. You can get back in the boat by using the paddle as a balance.

The second option is the Eskimo roll, which allows the kayaker to stay with the boat while righting it in the water. This complex procedure involves drawing the paddle across the surface of the water, using the force to flip the kayak upright. This move should not be attempted without the proper training.

Sea kayaking can be enjoyed by all ages. In fact, Walt Durrue of Jersey Paddler in Brick, says he taught his son the sport at seven years of age.

"Children are very capable paddlers, but their skills often proceed faster than their good judgment," Durrue says. Therefore, children should always be accompanied by at least one

competent paddler and should never be allowed to stray.

Unlike other sports, safety in numbers is far from the truth in the sport of sea kayaking. Instead of a crowd, kayakers should team up with an experienced buddy to assist in case of injury or an unexpected capsize.

Bountiful Waterways

Once you have mastered the basics, New Jersey has many diverse waterways to explore in a sea kayak. On the western coast is the Delaware River, which has many access points. The center of the state has many rivers and lakes to offer. The east coast is lined with barrier islands from Sandy Hook to Cape May, and they offer miles and miles of protected bays and open ocean. These include many scenic water bodies such as the Navesink, Shrewsbury, Mullica and Great Egg Harbor rivers as well as Sandy Hook, Barnegat, Little Egg Harbor and Great bays. Sea kayaks are permitted on non-bathing beaches.

Kayaks can be tied onto most vehicles and roof racks and can usually be removed by one person. Because of its light weight, a kayak can be comfortably carried for short distances, making trips over dams and low bridges no problem.

Once in the water, one can silently glide through narrow tidal streams and into huge marshes. Your chances of seeing wildlife is greatly enhanced by the

Once you've mastered
the basics, New Jersey
has many diverse
waterways to explore
in a sea kayak.

A Paddler's Paradise

Following is a list of organizations and books related to sea kayaking, tours, outings and lessons.

Organizations

❑ **Atlantic Kayak Tours**
(914) 246-2187
Lessons, Tours

❑ **H2 Outfitters**
1-800-20-KAYAK
Lessons, Tours

❑ **Jersey Shore Sea Kayak Association**
25 Northrop Drive
Brick, NJ 08724
Club, Outings

❑ **Jersey Paddler**
1756 Route 88
Brick, NJ 08724
(908) 458-5777
Lessons, Tours

❑ **Monico Canoe Club**
304 Elton-Adelphi Road
Freehold, NJ 07728
Club, Outings

❑ **Ocean County Department of Parks and Recreation**
1198 Bandon Road
Toms River, NJ 08753
(908) 971-3085
Lessons, Tours

❑ **Trade Association of Sea Kayaking (TASK)**
12455 N. Wauwatosa Road
Mequon, WI 53097
(414) 242-5228
General Information, Organizations

Books

❑ **Guide to Sea Kayaking**, by Derek C. Hutchinsons, published by Globe Pequot Press, Old Saybrook, Connecticut.

❑ **Kayak Touring**, by William Sanders, published by Stackpole Books, Harrisburg, Pennsylvania.

❑ **Garden State Canoeing, A Paddlers Guide to New Jersey**, by Edward Gertler, published by Seneca Press.

❑ **Sea Kayaking, A Manual for Long-Distance Touring**, by John Dowd, published by the University of Washington Press, Seattle, Washington.

❑ **Sea Kayaking**, by Nigel Foster, published by Fernhurst Books, Great Britain, East Sussex.

stealth and speed of this unique boat.

The sea kayaker may encounter seals on the Raritan River, dolphins up and down the coast and ospreys and otters in the inner bays and rivers. Once you have fine-tuned the basic skills, New Jersey can be a great destination for extended journeys or overnight trips. You might camp on the Delaware River, cook dinner at Atsion Lake or enjoy a peaceful sunset on Barnegat Bay.

So if you are either a beginner kayaker or an experienced surf rider, New Jersey's open coasts and vast inland waterways can provide a natural way to enjoy the outdoors.

by Andrew DuBrul, a senior at Rutgers University's Cook College in New Brunswick, who is an avid sea kayaker

A beaver lodge on the Mullica River, Burlington County.



ADAM SMOLINSKI

Capturing New Jersey — *With Manipulated Polaroids*

Mark Thellmann, a Merchantville photographer, provides a unique view of New Jersey through his camera. His work, which often looks more like a watercolor painting, is achieved by manipulating Polaroids.

After taking an image on Polaroid SX-70 film, Thellmann heats the photograph until the gel base becomes pliable. Working from the back of the picture, he uses a variety of tools — including marbles and crochet hooks — to weave the intricate patterns in his design. The process can take from 15 minute to one hour per picture.

“Many photographers are frustrated painters,”

Thellmann says. “They are an impatient breed drawn to the immediacy of photography. My work is a bridge between straight photography and painting.”

Thellmann looks for scenes that are colorful and manipulates them to create a stronger mood.

“I like falling into what I am looking at, relaxing,” says Thellmann. “You can imagine yourself there.”

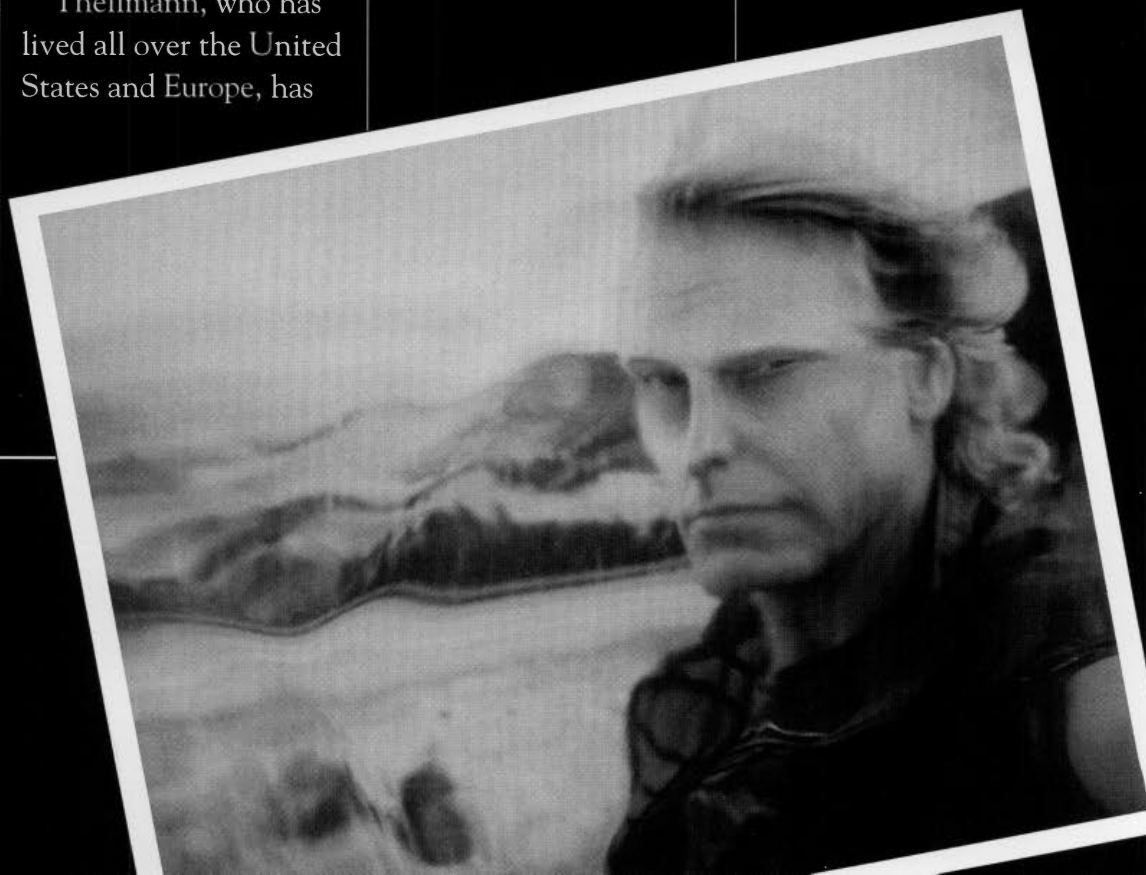
Thellmann, who has lived all over the United States and Europe, has

called New Jersey home for the past 15 years.

“Although the Garden State is small, it has a lot to offer,” Thellmann says. “The terrain differs when you consider the Pine Barrens, Wharton Forest, the coastline and the hills up north.”

For Thellmann, these many landscapes have become a canvas on which to create his art.

Thellmann, an instructor of photography at the Art Institute of Philadelphia, is also owner of Show and Tell Communications, which specializes in producing post cards for art shows and galleries. He can be reached at P.O. Box 1209, Merchantville, NJ 08109 or by calling (609) 488-9093.



A self portrait of
photographer
Mark Thellmann.



"Cape May Garden."
A shot featuring
New Jersey's flowers
in the spring.



New Jersey's many landscapes
have become a canvas on
which to create his art.

"Visiting Alice."
A Victorian home
in Cape May.



"Front Porch 137."
A rocking chair on a front
porch in Merchantville.



"Glad You Wrote."
A bottle on the
beach in Cape May.



"October Barn."
A colorful fall scene
shot in Mountainside.





MICHAEL S. MILLER

Kittatinny Valley State Park

A Stepping Stone through History

The newest addition to the state's park system has been a Native American settlement, an iron mine, a youth camp, a fishing club, an airport and a horse farm. Now Kittatinny Valley State Park offers the best of its past to out-of-doors adventurers.

The park is spread out across two counties and 14 municipalities. It boasts two lakes, an airport, an equestrian center and miles of diverse landscapes, including groves of hemlocks, mixed oak, maple and hickory forests, spectacular outcroppings of limestone, wetlands and expansive fields. Kittatinny also encompasses the nearby Sussex Branch Trail and the Paulinskill Valley Trail, both converted railroads still under development.

The center of the new park, previously known as the Aeroflex property, was purchased for \$5.9 million with Green Acres bond funds approved by the voters. The 948-acre tract in Andover Township and Andover Borough was once part of the rambling estate of Fred Husey III, a millionaire whose family made its money in the whaling industry and in New York City

Part of Kittatinny Valley State Park extends along the Paulinskill Valley Trail, an old railroad that parallels the Paulinskill River (opposite page.)

An airplane lands at one of two runways between Lake Aeroflex and Gardner's Pond (above).



DOTY WAXMAN

Lake Aeroflex, formerly a private lake, is open to the public for fishing (above).

An eastern swallowtail butterfly lands on a day lily (opposite page, top left).

A chimney (opposite page, top right) from the old YMCA lodge on Lake Aeroflex.

Remnants of the Rubicon Arabian Farm can still be seen at the stone farmhouse in Kittatinny Valley State Park (opposite page, bottom).

real estate. He was the founder of the Aeroflex Corporation, which conducted research into helicopters and hydroplanes. The corporation invented the electromagnetic gimbal mount to steady photographs taken from planes.

Husey built an airport on site to shuttle him back and forth to New York City. The airport remains today with two 2,000-foot runways — one made of grass, the other paved. It houses several dozen smaller planes that take off and land between two lakes on the property.

A Fishing Club Goes Public

Those two lakes — Lake Aeroflex and Gardner's Pond — are an angler's delight. Lake Aeroflex, which is one of the deepest natural lakes in the state, covers 117 acres and runs one and a half miles long. It was previously a private lake for the Aeroflex Fishing Club and is now open to the public.

The lake, which is more than 100 feet deep, is home to sunnies, largemouth bass and pickerel. While the Division of Fish, Game and Wildlife (DFG&W) is expected to do a comprehensive study of the species in the lake in the summer, an earlier study revealed that brown trout, largemouth and smallmouth bass, chain pickerel, black crappies, yellow perch, bluegill, pumpkinseed, redbreasted and

blue spotted sunfish, golden and bridled shiners, creek cubsuckers, alewife, white catfish, brown bullhead and banded killifish had lived in the lake at one time. In 1951, a landlocked salmon weighing eight pounds — the state record holder — was caught in these waters, but there is no evidence that any salmon have survived.

The DFG&W has designated Lake Aeroflex a trophy trout lake, one of only three in the state. The others are Round Valley Reservoir in Hunterdon County and Merrill Creek Reservoir in Warren County. The trophy trout lake carries special regulations to prevent the immediate harvest of stocked fish to enable the fish to get larger before being caught, says Pat Hamilton, a senior fisheries biologist in the Bureau of Freshwater Fisheries.

The fishing season at Lake Aeroflex will be open year-round, but there is a two trout limit per day, and trout must be a minimum of 15 inches long. Since the DFG&W is expected to begin stocking trout that are 10 and 1/2 inches long in the spring, this will give the fish at least a year to grow.

The lake features a boat launch, but only electric motors are permitted on the water.

The second lake, Gardner's Pond, covers 39 acres. It is accessible only by foot and has bass. During an earlier DFG&W study, the lake had largemouth bass, pickerel, yellow perch, pumpkinseed sunfish and northern brown bullhead.

Natural Resources

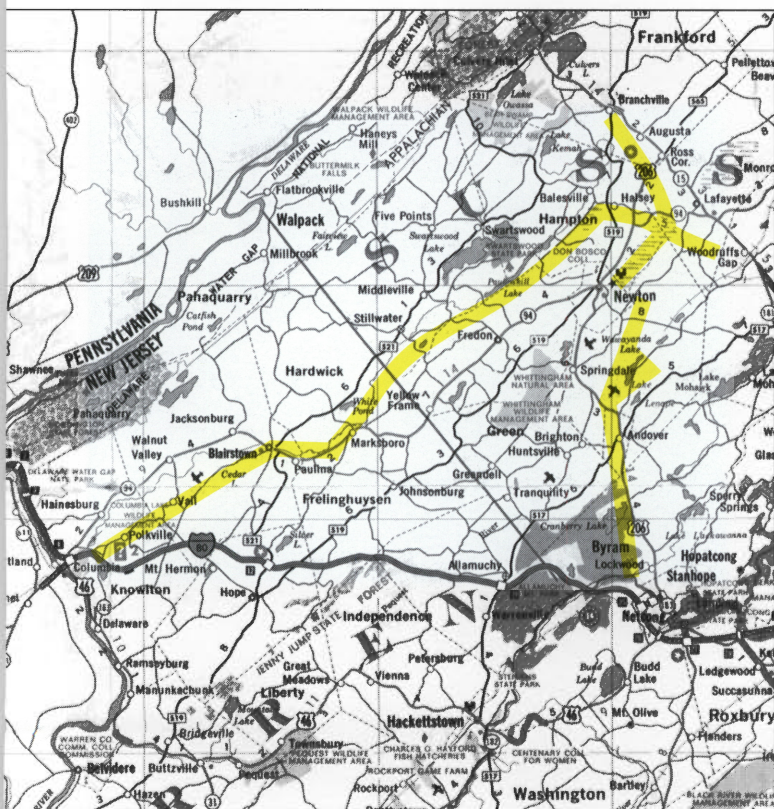
Kittatinny Valley State Park is over the southern end of the Germany-Flats aquifer, the largest underground water supply in Sussex County and the source of the headwaters of the Pequest River. Parts of the site are located in Andover Junction, which has been identified by the Natural Heritage Program as a priority site for preservation because of several species of rare plants that have been found there.

CHARLES ST. CHARLES



DOTY WAXMAN





COURTESY OF NJ DEPARTMENT OF TRANSPORTATION

As highlighted in the map above, Kittatinny Valley State Park encompasses the Aeroflex property, the Paulinskill Valley Trail and the Sussex Branch Trail.

Kittatinny Valley State Park is located on Route 669, 1.1 miles off of Route 29 in Andover. It is open daily dawn to dusk. For more information, call (201) 300-0412 or (201) 827-6200.

The park is laced with dirt roads and logging roads. Shady slopes of hemlock as well as dramatic outcroppings of limestone rock, some up to 80 feet, dot the area. The park is situated on the Kittatinny limestone region, a natural geological formation dating back 70 million years. The forests are mixes of oak, maple, hemlock and hickory and surround the open fields that were used to grow hay. Wetlands, too, dot the land.

Several rare plant species, such as the Illinois pondweed and the flat-stemmed pondweed, as well as the threatened barred owl, have been seen on the site.

The area is populated with deer, turkeys, raccoons, opossums, muskrats, hawks and waterfowl, including wood ducks, mallard ducks and Canada geese. During a recent visit, several turkey hens, which live among the outcroppings, fed in a half-plowed field. A group of hawks rode the streams of air over the pond in search of food, while squirrels and chipmunks scurried in the leaves.

"It is a high quality area for wildlife," says Joe Penkala, the regional superintendent of DFG&W's Northern Office.

A Haven for History

The area in and around the new state park is also steeped in history. A nearby quarry, used to mine iron for

cannonballs during the Revolutionary War, can still be seen chiseled at the base of dramatic cliffs. Railroads, constructed in the 1850s to transport the iron, have been converted to trails in North Jersey. Those converted railroads are used for horseback riding, hiking, bicycling, dog sledding, bird watching and cross country skiing.

During the 19th century, many lime kilns operated in the region. The limestone was used to fertilize agricultural fields. In addition, remains of a prehistoric Native American camp have been found in the park.

Evidence of some of its more recent uses also can be seen at Kittatinny Valley. A YMCA camp was established on the site in 1920 and operated there until 1953. Camp officials named the big lake New Wawayanda Lake (now Lake Aeroflex), and a diving board platform and benches, as well as a huge chimney from a lodge, can still be seen along the waterfront area.

In the 1980s, Kittatinny Valley was the site of Rubicon Arabian Farm, a breeding facility for fine horses. Remnants of that enterprise, including an indoor riding arena, a 39-stall barn, a device used to walk horses to cool them down, an area to bath horses and paddocks, still dominate the landscape.

The property also has a large farmhouse, carriage house and barn, all made from the surrounding limestone. In addition, there is a majestic Victorian house, formerly used as the fishing clubhouse, that looks out over Lake Aeroflex. Throughout the site, old stone walls can be seen.

The state Division of Parks and Forestry is developing a management plan for the site that will identify a myriad of recreational opportunities for the new park.

"The recreational potential is phenomenal," says park superintendent Rocky Gott. Meanwhile, the park remains an enclave of natural beauty, enriched by its past.

Natural Rooms for the Backyard

When Carol Morrison bought a “handyman’s special” in Princeton Borough nine years ago, she looked out a back window at the yard and groaned, “What am I going to do with this?” It was a cross between a jungle and a marsh.

She had never had a garden before, much less a sloping, 90-foot deep, 50-foot wide tangle of maple and scrub trees and shrubs so thick that no sunlight could permeate it. The patio was crumbling, and the steps were broken. An old rusty fence around the perimeter had fallen down in several places, and a sapling had poked through one of the openings and was lifting the fence skyward.

The first spring was spent clearing the property and installing a stockade fence to allow Morrison’s dog to run. Then came the planning.

“I’m basically lazy, and I thought I would save money by filling in the garden with things that would take care of themselves,” Morrison says. “I’ve always loved nature in a romantic, pantheistic, Emersonian way, but I almost flunked botany in college.”

That summer, on a tour of England’s stately homes and gardens, her perspective was forever changed. In particular, she was impressed by Chatsworth — home of the Duke of Devonshire — and Sissinghurst — the home of English author Vita Sackville-West.

“At Chatsworth, what struck me was that going from one part of the garden to another was like going from one room to another. Each room had its own feeling and identity. The designer in me appreciated that it was the same notion

(as decorating rooms in a house.) Instead of cloth and paint, it was trees and water and rocks. There was a sculptural effect, too, with the trees, and spatial relationships. . . . It’s got stones, garden furnishings, spaces you move up and down in . . . not just straight paths . . . It’s not static and flat, but dynamic . . . It still had a naturalistic feeling, not like . . . French (gardens) — formal, clipped.

“At Sissinghurst, different scenes or compositions were created by arranging plants, furniture, a pot or a pergola, or tunnel in certain ways,” she continued. “You would be drawn in and, as you moved, you saw different intended relationships.”

When Morrison saw the garden of Margery Fish, one of the earliest proponents of the English cottage style

Paths lead to different sections of the garden. This bridge over the brook takes visitors from the wild garden into the middle garden.



CAMERON JOHNSON

of garden, she was able to relate it to her own plot of land. “The suburban home owner could do it; it didn’t have to be a Chatsworth or Sissinghurst. It was naturalistic, but it used rooms.”

Morrison sketched and took photographs everywhere, exploring English garden centers for ideas. She decided to have three gardens, or rooms: a kitchen garden outside her kitchen window, where she would grow herbs and vegetables; a middle garden with a large pond, furniture and a magnolia-covered arch; and a wild garden in the tall trees at the back of the yard. “As you move, the picture changes,” she says.

Back home, she laid the outline for the main features of the garden — two fish ponds and a brook. The 25-foot “brook,” in fact, started as a ditch, a mosquito-ridden storm drain that

Gardens

One of the 40 pots (below left) that adorn Morrison's garden.



The brook links the two ponds and serves as a refreshment area for Morrison's dog and cat as well as a birdbath.

carried water down the slope. It was replaced with a bubbling rivulet tumbling over a little waterfall. The brook links the two ponds and serves as a refreshment area for Morrison's dog and cat as well as a birdbath. The larger pond is 10 by 12 feet, and the smaller one is 5 by 6.

An early feature of Morrison's design was an arbor with stone steps at the top of the garden. Over the patio, she built a pergola, a structure formed from horizontal trellis work supported by columns, and rejoiced when the wisteria she had planted met at the top.

But the garden proved to be a bit more elusive. After two frustrating years in which inexperience and weather conditions took their toll, Morrison hired two English-garden experts — Chris Leahy and Beryl Felcher. They suggested pebbles and stepping stones

down the long, meandering center path that connects the "rooms" like a hallway. They created adjoining azalea and rhododendron gardens and introduced her to pots — of which she now has a collection of 40 in all sizes, shapes and decorative motifs. She uses them to plant annuals. In addition, the experts planted 1,000 bulbs, mostly tulips and daffodils, and in February and March, the garden awakened with crocuses, snowdrops and hyacinths.

"Seeing what they did, I began to get an idea of composition with plants. Plants are different colors, textures, heights, (and) shapes. Once your eye gets used to it, you learn how to design," Morrison says. After about three years, she took over and planted perennials, herbs, flowering bushes and trees, and climbing vines and ground covers. "I

Goldfish and koi swim
in one of two ponds in
Morrison's backyard.

Morrison eventually
wants a little cottage,
"to sleep out there and
listen to the water."

CAMERON JOHNSON



wanted everything to be crowded right away," Morrison says.

Influenced by Margery Fish, Morrison designed pathways to different areas of the yard. "As it becomes less formal, you have bark (cover) on the ground." At the end of the yard, in the wild garden, a swing and hammock beckons, and Morrison eventually wants a little cottage, "to sleep out there and listen to the water."

The fish in the two ponds are around six or seven years old now. The goldfish were two to three inches long and the koi four to five inches long when she got them; since she learned to balance the pH of the water, they have thrived, growing about 12 inches. In the fall, they slow down and then, with the water flowing and warmed by a heater, hibernate in the ponds all winter.

Despite the diverse collection in her yard, Morrison says an English garden takes relatively little time and money.

"The garden kind of takes care of itself," says Morrison. "It grows and flourishes."

Morrison dedicates about a half day a year in the spring and fall for mulching and another half day for pruning. A day in the spring is needed for planting the annuals in the pots. The only other maintenance chores include feeding the fish and watering.

English gardens also can be done inexpensively. Ponds can be constructed with rubberized sheets; pergolas and arbors can be constructed from wood, and plants can be grown from neighbors' cuttings.

The end result can be a garden as spectacular as Morrison's backyard masterpiece.

"I will often come out here for a

whole day," Morrison says, "and sit for an hour in one place, an hour in another and watch the fish . . . there's a strong sense of serenity. You hear the water and can sometimes hear the breeze in the trees. Different parts of the garden light up, become dappled and move into shade. It's a light show."

"With the changing light and the butterflies and dragonflies that come and go and the fish, it's like a slow motion picture. There's subtle movement of trees . . . a lot for the eye to enjoy."

Now when she looks out a back window, the view gives her pleasure. "You're drawn into it . . . in your mind's eye, you can go out into the garden. It's inviting you out."

*by Judy Finman, a freelance writer
who lives in Princeton*

Marketplace



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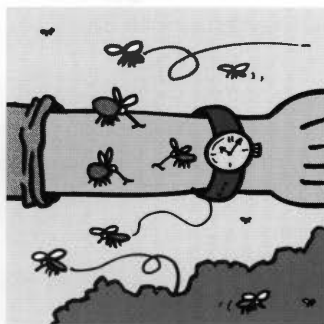
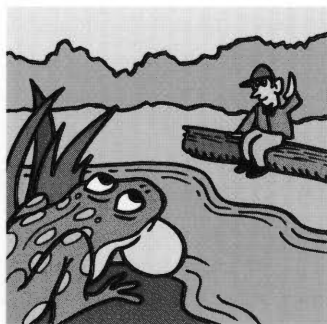


H. Poster featuring fall leaves. 2' x 3'.



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The Green Collar Worker



PAUL KRAMIL

by Jim Morris

When you're working to protect the environment, a day at the office can include some peculiar assignments.

In the Pinelands, a consultant sits silently by a pond, listening for the croaking sound of the endangered Pine Barrens tree frog.

In Warren County, a biologist sticks his bare arm out on a summer evening to count how many mosquitos land to bite him.

In Cape May County, a team of consultants sifts through piles of garbage to study what's inside the trash.

Welcome to the working world of environmental professionals. Depending on how you define an "environmental job," from a few hundred thousand to three million people are working in environmental careers in this country. And the number is growing.

The Environmental Business Journal, for example, reports that environmental jobs in the United States grew from 793,000 in 1988 to 1,073,000 in 1992. It predicts the number will increase to more than 1,327,000 by 1997. Although growth has slowed since the mid-1980s, the journal predicts growth in the 5 to 7 percent range for the next few years.

Those numbers include job titles ranging from air pollution control engineer to zoologist. Although broadly dubbed "green collar" jobs, these careers range from sewage treatment plant operators, who work with piles of sludge, to lobbyists who work the halls of Congress.

With so many kinds of environmental jobs, there is no single path to take to reach them.

Some emerging environmental fields require cross-disciplinary skills that few undergraduate or graduate programs can provide. For example, wetlands protection regulations have created a growing specialty known as wetlands delineators, professionals who interpret clues found in the local environment to identify wetland boundaries. Skilled delineators must be able to identify plants, analyze soil conditions and recognize signs left by water, such as stained leaves. With such a wide expertise required, delineators come from diverse backgrounds rang-

ing from wildlife biology to civil engineering.

Recycling coordinators face similar interdisciplinary demands. These professionals are responsible for collecting and disposing of recyclables as well as providing the education and enforcement to ensure that recycling goals are met. Three years ago, a statewide committee outlined the skills that qualified recycling coordinators should master, and the list includes elements of economics, engineering, law, accounting, public relations and human resource management, as well as the



AL IVANY, DIV. OF FISH, GAME AND WILDLIFE

Conservation Officer Lt. Mark Dobelbower uses a dissolved oxygen meter to check water quality (below).

technical aspects of solid waste management, such as composting and incineration.

"No single college major will prepare you for the diverse skills you need to run a good recycling program. You have to make learning a lifelong process to stay current with the changing regulations and technology," says Dominick D'Altilio, sanitation superintendent and recycling coordinator in East Orange.

His resume proves his point. D'Altilio, winner of the state-wide award in 1992 for excellence in recycling, earned an associate's degree in biology from Bergen Community College and a bachelor's degree in environmental studies from Ramapo College. In 1993, he was a member of the first graduating class of Certified Recycling Professionals sponsored by Rutgers University's Cook College and the Department of Environmental Protection (DEP). "Whatever you go to school for, you have to learn how to think, solve problems and communicate with people," he says.

With such loose structures and definitions in environmental industries, how do you work your way into an environmental career?

Begin with your personal goals and dreams, suggests Kevin Doyle, director of program development for the Environmental Careers Organization and co-author of *The New Complete Guide to Environmental Careers*. "Ask yourself — what kind of life do I want to live? What kind of work do I like to do?" he says.

The industry or company you work for is less important than the way you approach your job. "I prefer to think of (environmental professionals) as people who want their careers

to serve the environment," Doyle says. "Why can't we have environmental accountants?"

Indeed, environmental thinking has arrived in accounting. More than 60 financial and business professionals gathered last spring at a seminar sponsored by the state DEP that examined innovative ways to quantify the long-term savings of pollution prevention techniques.

"As the environmental movement and the environmental profession have moved from a 'how do we control emissions' to 'how are we going to build a sustainable environment,' you'll see more and more professions — builders, real estate agents, accountants — considered environmental careers," Doyle says.

Still, you need to begin your career search some place, and Doyle recommends finding people who are doing what you think you want to do. For example, let's say you're interested in watershed planning, which seeks to develop regional plans based on the needs of local water resources rather than political boundaries. Start by researching articles on the topic in the library and contact the people quoted.

"Find the people who are living the dream," Doyle says. "Don't talk to the personnel director or the department head or the professor in your class. You want to learn what the job really is, and the only way to do that is by talking to someone who does it. That will never be in a book."

If your personal research leads you to a job you definitely want, then you can better target your education and training to fit the position. Reaching your dream job may require additional



PEGGY A. VARGAS
ROBERT T. ZAPPALORTI



schooling, volunteer work, unpaid internships or low-paying entry level work, but each step can build toward your goal.

Ask Joan Hansen. She returned from an assignment many outdoor lovers would have paid to do — identifying vegetation and wildlife on a waterfront property in Puerto Rico as part of a wetlands delineation project. Yet 15 years ago, she was a homemaker whose chief qualification was a lifelong love of the environment.

"I was one of those kids who used to collect butterflies and spiders. I always wanted to know the name of everything I saw," she says.

At 40, with her youngest son a sophomore in high school, Hansen began taking classes part-time at Bergen Community College. She earned an associate's degree in psychology and transferred to Cook College, where she completed her bachelor's degree in natural resource management in 1987 — the same year her youngest son graduated from college.

Her first environmental job grew out of a field trip with her bird identification class to the Green Brook Sanctuary in Palisades Interstate Park. "I fell in love with this place, joined as a member and eventually landed a weekend job" as a part-time naturalist, she says.

That experience helped qualify her for an internship at the Hackensack Meadowlands Development Commission, where she taught environmental education to school children and completed a research paper on plant communities in constructed wetlands. Her research introduced her to a

"You want to learn what the job really is, and the only way to do that is by talking to someone who does it. That will never be in a book."

— Kevin Doyle

Top Environmental Careers

Following is a list of the 11 fastest growing environmental careers from the Environmental Careers Organization and *Peterson's Job Opportunities in the Environment*.

■ **Chemists.** Their skills are required in many environmental fields, ranging from air pollution control to wastewater treatment to hazardous site remediation.

■ **Coastal Zone Managers.** Professionals in this interdisciplinary field protect coastal areas and deal with such topics as shoreline erosion, dune stabilization, wetlands ecology and the rise in sea level.

■ **Environmental Educators and Communicators.** Careers in this broad category cover positions ranging from college professors to wildlife photographers.

■ **Environmental Engineers.** An engineer's skills can be applied to investigate and mitigate environmental concerns ranging from wastewater treatment to hazardous site remediation.

■ **Geographic Information Systems Specialists.** These professionals manipulate computerized mapping information using powerful

new computer software and data bases.

■ **Hydrogeologists.** These experts analyze the quality and quantity of underground water, and their skills are in high demand in the remediation of contaminated sites.

■ **Industrial Hygienists.** People employed in this field, which focuses on environmental health and safety in the work place, includes growing opportunities in the area of indoor air quality.

■ **Land Use Planners.** These professionals seek to identify how much development can be supported by local resources and create plans to guide future development.

■ **Recycling Coordinators.** These individuals in the field of solid waste management coordinate the collection, distribution and reuse of recyclables.

■ **Risk Management Experts.** These specialists seek to quantify the environmental and health hazards associated with different policies or standards. This information often is used to determine environmental protection regulations.

■ **Wetlands Delineators.** These professionals identify wetland boundaries and seek to determine the health and function of wetland ecosystems to protect environmentally sensitive wetlands.

Outdoor writer Pete McLain photographs a falcon (opposite page, far left).

Joe Hughes, assistant state forest fire warden, (opposite page, left) lectures at Crossley Preserve in Berkeley Township.

Peggy Vargas captures a timber rattlesnake. Leg guards under her pants protect her legs from snake bites.

ROBERT T. ZAPPALORTI



team of consultants with Malcolm Pirnie Inc. who were working in the Meadowlands.

She had a job offer from Malcolm Pirnie waiting for her upon graduation and, today, she travels the country as a project scientist performing wetland delineations, environment impact statement and endangered species reviews — often all at once on a site.

"I'm applying skills that I've used all my life — skills such as plant identification," Hansen says. "I love field work. You could put me out there five days a week, and I'd be a happy camper."

Like Doyle, Hansen recommends experimenting with part-time work or internships before deciding on a career. Her first two jobs convinced her that teaching was too repetitive for her taste, she says. "You have to try different things. You really have to learn about yourself and what you want to do," she says. "Talk to a lot of people and don't be afraid to get your hands dirty."

Biologist Dave Durofchalk got his hands dirty — and bitten — on his first job as an environmental professional, a summer job collecting mosquitoes for the Warren County Mosquito Control

Biologist Dave Durofchalk got his hands dirty — and bitten — on his first job as an environmental professional, a summer job collecting mosquitoes for the Warren County Mosquito Control Commission.

Commission. To measure the mosquito problem in different sites, he would roll up his sleeve and offer his arm as bait. As the pests landed, he would collect them with a hand-held suction gun and bring them back to a lab to identify the species.

In the worst spots, he might count as many as 100 mosquitoes landing in a minute. "I think it was only for 60 seconds at a time, but it seemed like forever," he says.

Durofchalk landed his current job as a biologist with Ecoscience Inc. after he met the firm's founder in a mycology graduate course. (Mycology is a branch of botany that studies fungi.)

He had been unable to find a job using his undergraduate degree in environmental planning, so he returned for a master's degree focusing on his lifelong love of fresh water. Today, he spends most of his time working in the field studying issues such as the ecological health of streams.

"I've always loved lakes and streams, and I love being outdoors," he says. "It's better to start off with something you're interested in, so you can make a lifetime out of it."

Even these "ideal" jobs have their bad days. Hansen recently returned from a long day mapping a site teeming with poison ivy, poison sumac, ticks, green briars and mosquitoes. "On those days, you do a lot of grumbling, but I still enjoy being out of doors," she says.

After all, before returning to school and the work force, Hansen endured poison ivy and ticks to enjoy a walk in the woods. Just as D'Altilio recycled long before it appeared in his job description.

"You're not just talking about your job. You're talking about your lifestyle," D'Altilio says. "It's not just something you do from 9 to 5. You have to live it."

Jim Morris is a freelance writer from Basking Ridge and associate director of Continuing Education at Cook College, Rutgers University.

The Library

The Library, formerly known as Bookshelf, has been expanded to include videotapes and other media as well as books.

The Bald Eagle of New Jersey, by Lowell Shaffer, co-produced by New Jersey Network and the Department of Environmental Protection's Division of Fish, Game and Wildlife, is a video on the endangered bald eagle from the "New Jersey Outdoors" television series. The program highlights conservation efforts by the Endangered and Nongame Species Program, including transplanting young eagles from Canada to hatching the eggs from New Jersey nests in Maryland and returning young, healthy eagles. *The cost is \$19.95. Available from New Jersey Network at (609) 777-5093.*

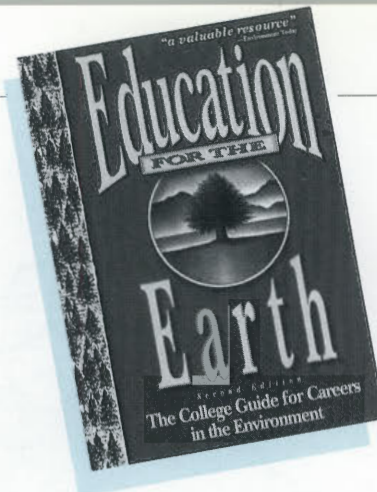
Checklist and Synonymy of New Jersey Higher Plants with Special Reference to Their Rarity and Wetland Indicator Status, by James A. Schmid and John T. Kartesz, published by Schmid & Company Inc., is a two-book reference set which includes a pocket size field guide to more than 3,100 species of plants in New Jersey and a desk manual to cross reference plants by their scientific and common names. *The cost is \$35 for the field manual, \$55 for the desk manual or \$75 for the set. Available from Schmid & Company, Consulting Ecologists at (610) 356-1416.*

Education for the Earth, published by Peterson's, is a college guide to careers in the environment. This book contains information to help students select academic programs and colleges that prepare them for careers in environmental engineering, environmental health, environmental science, environmental studies and natural resource management. *The cost is \$14.95. Available from bookstores or from Peterson's at (800) 338-3282.*

Fifty Hikes in New Jersey, by Bruce Scofield, Stella Green and H. Neil Zimmerman, published by Backcountry Press, is a guide to 50 hikes in New Jersey from Cape May to High Point. *The cost is \$13. Available from the New York-New Jersey Trail Conference at 232 Madison Avenue, New York, New York 10016, or by calling (212) 685-9699.*

Health Hints for Hikers, by Dr. Albert P. Rosen, published by the New York-New Jersey Trail Conference, is a guide to the most frequent health issues concerning hikers. This book features no-nonsense advice on preventing and coping with discomfort on the trail and covers self-help, life-saving techniques, hiking in hot and cold weather, allergies, insect bites, international hiking, hiking with children and babies, older hikers and exercise and conditioning. *The cost is \$8.95. Available from the NY-NJ Trail Conference at 232 Madison Avenue, New York, New York 10016, or by calling (212) 685-9699.*

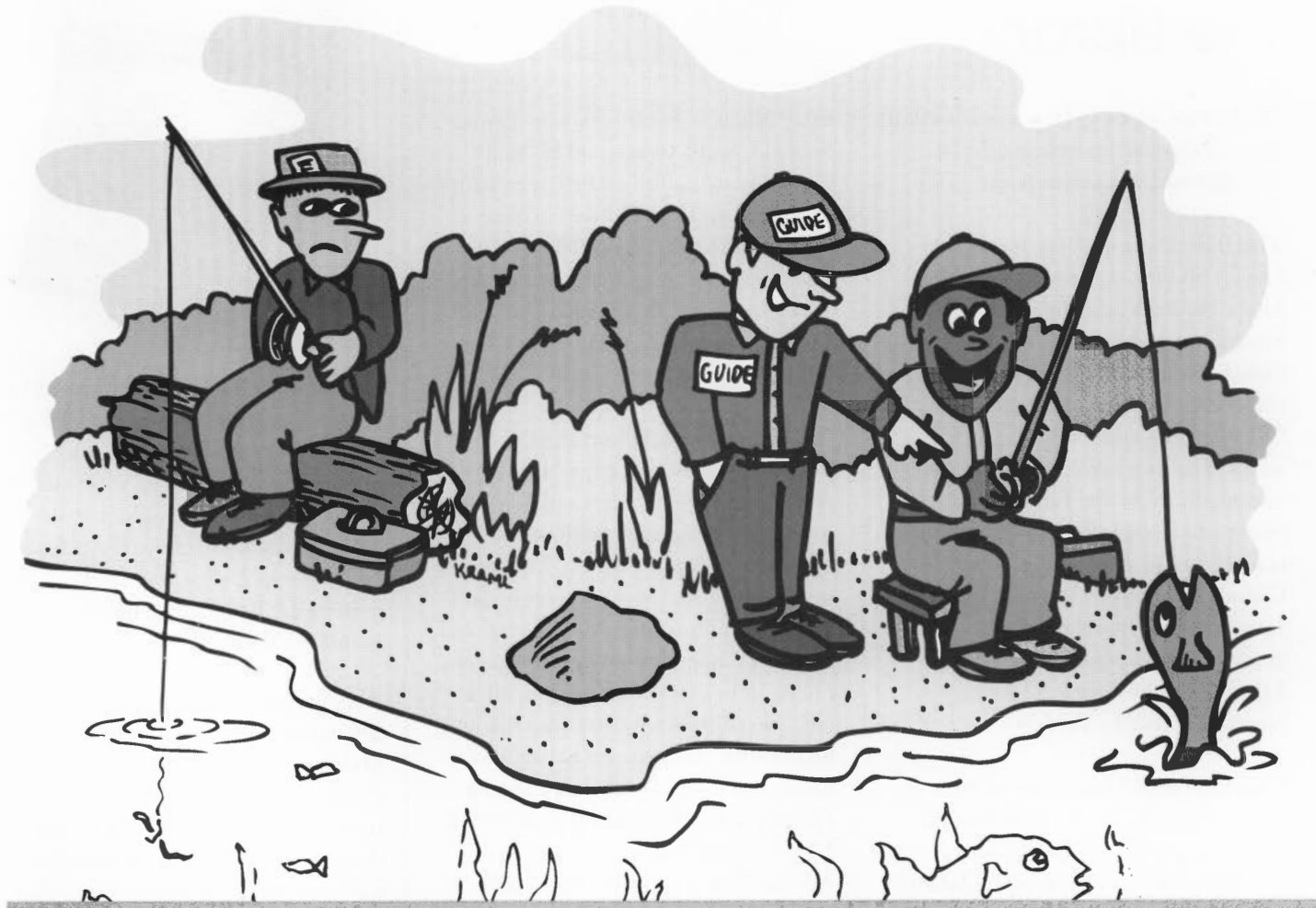
Lake Hopatcong Video Cruise, produced by Larry R. Morgan, is a 45-minute video portraying points of interest around Lake Hopatcong. The video takes the viewer on a journey around the lake from Brady Bridge to Hopatcong State Park to Woodport. It also contains live action shots from the old Bertrand Island Amusement Park. *The cost is \$29.95. Available at the Lake Hopatcong Historical Society Museum at Hopatcong State Park, Dawson Marine locations in Ledgewood and Lee's Park or by calling (201) 663-2976.*



Let's Clear Our Air, co-produced by New Jersey Network and the DEP's Office of Communications, is a 15-minute video that shows what citizens can do to solve the problem of air pollution in New Jersey. *The video is free, but supplies are limited. Available from the DEP Office of Communications at (609) 292-6877.*

Redesigning the Suburbs: Turning Sprawl into Centers, published by the Middlesex Somerset Mercer Regional Council and the Regional Plan Association, is a report that provides legal, design and planning recommendations for transforming inefficient sprawled highway development into pedestrian-friendly, livable communities. This document suggests creative ways of utilizing municipal zoning powers to improve land use practices as well as design principals for development. *The cost is \$30. Available from the Middlesex Somerset Mercer Regional Council at (609) 452-1717.*

Snowshoeing through Sewers: Adventures in New York City, New Jersey and Philadelphia, by Michael Aaron Rockland, published by Rutgers University Press, is a collection of 10 poetic or comic tales about biking, walking and paddling in the most densely populated chunk of America, the New York/Philadelphia corridor. The adventures include pedaling among tractor trailers on Route 1, exploring the Morris and Delaware and Raritan canals and paddling the dark tunnels under Trenton. *The cost is \$21.95. Available at bookstores or from Rutgers University Press at (800) 446-9323.*



Guided Fishing Tours in New Jersey

by Oliver Shapiro

If you can't get to Alaska for the salmon run or Montana for the pristine trout fishing streams or Minnesota for the trophy walleye, don't despair. For a fraction of the cost and an investment of only a day, you can treat yourself to a fishing trip in New Jersey that can rival many out-of-state experiences.

"New Jersey's fishing is better than many people realize," says Kirk Webb, a bass fishing guide on Lake Hopatcong.

New Jersey has a rich variety of game fish and, despite the population density, the state offers some of the best fishing opportunities in the Northeast. And like many of the famous fishing regions throughout the United States and Canada, the Garden State has fishing guides to steer you to the best locations.

Why use a guide? Hire a guide for the same reason you would pay a lawyer, carpenter or electrician — for their expertise, experience and resources. Many guides have years of experience, in-depth knowledge of game species' habits and whereabouts, and the equipment to locate and catch them. Even professional anglers hire guides when traveling to get familiar with a particular body of water, the location of fish and successful techniques for catching fish.

Many states (e.g., New York) have specific requirements for guides, such as certification and licensing programs. Although New Jersey has no formal programs, the Department of Environmental Protection's (DEP's) Division of Fish, Game and Wildlife maintains a list of known hunting and fishing guides.

Surprisingly, many people travel to this state from New York, Pennsylvania and Delaware to sample the fishing. There have even been anglers from as far away as England and Italy who have come to fish New Jersey waters.

"I like New Jersey fishing best," says Tom Hewston of Pennsylvania, who has fished all over the United States, but appreciates the variety of fish and fishing opportunities available in the Garden State.

In addition to helping their customers catch fish, many professional guides also provide helpful tips on fishing techniques, as well as fish habits. These could include such things as correct knot tying, the proper operation of equipment, the right way to hook, play and land a fish, or instructions in specific fish-catching techniques, such as the "Texas-rigged worm."

Guided trips often range in price from less than \$100 to approximately \$250. A typical day may include the use of a boat, four to eight hours of time on the water, tackle and equipment and instruction. Guides can usually accommodate up to three or four anglers at once.

In the majority of cases, the only item that an angler needs to bring on a guided trip is a valid New Jersey fishing license, which is available from many town halls and tackle stores across the state. Those in pursuit of trout must also purchase a trout stamp.

New Jersey is a popular destination for bass, shad and trout. Bass and trout are contenders for the number one spot as America's most popular freshwater game fish, while shad attract attention for several weeks each year as they begin their spawning run up the Delaware River and other freshwater tributaries.

The Fighting Bass

Bass are so popular that there are various sport fishing and conservation organizations dedicated to this fish nationwide. The world record largemouth bass, caught about 50 years ago in Georgia, was more than 22 pounds, and the New Jersey state record holder pushed the scale to a little more than 10 pounds.

Bass are notorious for being both finicky and temperamental, making them unique among game fish. And when they are hooked, they are likely to put on a display that will excite anglers of all ages. These displays are not just for show; a bass shaking its head vigorously has an uncanny ability to dislodge and throw off an offending lure.

Largemouth bass are present in a large number of ponds, lakes, reservoirs and some rivers in the state. They are native to some waterways and have been established via stocking programs in others. Many waters are also home to the slightly more diminutive smallmouth bass, a feisty fighter and game fish in its own right.

Many of the Garden State's bass guides are concentrated on Lake Hopatcong and Greenwood Lake. Hopatcong, located in Morris and Sussex counties, is the largest lake in New Jersey. Greenwood is somewhat smaller and is located in Passaic County and New York State's Orange County.

The typical guide for this species will host you on a fully-rigged bass boat. The boat, in addition to providing ease and comfort, will enable the angler to move quickly from one spot to another.

Many bass guides participate in structured fishing events, such as Bass Anglers Sportmen's Society tournaments, to increase their knowledge of the sport as well as to win prizes. Some also conduct seminars on bass fishing and appear at local sports enthusiast's shows.

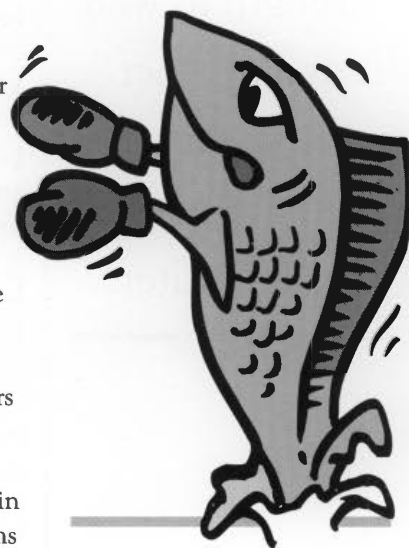
A typical success rate with a bass guide is up to a dozen fish per angler, and as many as 40 fish per person have been caught on a good day. Besides bass, most anglers catch other incidental fish, such as pickerel, trout, crappies, perch and an occasional muskellunge.

Russ Cannici, a guide for nine years, says bass fishing is highly structured and finding the species is the first step.

"In the spring, they often congregate around submerged standing timber or fallen logs, mostly in shallow areas," he says. "As summer progresses, they tend to stick to weedy areas in deeper water. Then in autumn, they'll move shallower again, usually staying near weed lines that are closest to the shore."

The lures and techniques used in bass fishing also vary.

"You've got to first determine how active they are," Cannici says. "If they are feeding aggressively, then a fast-moving lure like a spinnerbait or crankbait is the answer. If they seem more lethargic, then you've got to slow down accordingly, using a plastic worm or jig."



Hire a guide for the same reason you would pay a lawyer, carpenter or electrician — for their expertise, experience and resources.

Trout are a paradoxical fish, showing both unusual strength as well as a distinct sensitivity to contamination in the water.

Shad Run on the Delaware

The American shad begins its life cycle in the freshwater tributaries off the Delaware River and other major waterways. Early in life, they make their way downstream to the ocean. When they are ready to spawn, they return to their freshwater origins and, after reproducing, they usually die.

By the time they return, shad have matured and many typically weigh from three to six pounds. They are related to the saltwater tarpon, and they often imitate that species with vigorous jumps and line-stretching runs. They are sometimes a little tricky to catch because, like many anadromous (saltwater fish that spawn to fresh water) species, they do not actively feed. They will strike brightly-colored lures based on reflex, and their tender mouth requires that they be played with great care.

Often the major obstacle in catching shad is locating them, because they tend to migrate in loosely-formed groups and are not usually available on a given stretch of river for a long time.

New Jersey residents are fortunate to have the Delaware River along the state's western border. Each year, in early spring, the American shad begin their spawning run up the river, attracting hordes of anglers. To get an edge on this crowd, there are a number of guides available to help you find and catch these migrating fish.

Eugene Niederlander, a guide on the Delaware River for about a dozen years, recommends brightly-colored lures, known as shad darts and flutters, either in gold or silver finishes or painted in bright colors.

"The shad are mostly American shad, with a few hickory thrown in," Niederlander says. "During their spawning run, they don't feed at all; if you were to examine their stomachs, you would find them empty. Since they're striking lures out of instinct, besides hunger, almost anything in a bright color will attract their attention and get them to strike — if they are prone to striking."

Anglers typically catch 10 to 12 shad per trip, with an exceptional day bringing in up to 60 fish. And the stray walleye or muskellunge are sometimes hooked on these trips.

Garden State Trout

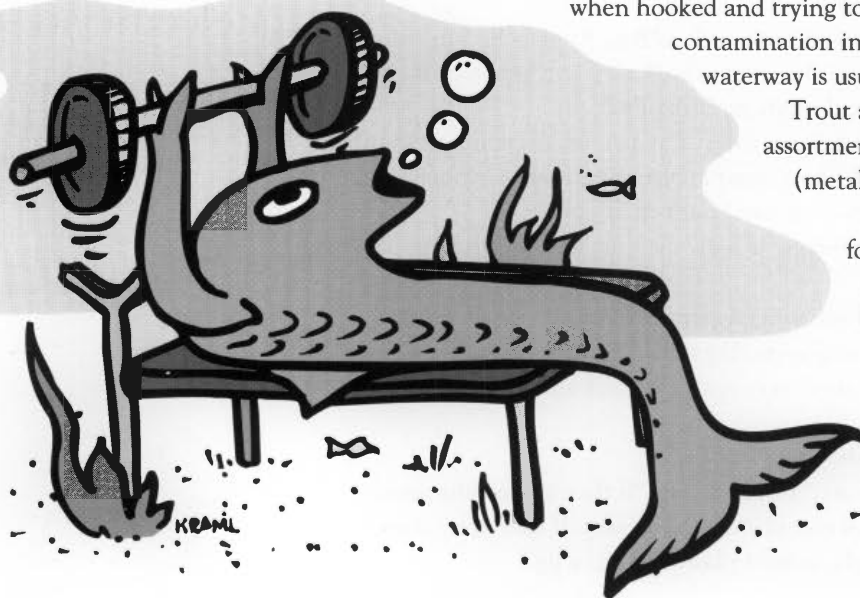
Although the brook trout is the only trout species indigenous to New Jersey waters, rainbow and brown trout have been successfully stocked in many Garden State lakes and rivers, sometimes even establishing reproducing populations. The trout has captured the angler's imagination throughout history due to its great beauty and often highly selective feeding habits.

Trout are a paradoxical fish, showing both unusual strength (especially when hooked and trying to get away) as well as a distinct sensitivity to contamination in the water. A healthy trout population in a waterway is usually a reliable sign of good water quality.

Trout are targeted by a wide variety of anglers using an assortment of techniques such as fly, bait and hardware (metals and plastic lures).

The Garden State has some stiff competition for trout waters among the East Coast fraternity of states. Pennsylvania has its Letort and Falling Springs and New York has its famous Catskills rivers, including the Beaverkill. Yet New Jersey anglers can have a respectable — and often outstanding day — on the likes of such streams as the Musconetcong, Pequest, Paulinskill and Big Flat Brook.

There are a few guides available for these popular species in our home state.



"When fishing for trout, I usually look for pools, or areas under overhanging brush and branches," says Cliff Tinsman, a guide specializing in fly fishing on the Musconetcong River. "Trees or logs that have fallen into the stream are also good spots. These types of areas often provide insects for trout to feed on."

The type of fly used depends on the stream or even sections of the stream, Tinsman says.

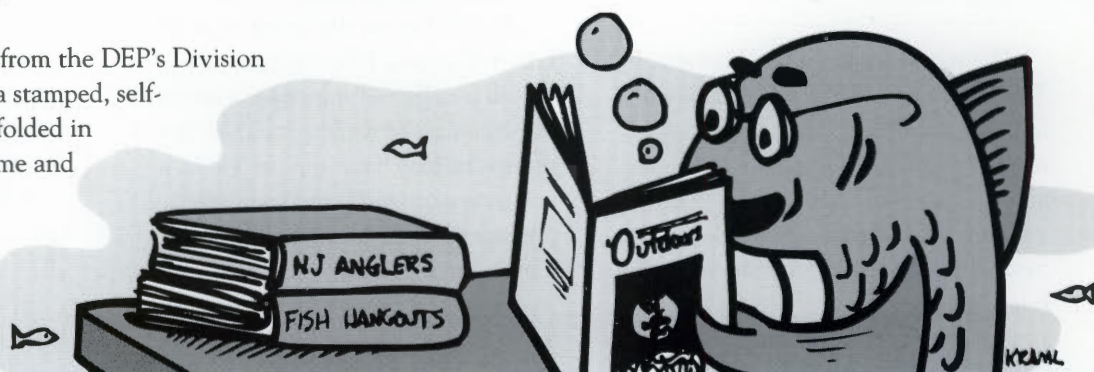
"A size 16 shrimp scud pattern may work well at one place, but at the same time, a hare's ear nymph pattern might be the ticket at another place. You must try to determine what they are feeding on at the spot you're fishing."

These three fish — bass, shad and trout — all share certain characteristics. They are a challenge and delight to catch and, at the same time, are available in sufficient numbers that anglers have a reasonable expectation of success — if they concentrate on the proper location and techniques. And this is precisely where guides may shine. These professionals can, by bringing you to the right places and helping you with the right presentation, stack the cards in your favor and provide you with a day whose memories will last for years — or, at least, until the next outing.

So next time you need a fishing vacation, but can't afford a trip, try contacting one of New Jersey's own. You'll be glad you did.

A list of fishing guides is available from the DEP's Division of Fish, Game and Wildlife. Send a stamped, self-addressed, business size envelope (folded in thirds) to the Division of Fish, Game and Wildlife, CN 400, Trenton, New Jersey 08625-0400.

Oliver Shapiro is a freelance outdoors writer who lives in Passaic.



The New Jersey Departments of Environmental Protection and Health have issued an advisory on the consumption of bass and pickerel caught in certain New Jersey lakes, streams, rivers and reservoirs. Some fish, including those caught in Lake Hopatcong and the Delaware River, have been found to contain elevated levels of mercury, and consumption should be limited, particularly for pregnant and nursing women and children under five.

A Guide to Guides

Before you venture out on your guided fishing expedition, here are a few tips to picking the best guide.

- **Locate the guides.**

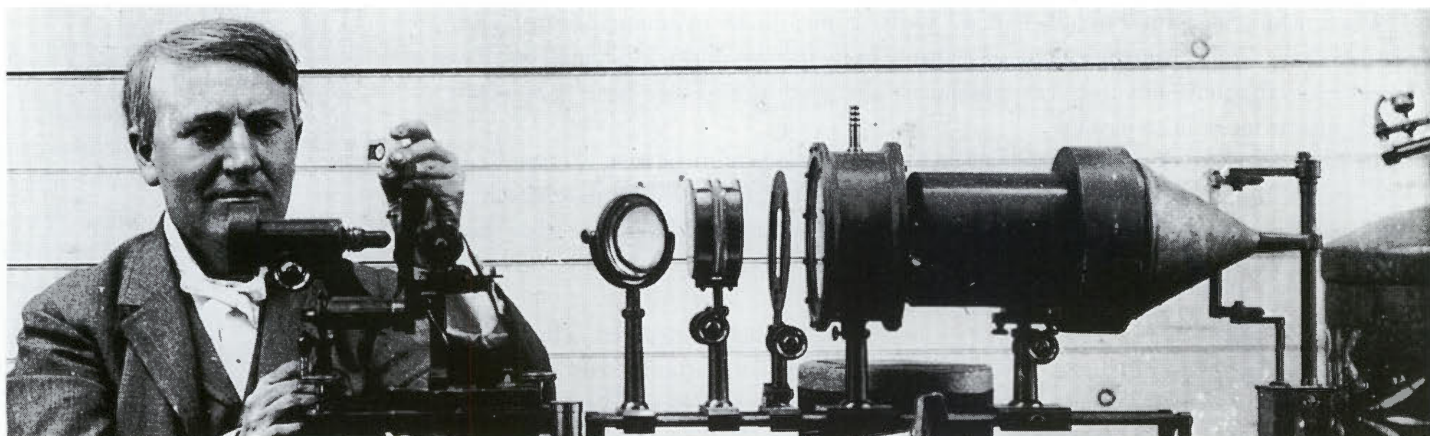
Many businesses associated with fishing, such as bait and tackle shops and marinas on large bodies of water, know the local fishing guides and can supply you with names or numbers. Keep trying. If one establishment can't help you, try another one.

- **Determine their expertise.** Ask the prospective guide how long they have been fishing the body of water for your targeted species. Also determine how long they have been a guide and how enthusiastic they are about the sport. Ask for references and call them. Finally, see if they offer a guarantee — such as a second trip at a reduced rate — if no fish are caught. The guide's answers will give you an idea as to their level of expertise and success rates.

- **Set the details of the trip.** Find out the cost of the

trip and what is included. Is there an extra charge for additional people? Does it include tackle such as rods, reels and lures? How long will the trip be and does it include non-fishing time (e.g., getting from one spot to another)? Will lunch, snacks or beverages be provided or should you provide your own? Will you take an eating break at a local restaurant? Will the guide cancel the trip or provide rain gear in inclement weather? Are there penalties if you're the one who cancels?

- **Inquire about fishing issues.** Many professional guides practice "catch and release" where certain prized game fish, such as bass and trout, are let go after the catch. This allows them to spawn and provides an opportunity for other anglers. Be sure that you and the guide agree in advance whether trophy-size fish can be brought home for mounting or the dinner table. It is also important to let the guide know your level of fishing experience so he or she can plan accordingly.



The Inventor's Workshop

The movie studio. The phonograph. The first practical light bulb. The wiring, transformers and meter systems needed to provide electricity to homes and businesses. The legislative vote counter. The first reliable stock ticker. Several important improvements to the telegraph machine.

A person inventing any one of these devices would be notable, but the man who did all of them, despite little formal education, was more. Thomas A. Edison was a genius.

To walk through Edison's West Orange laboratory, where his acid-scarred lab coat still hangs as if he has just gone home for the evening, is to discover the man behind 1,093 patents.

In his three-story library, for instance, there is a simple bed in an alcove of books. Edison, whose time cards show he worked 80 to 100 hours a week, would catnap on a desk or table or anywhere handy. As he aged, his second wife, Mina, insisted that the cot be installed to provide a better place for Edison to rest his head.

His roll-top desk, closed at his death in 1931 and reopened in 1947 to mark the 100th anniversary of his birth, reveals two small bottles of mouthwash beside stacks of papers. Asked about it, a National Park

Service guide explains that inventing was far more appealing to the cigar-smoking Edison than oral hygiene, and he often settled for a quick gargle.

George Tselos, the archivist at the Edison National Historic Site, says Edison usually met important visitors in his shirt-sleeved working clothes. But although he may have appeared to be a common man, he had ten autographed photographs of American presidents hanging in his library. Among his friends were automobile inventor Henry Ford and rubber magnate Harvey Firestone.

The Early Years

Born in the tiny town of Milan, Ohio, Edison grew up in a family supported by a jack-of-all-trades father. He attended only about two years of public school. His mother, a former school teacher, frequently removed him from school because the family could not afford the fees and because she felt his natural curiosity was strangled by the teachers' emphasis on docile behavior.

"He was the sort of person who was constantly looking at a particular problem and thinking about a way to solve it," says Tselos.

Even after Edison left home at the age of 12 to work on the railroad, he continued his book learning. During layovers in Detroit, he would rush to the public library and spend all his time reading.

Edison joined Western Union as a telegraph operator when he was a teen-

ager. Although many of his colleagues liked to tinker with the equipment, it was the only activity Edison pursued in his spare time, consuming most of his pay check. That led to his first invention — a stock market printer — which gave him the funds to resign from Western Union and develop telegraph improvements.

Edison located his first shop in Newark, which was close to New York City, the center of the communications industry. Here he began a work style that would serve him well his whole life. He would think of an idea for a device, then assign a team of skilled technicians, or perhaps several teams unknowingly working on the same project, to create the mechanism. Because he thought the non-traditional approach often solved problems, he chose employees with a wide range of knowledge.

When Edison outgrew his quarters, he moved to Menlo Park, where he perfected the incandescent lamp and the telephone transmitter. He also took time to install a model electricity delivery system in Manhattan's financial district, using the many gadgets he had been forced to invent in order to make his light bulb a usable device.

The small lab was also the site where Edison invented the phonograph and where the world's first recorded words — Mary Had a Little Lamb — were heard.

The Wizard of Menlo Park, as he was known, operated in the first modern



research and development laboratory. It was the first time anyone had brought together scientists, machinists and inventors to work in the same facility. The team-based R&D concept became widely accepted and was later used in the Bell and Westinghouse laboratories.

By 1887, Edison felt cramped for space in Menlo Park and wanted to escape memories of his recently-deceased first wife. He chose West Orange. Although now surrounded by a large city, the site was then quiet and rural.

It would not stay quiet for long.

Edison eventually brought 4,000 workers to the city in a complex that spanned several city blocks. During his lifetime, he managed 30 companies, including those making children's furniture, home appliances and light bulbs.

Edison's laboratory and nearby home, Glenmont, remain as they were in 1931, when Edison became bedridden and died four months later at the age of 84. The historic site will gradually be renovated to depict his life from 1910 to 1920, during the heyday of his inventing career.

Only about one-third of the research and manufacturing buildings are left at the West Orange site. Most were torn down or are not opened to visitors. One large research building was moved intact to the Henry Ford Museum in Michigan, where it resides along with remnants of the Menlo Park facility.

A tour of the West Orange site takes

people through the visitor's center, where several of Edison's inventions are on display, including the silent movie "The Great Train Robbery." Outside is the Black Maria, Edison's first movie studio. Although his company produced the film, he was more involved in the movie-making equipment, inventing the odd-shaped large room on a circular railroad track so that it could be manually rotated every 20 minutes to obtain the best sunlight.

Stops on the tour also include the library, large storage rooms, the chemistry laboratories and the machine shop.

The Invention Factory

At the front entrance to the facility is a sidewalk that bears the name Portland Cement. Edison developed the first large-scale cement production facility using a large kiln and equipment he invented for a failed \$10 million iron ore extracting plant. Portland cement was produced in one of Edison's factories in western New Jersey, and it was used to build Yankee Stadium.

Edison's last large project — which may have been arranged by Ford and Firestone to keep a depressed Edison busy as his health declined — was to find a substitute for rubber. It was Edison's first foray into plant genetics, and he had grown a 14-foot goldenrod plant as a basis for his experiments. His car bore four goldenrod tires, but they did not wear well, and he died

To walk through
Edison's West Orange
laboratory is to
discover the man
behind 1,093 patents.

before a substitute was perfected.

Edison would often brag that his machinists could build anything from a lady's watch to a locomotive. Urged on by Edison, a man who could worry as much about delivering a believable recording of a fox trot as bringing electricity to Wall Street, they did.

That's genius.

The Edison National Historic Site is located at Main Street and Lakeside Avenue in West Orange. The visitor's center is open daily from 9 a.m. to 5 p.m. except for Thanksgiving, Christmas and New Year's Day. Tours of Glenmont and the laboratories are available Wednesday through Sunday. Admission is \$2 for adults and free for children under 17 years of age. For more information, call (201) 736-0550.

by Ellen Dean Wilson, a freelance writer who lives in Trenton

Thomas Edison experimenting with optics and micrography in 1893 (opposite page).

Thomas Edison's desk (above), which is in the library of his West Orange laboratory, is preserved as it was at the time of his death.

Events

March

1 MOONLIGHT HIKE (Also April 15)

Tour Whitesbog Village by the light of the moon. **Hours:** 7 to 9:30 p.m. **Admission:** Call for information **Phone:** (609) 893-4646 **Location:** Whitesbog Village, Whitesbog Road, Browns Mills

2 EAT AND LEARN (Also March 9, 16, 23 and 30) Join these lunch time lectures on the environment. Bring your own lunch. **Hours:** Noon **Admission:** Free **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

4 DECOY DAY The show celebrates this South Jersey art form through decoy collecting, carving and crafting. **Hours:** 10 a.m. to 4 p.m. **Admission:** Adults, \$3; children, \$2 **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

4 THE DOLLMAKERS Enjoy this exhibition and sale of antique dolls; collectible contemporary and artistic dolls; doll-making demonstrations and more. **Hours:** 10 a.m. to 5 p.m. **Admission:** Adults, \$6; seniors, \$5.50; students, \$3.50; children under 5, free **Phone:** (609) 825-6800 **Location:** Wheaton Village, Glasstown Road, Millville

4 MAPLE SUGARING We provide the tap, you collect the sap. **Hours:** 1 to 3:30 p.m. **Admission:** \$5 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Road, Wickatunk

4 NATIVE AMERICANS THEN AND NOW Learn how American Indians lived, hunted and dressed. **Hours:** 10 a.m. **Admission:** \$3.50 **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

4 PINELANDS SHORT COURSE Learn about the science, history and folklore of the New Jersey Pine Barrens through 19 different workshops. Choose from courses on wildflowers, canoeing, Whitesbog Village, topographic maps and pirates. **Hours:** 8 a.m. to 3:30 p.m. **Admission:** Call for information **Phone:** (609)

894-9342 **Location:** Rutgers University, Cook-Douglass Campus, Hickman Hall, New Brunswick

4 WILDLIFE REHABILITATION Join this discussion and demonstration by various wildlife rehabilitators on the care of injured and orphaned animals. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

4 WOODCOCK DANCE (Also March 11) Witness the dance and nuptial flight of the male woodcock in this annual spring ritual. **Hours:** 5 to 6:30 p.m. **Admission:** Members, \$5; non-members, \$8 **Phone:** (609) 884-2736 **Location:** Cape May Bird Observatory, E. Lake Drive, Cape May

4-5 PLANETARIUM SHOWS (Also every weekend through May 28) Learn about constellations and other topics of the sky. **Hours:** 1, 2 or 3 p.m. **Admission:** \$1 **Phone:** (609) 292-6308 **Location:** New Jersey State Museum, W. State Street, Trenton

5 E. MURRAY TODD HALF MARATHON Join this 13.1 mile race along the scenic roads of Holmdel, Colts Neck and Middletown Township. **Hours:** 9 a.m. **Admission:** Pre-registration, \$12; day of the race, \$15 **Phone:** (908) 842-8000 **Location:** Brookdale Community College, Newman Springs Road, Lincroft

5 FAMILY DAY Learn about games, toys and puzzles from the last 100 years. **Hours:** Noon to 5 p.m. **Admission:** Free **Phone:** (609) 292-6308 **Location:** New Jersey State Museum, W. State Street, Trenton

5 HIKING IN NEW JERSEY Learn about the best places to hike in New Jersey during a slide presentation by author Arline Zatz. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

6-10 PRESCHOOL SCIENCE FAIR (Also March 13-17) Learn about science through challenging exhibits for children ages 4 to 6 years old. **Hours:** 11 a.m. to noon

(March 6-10); 1 to 2 p.m. (March 13-17) **Admission:** Call for information **Phone:** (908) 789-3670 **Location:** Trailside Nature and Science Center, New Providence Road and Coles Avenue, Mountainside

11 CROSS COUNTRY SKIING (Also March 19) Enjoy cross country skiing (weather permitting) or hiking on hundreds of acres of farmland and a hot luncheon, wine tasting and wine cellar tours. **Hours:** Call for information **Admission:** \$20 (Reservations required) **Phone:** (908) 475-3872 **Location:** Matarazzo Farms, Route 519, Belvidere

11 GARDENING FOR WILDLIFE Enhance the beauty and value of your home as you learn the techniques for using native plants to provide the basics for wildlife including food, cover and a place to reproduce. **Hours:** 10 a.m. **Admission:** \$5 (Pre-registration required) **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

11 FAMILY PROGRAMS (Also March 18, April 1) Join these programs for families which include information on animal courtship and flowers, fruits and seeds. **Hours:** 10:30 a.m. to noon **Admission:** Free **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

12 MAPLE SUGARING OPEN HOUSE Experience maple sugaring firsthand as you pick the right tree, drill tap holes and turn sap into syrup. **Hours:** 1 to 4 p.m. **Admission:** Members, \$2; non-members, \$3.50 **Phone:** (201) 835-2160 **Location:** Weis Ecology Center, Snake Den Road, Ringwood

12 PENNY RUG MAKING DEMONSTRATION See how rugs were made during Colonial days. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

18 FISHING EXPO See the latest fishing equipment and learn more about lures and lures. **Hours:** 10 a.m. to 5 p.m. **Admission:** Adults, \$9; children 2-11, \$6; students with

ID cards and seniors, \$7.50 **Phone:** (609) 365-3300 **Location:** Thomas H. Kean New Jersey State Aquarium, Riverside Drive, Camden

18 TOYS FOR KIDS WORKSHOP Use throwaway items to create board games, skill games, guessing games and counting games for children. For ages 5 to 7. **Hours:** Call for information **Admission:** \$3 (Pre-registration required) **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

18 WOODCOCK WALK Join naturalists on a field trip at dusk to witness the woodcock mating ritual. **Hours:** 5 to 7 p.m. **Admission:** Members, \$4; non-members, \$6 **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

19 HIKE OR CROSS COUNTRY SKI Enjoy the Paulinskill Valley Trail with a hike or cross country skiing expedition of five, seven or 10 miles. **Hours:** 10 a.m. **Admission:** Free **Phone:** (908) 852-0597 **Location:** Footbridge Park, Footbridge Lane, Blairstown

19 MAPLE SUGARING PANCAKE BRUNCH OPEN HOUSE Celebrate the end of maple sugaring season and the arrival of spring at this annual pancake brunch featuring fresh maple syrup. **Hours:** 9 a.m. to noon **Admission:** Members, \$4; non-members, \$6 **Phone:** (201) 835-2160 **Location:** Weis Ecology Center, Snake Den Road, Ringwood

19 THOMAS PAINE — PATRIOT Historian Richard Canoe will present a lecture on the Revolutionary War figure who authored "Common Sense." **Hours:** 2 p.m. **Admission:** Free (Reservations required) **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

20 MINERAL CLUB SHOW Enjoy displays, lectures, demonstrations, sales and workshop on minerals found in New Jersey. **Hours:** 1 to 5 p.m. **Admission:** Call for information **Phone:** (908) 789-3670 **Location:** Trailside Nature and Science Center, New Providence Road, Mountainside

25 COLD DUCK: WINTER WATER-FOWL WATCH Carpool to local hot spots

in search of winter ducks, geese and more. **Hours:** 8 a.m. to 2 p.m. **Admission:** Members, \$4; non-members, \$6 **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

25 POOR MAN'S PELAGIC TRIP Enjoy a day aboard the Cape May ferry in search of the area's sea ducks, red-throated loons, Bonaparte's gulls, horned grebes and gannets. **Hours:** 6:20 to 9:30 a.m. **Admission:** Members, \$8; non-members, \$12 (plus \$8.50 ferry fare) **Phone:** (609) 884-2736 **Location:** Cape May Bird Observatory, E. Lake Drive, Cape May

25 STELLAR EVENTS (Also April 22 and May 27) Enjoy star gazing or listening to presentations on astronomy during New Jersey Astronomical Association's monthly meetings. **Hours:** Call for information **Admission:** \$1 donation **Phone:** (908) 638-8500 **Location:** Voorhees State Park, Observatory, Voorhees

25-26 BIRD WATCHING FOR BEGINNERS Join this two-day course to learn all aspects of bird watching, including bird identification, equipment and how to attract birds to your own backyard. **Hours:** 7 to 10 p.m. (March 25); 8 to 10 a.m. (March 26) **Admission:** Members, \$10; non-members, \$15 **Phone:** (609) 884-2736 **Location:** Cape May Bird Observatory, E. Lake Drive, Cape May

25-26 HOMES FOR WILDLIFE See this display of the nesting boxes used by various animals and get plans to build your own. **Hours:** 11 a.m. to 4 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

26 BLACKSMITHING DEMONSTRATION See the art of shoeing horses as practiced in Colonial times. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

April

1 INTERPRETIVE GEOLOGY WALK OR HIKE Explore the geology of

North Jersey during this five, seven or 10-mile hike. **Hours:** 10 a.m. **Admission:** Free **Phone:** (908) 852-0597 **Location:** Footbridge Park, Footbridge Lane, Blairstown

1 WILDLIFE SUNDAY This event for the whole family focuses on wildlife in New Jersey and includes live animals, talks, bird walks, crafts for children and light refreshments. **Hours:** 1 to 5 p.m. **Admission:** Donation requested **Phone:** (908) 789-3671 **Location:** Trailside Nature and Science Center, New Providence Road and Coles Avenue, Mountainside

1-2 PEQUEST TROUT HATCHERY OPEN HOUSE Celebrate the arrival of trout season with a self-guided tour of the hatchery, displays and exhibits on New Jersey wildlife, a living history encampment, a BB gun and archery range, Smokey Bear, wildlife artists, videos and more. **Hours:** 10 a.m. to 4 p.m. **Admission:** Free **Phone:** (908) 637-4125 **Location:** Pequest Trout Hatchery and Natural Resource Education Center, Route 46, nine miles west of Hackettstown

2 FAMILY DAY Participate in workshops on birds, bats, bugs and brontosaurus at this day of family fun. **Hours:** Noon to 5 p.m. **Admission:** Free **Phone:** (609) 292-6308 **Location:** New Jersey State Museum, W. State Street, Trenton

2 FLINT KNAPPING AND INDIAN JEWELRY MAKING Learn how to make flint arrowheads as well as Native American jewelry. **Hours:** 2 to 4:30 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

2 HEARTH COOKING DEMONSTRATION See how food was cooked during Colonial times. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

8 EGGORAMA Search for eggs dyed with nature's colors and enjoy parachute games, relay races and more. **Hours:** 1 to 2:30 p.m. **Admission:** \$5 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Road, Wickatunk

8 FINE AND DECORATIVE ARTS FROM NEW JERSEY'S COLONIAL DAMES (Through May 28) See an exhibit of the American treasures owned by New Jersey's Colonial Dames, including objects from Peachfield, the headquarters of the New Jersey Chapter of Colonial Dames. **Hours:** 9 a.m. to 4:45 p.m. (Tuesday through Saturday); noon to 5 p.m. (Sunday) **Admission:** Free **Phone:** (609) 292-6308 **Location:** New Jersey State Museum, W. State Street, Trenton

8 MUSEUM OF AMERICAN GLASS Enjoy this exhibition of sculptural bottles at Wheaton Village. **Hours:** 10 a.m. to 5 p.m. **Admission:** Adults, \$6; seniors, \$5.50; students, \$3.50; children under 5, free **Phone:** (609) 825-6800 **Location:** Wheaton Village, Glasstown Road, Millville

8 OPENING DAY OF TROUT SEASON Enjoy the first day of trout season at one of more than 200 bodies of water stocked by the Division of Fish, Game and Wildlife. **Hours:** 8 a.m. **Admission:** License fees for ages 14-69 **Phone:** (908) 637-4125 **Location:** Any public freshwater body statewide

8 PAWS FARM EASTER EGG HUNT Come join this annual Easter egg hunt and meet the Sunshine Rabbit. **Hours:** Call for information **Admission:** \$2 per child **Phone:** (609) 778-8795 **Location:** Paws Farm Nature Center, Hainesport-Mt. Laurel Road, Mt. Laurel

8-9 PINE CREEK RAILROAD EASTER EXPRESS (Also April 15-16) Talk to the Easter Bunny during this 15-minute ride aboard a diesel train. **Hours:** Noon to 4 p.m. **Admission:** \$2 **Phone:** (908) 938-5524 **Location:** Allaire Village, Allaire State Park, Farmingdale

9 PICKEREL CATCH Catch pickerel from the ponds and bogs of Whitesbog. (Licenses required) **Hours:** 8 a.m. to 1 p.m. **Admission:** Call for information **Phone:** (609) 893-4646 **Location:** Whitesbog Village, Whitesbog Road, Browns Mills

15 CAMOUFLAGED EGG HUNT This new twist to a traditional Easter activity has eggs camouflaged to blend into their surroundings. **Hours:** 2 to 3:15 p.m. **Admission:** \$3.50 **Phone:** (201) 835-2160 **Location:** Weis Ecology Center, Snake Den Road, Ringwood

15 CANOE TRIP IN THE PINE BARRENS Travel by bus to Winding River for a fun canoe trip and encounter with nature. **Hours:** Call for information **Admission:** Call for information **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

22 BAYFEST '95 Join this annual festival celebrating community life along the Great Egg Harbor Bay featuring seafood, crafts and more. **Hours:** All day **Admission:** Free **Phone:** (609) 927-5253 **Location:** Bayfront Historic District, Bay Avenue, Somers Point

22 COASTAL EXPLORER (Also April 29) Join these sessions designed for young people to learn about the natural resources of the beach and the marsh. **Hours:** 1 to 3 p.m. **Admission:** \$12 (Pre-registration required) **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

22 EARTH DAY Dive into this celebration of our "water planet." **Hours:** 10 a.m. to 5 p.m. **Admission:** Adults, \$9; children 2-11, \$6; students with ID cards and seniors, \$7.50 **Phone:** (609) 365-3300 **Location:** Thomas H. Kean New Jersey State Aquarium, Riverside Drive, Camden

22 EARTH'S WELL FAIR Celebrate Earth Day and Poricy Park's silver jubilee with this fair featuring hands-on exhibits, educational stations, historic demonstrations, fossil digging, games, competitions, walks, music, food, pony rides and presentations. **Hours:** Noon to 6 p.m. **Admission:** Free **Phone:** (908) 842-5966 **Location:** Poricy Park Nature Center, Oak Hill Road, Middletown

22 FESTIVAL OF THE SKIES This special day features things that fly, including kites, rockets, balloons, model airplanes

and more. **Hours:** 11 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 842-4000 **Location:** Dorbrook Recreation Area, Route 537, Colts Neck

22 MORNING BIRD WALK (Also April 29) Join a naturalist as you search for birds. **Hours:** 8 a.m. **Admission:** Members, \$2; non-members, \$3 **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

23 BOBBIN LACE MAKING DEMONSTRATION See how lace was made during Colonial times. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

23 AN EARTH DAY CELEBRATION The Stonybrook-Millstone Watershed Association inaugurates a new nature center during this celebration, which includes music, hikes, activities for children, crafts, food and a theatrical production. **Hours:** 11 a.m. **Admission:** Call for information **Phone:** (609) 737-7592 **Location:** Stonybrook-Millstone Watershed Association, Titus Mill Road, Pennington

23 INSECTS DAY Explore the insect kingdom with displays, games and fun for the entire family. **Hours:** 11 a.m. to 4 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

25 WEEDIES Collect wild edibles and learn to make an assortment of dishes that will change your opinion about weeds. **Hours:** Call for information **Admission:** \$6 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Road, Wickatunk

27-29 ANNUAL SPRING JURIED AMERICAN INDIAN ARTS FESTIVAL This festival features more than 150 Native American artists and entertainers from nearly 50 different tribes. Native American food, continuous entertainment, demonstrations and wisdom keepers will also be present. **Hours:** 11 a.m. to 6 p.m. **Admission:** Adults, \$7; children and seniors, \$3; children under 6, free **Phone:**

(609) 261-4747 **Location:** Rankokus Indian Reservation, Rancocas Road, Westampton

29 ADOPT A BEACH Join volunteers from across the state to help clean up New Jersey beaches. **Hours:** All day **Admission:** Free **Phone:** (609) 29-BEACH **Location:** Various tidal water beaches statewide

29 CANOE TRIP Take a seven-mile canoe trip down the Paulinskill River near Columbia Lake. Bring your own canoe, paddles, life jackets, food and water. **Hours:** 10 a.m. **Admission:** Free **Phone:** (908) 852-0597 **Location:** Blairstown Elementary School, Sunset Hill Road, Blairstown

29 STAR GAZING (Also every Saturday through September) See the night sky through telescopes and learn about the stars and constellations through a slide presentation. **Hours:** 8 to 10 p.m. **Admission:** Free **Phone:** (908) 459-4366 **Location:** Jenny Jump State Forest, Observatory Site, State Park Road, Hope

30 MYCOLOGY Learn about the variety and beauty of wild mushrooms and fungi during this slide presentation and discussion. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

30 OUTDOOR ADVENTURE EXPO This outdoor show features equipment for camping, canoeing, rock climbing, mountain biking, kayaking, spelunking and other outdoor activities. **Hours:** 10 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 842-4000 **Location:** Turkey Swamp Park, Georgia Road, Freehold

May

4 AN EVENING WITH EGRETS ILLUSTRATED Learn about this fascinating bird species through this lecture. **Hours:** 7:30 p.m. **Admission:** \$2 **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

6 BIRDING BY BICYCLE Dust off your bicycle, pump up your tires and take to the roads in search of spring birds. **Hours:** 8 a.m. to noon **Admission:** Call for more information **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

6 MAYFAIR Celebrate spring with knights, nymphs and gnomes at Kateri Woods with singing, Maypole dancing, field games, tours of fairyland and more. **Hours:** 1 to 5 p.m. **Admission:** \$6 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Road, Wickatunk

6 WILDLIFE OF THE GREAT SWAMP Learn about the wildlife that inhabits the area, including the coyote. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

6-7 MIGRATORY BIRD WALK Witness the spring migration of birds during this walk through Parvin State Park. **Hours:** 7 a.m. **Admission:** Free **Phone:** (609) 358-8616 **Location:** Parvin State Park, Fisherman's Landing, Parvin Mill Road, Elmer

6-7 STEAM LOCOMOTION RIDES (Weekends throughout the summer) Take a ride on an antique passenger train during this 15-minute trip through the woods and fields of Allaire State Park. **Hours:** Noon to 4 p.m. **Admission:** \$2 **Phone:** (908) 938-5524 **Location:** Allaire Village, Allaire State Park, Farmingdale

7 BROOMMAKING DEMONSTRATION See how brooms were made during Colonial times. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

7 1830S MILITIA MUSTER AND GAMES AND AMUSEMENTS Enjoy the fun of indoor and outdoor games of the 1830s and see a reenactment of a militia muster. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

7 FAMILY DAY Discover 100 years of archeology in New Jersey during a series of

workshops at the New Jersey State Museum. **Hours:** Noon to 5 p.m. **Admission:** Free **Phone:** (609) 292-6308 **Location:** New Jersey State Museum, W. State Street, Trenton

7 FAT TIRE SPRING BIKE RIDE Bike the bogs in this third annual mountain bike poker ride. **Hours:** 10 a.m. to 1 p.m. **Admission:** Call for information **Phone:** (609) 893-4646 **Location:** Whitesbog Village, Whitesbog Road, Browns Mills

7 PET FAIR Enjoy displays, demonstrations, vendors, a stray pet contest and more at this annual event. **Hours:** 1 to 5 p.m. **Admission:** Donation requested **Phone:** (908) 789-3671 **Location:** Trailside Nature and Science Center, New Providence Road and Coles Avenue, Mountainside

7 SUNRISE RUN-BIKE-RUN Compete in this transition race consisting of a four-mile run, a 13-mile bicycle ride and a four-mile run from Long Branch to Sandy Hook. **Hours:** 8 a.m. **Admission:** \$20 (Pre-registration required) **Phone:** (908) 842-4000 **Location:** Seven Presidents Park, Joline Avenue, Long Branch

12 FULL MOON WALK Look and listen for amazing sights and sounds of the night during this evening exploration. **Hours:** Call for information **Admission:** \$5 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Road, Wickatunk

13 MAGIC IN THE ENVIRONMENT Join magician Ron Owen in this program for children about pollution and recycling. **Hours:** 11 a.m. **Admission:** Call for information **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

13 SPRING FLOWER WALK Discover the beauty of spring during this leisurely walk along the Paulinskill Valley Trail. **Hours:** 10 a.m. **Admission:** Free **Phone:** (908) 852-0597 **Location:** Footbridge Park, Footbridge Lane, Blairstown

13 SHEEP SHEARING See how sheep were sheared at the turn of the century.

Events

Hours: 10 a.m. to 3 p.m. **Admission:** Call for information **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

13 SPRING JURIED CRAFT SHOW AND SALE Vendors display a variety of hand-crafted merchandise for show and sale. **Hours:** 10 a.m. to 4 p.m. **Admission:** Adults, \$2, children under 12, free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

13 VICTORIAN HOMES AND GARDENS TOUR Visit restored Victorian homes and gardens in Cape May's historic district. **Hours:** Call for information **Admission:** Call for information **Phone:** (609) 884-5404 **Location:** Washington and Ocean Streets, Cape May

13-14 MOTHER'S DAY WEEKEND CELEBRATION Take Mom on guided tours of the vineyards, wine cellars and gardens and enjoy seminars and wine tasting. **Hours:** Call for information **Admission:** Free **Phone:** (908) 475-3872 **Location:** Matarazzo Farms, Route 519, Belvidere

13-14 PINE CREEK RAILROAD ANNUAL MODEL RAILROADERS DAY See operating and static model railroads and enjoy a ride on an antique passenger train. **Hours:** Noon to 4:30 p.m. **Admission:** \$2 **Phone:** (908) 938-5524 **Location:** Allaire Village, Allaire State Park, Farmingdale

14 CROQUET ON THE LAWN Find out about the history of this unique lawn sport during this demonstration. **Hours:** 1 to 4 p.m. **Admission:** Call for information **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

19 THE SEEDS OF PEACE NATIVE AMERICAN POWWOW Enjoy Native American dancers, story tellers, crafts, food, educational demonstrations and traditional drums at this event. **Hours:** Call for information **Admission:** Adults, \$6; children, \$4 **Phone:** (908) 475-3872 **Location:** Matarazzo Farms, Route 519, Belvidere

19-21 CAPE MAY SPRING WEEK-END Enjoy warblers and other songbirds, rails, hawks, herons, egrets, butterflies and dragonflies during the height of the spring shorebird migration. **Hours:** Friday a.m. to Sunday p.m. **Admission:** Program, lodging and meals, \$240; program only, \$95 **Phone:** (609) 884-2736 **Location:** Cape May Bird Observatory, E. Lake Drive, Cape May

19-21 NEW JERSEY AMERICAN INDIAN CENTER POW WOW Join this pow wow and festival featuring Native American crafts, foods, dancing, songs and story telling. **Hours:** 9 a.m. to 9 p.m. (May 19); 10 a.m. to 10 p.m. (May 20); 10 a.m. to 6 p.m. (May 21) **Admission:** Adults, \$6; children and seniors, \$3 **Phone:** (908) 525-0066 **Location:** Old Bridge Ice Arena, Old Bridge Plaza, Old Bridge

20 BEACH WALK Join this walk along the shoreline in search of birds, shells and other critters. **Hours:** Call for information **Admission:** Call for information **Phone:** (609) 398-1211 **Location:** Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

20 FLEA MARKET This event features a variety of merchandise for sale. **Hours:** 8 a.m. to 3 p.m. **Admission:** Adults, \$1; children under 12, free **Phone:** (908) 938-2253 **Location:** Allaire Village, Allaire State Park, Farmingdale

21 BIRD BANDING Meet our feathered friends close up with certified bander Al Lubchansky. **Hours:** 8 to 9:30 a.m. **Admission:** \$4 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Road, Wickatunk

21 HIKE HISTORIC WHITESBOG VILLAGE Join this seven-mile hike through the woodlands and cranberry bogs in the heart of the cranberry and blueberry industry and enjoy the springtime splendor of the surrounding area. **Hours:** 10 a.m. **Admission:** Free **Phone:** (609) 267-7052 **Location:** Browns Mills Post Office, Whitesbog Road, Browns Mills

21 REPTILE AND AMPHIBIAN DAY Meet live reptiles and learn how to care for them as pets. **Hours:** 11 a.m. to 4 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

21 ROUND VALLEY RUMBLER Join this mountain biking race around Round Valley Recreation Area. **Hours:** Call for information **Admission:** Call for information **Phone:** (215) 252-5064 **Location:** Round Valley Youth Center, Route 629, Lebanon

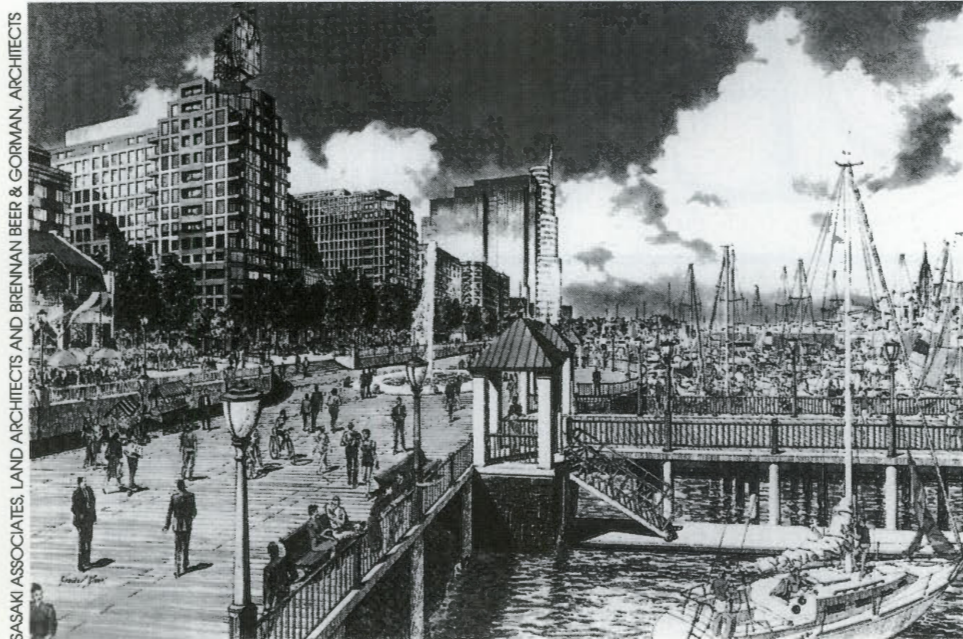
21 THOMPSON PARK DAY Enjoy an arts and crafts sale, pony rides, wagon rides, face painting, entertainment, pee wee run, food, snake show, climbing wall demonstration and more at this annual event. **Hours:** 11 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 842-4000 **Location:** Thompson Park, Newman Springs Road, Lincroft

21 WEAVING DEMONSTRATION See how weaving was done during Colonial times. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

25 GARDEN SALE Join the Union County Master Gardeners for workshops and a plant sale. **Hours:** 1 to 5 p.m. **Admission:** Call for information **Phone:** (908) 789-3670 **Location:** Trailside Nature and Science Center, New Providence Road and Coles Avenue, Mountainside

25 RIBBIT Go frogging at Kateri Pond. **Hours:** 4 to 5:30 p.m. **Admission:** \$5 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Road, Wickatunk

27-29 NEW ANIMALS WEEKEND Learn about the newborn and newly acquired animals at Fosterfields Living Historical Farm. **Hours:** Call for information **Admission:** Call for information **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown



SASAKI ASSOCIATES, LAND ARCHITECTS AND BRENNAN BEER & GORMAN, ARCHITECTS

An artist's rendering of the proposed Hudson River Waterfront Walkway next to Exchange Place in Jersey City.

Fishing for Charity

Approximately 1,300 participants and spectators enjoyed a fall day of saltwater fishing, while raising more than \$8,000 for a special walkway to allow the physically disabled to enjoy the same ocean-front scene at Island Beach State Park.

Participants in the third annual Governor's Surf Fishing Tournament cast their lines in pursuit of albacore, blackfish, bluefish, fluke, kingfish, red drum, striped bass and weakfish. The top prize went to Andrew Ciok of Bayonne, who caught a 23 3/4 inch albacore. His name will be inscribed on the Governor's Cup, which is permanently displayed at Island Beach State Park.

Adult winners in the competition included Harry Taylor of Yardville for a 17 1/16 inch blackfish and Joe DesMarais of Flanders for a 23 5/8 inch bluefish. Carl Wagner of Springfield won a prize for a 16-inch fluke in the teen category, and Matt Stumpe of East Stroudsburg, PA., reeled in an 18-inch fluke to win the category for children under 12. No fish from the other targeted species were caught during the tournament.

The event was sponsored by the New Jersey Federation of Sportsmen's Clubs, Jersey Coast Anglers Association, New Jersey Beach Buggy Association and the Department of Environmental Protection's Divisions of Parks and Forestry and Fish, Game and Wildlife.

Walking Away with Awards

The walkway along the Hudson River waterfront recently received international recognition for its design.

The Hudson River Waterfront Walkway, a proposed 18-mile walkway from the George Washington Bridge at Fort Lee to the Bayonne Bridge, received one of two top honor awards for urban design in an international competition sponsored by the Waterfront Center in Washington, D.C., an international organization that promotes good design and public access to waterfront areas. Liberty State Park's Liberty Walk and Seawall also were honored by the center for planning and development.

"The Hudson River Waterfront Walkway will be one of the most spectacular in the world," the citation reads. Seven miles of the walkway have been completed, and permits have been obtained for the construction of five more miles, leaving six miles of the walkway yet to be developed. The walkway, much of which was planned and designed by the Philadelphia firm of Wallace Roberts and Todd for the Department of Environmental Protection, provides a 30-foot easement for public access to the river's edge.

Liberty Walk on the Seawall at Liberty State Park was honored as a completed two-mile segment of the Walkway and was recognized as a key part of structures for protecting the environment in the park. That walkway is 1,600 feet from the Statue of Liberty, 1,200 feet from Ellis Island and a half-mile from Lower Manhattan.

An Air Watch for Ozone

There is a new weapon in the war against ozone, and it's perched high above the ground at Rutgers University's Cook College.

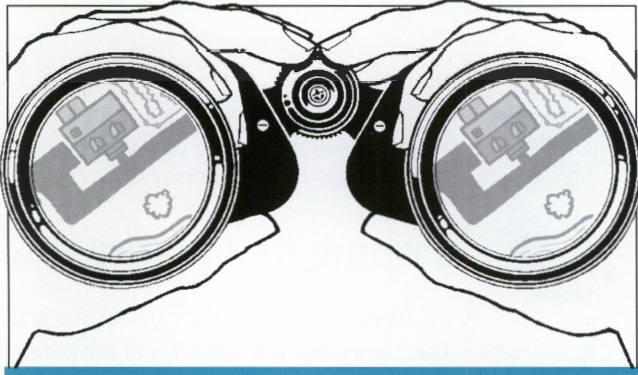
The Photochemical Assessment Monitoring System (PAMS), the first permanent device of its kind in the nation, will continuously monitor upper

atmosphere wind speed, direction and temperature. The data provided can be used to clearly document the factors involved in the formation of ozone and to develop mathematical models to assist in developing strategies to address the air pollution problem.

The PAMS is situated at Cook College's Horticultural Research Farm #3 in New Brunswick. The system,

which New Jersey is required to have under the Clean Air Act, also will benefit meteorologists.

The PAMS is a joint effort of the state Department of Environmental Protection, the U.S. Environmental Protection Agency, Jersey Central Power & Light, Public Service Electric and Gas and Rutgers University.



Explorer

Hey, Explorer!

Building the Perfect Park

Many people in New Jersey live in urban or suburban areas and rely on parks, forests, preserves, recreational areas, educational facilities, gardens and open spaces to provide places to pursue their interests in the natural sciences, history, the arts, sports and recreation. Because these areas are so important to people, they have been established and maintained throughout the state by organizations, towns, cities, counties and the state of New Jersey.

A particular place or facility is usually created or preserved because it has important features that people want to protect, use or enjoy. A property may contain streams, lakes, historic buildings and sites, special plants or animals, forests, fields, cliffs or caves. In addition, the location may provide educational or recreational opportunities, such as boating, picnicking, self-guided trails, scenic views or outdoor performances.

You can use your imagination to plan your own park. Following is information on a city called Greenville and some facts you may want to consider in building the perfect park.

You Are in Charge

Greenville, with its thriving town center and surrounding suburb, has a growing and diverse population of 26,000 people. A local resident has donated 550 acres of property to the city for use as a park. The property is a 15-

minute walk from the center of town. You are the park designer and must provide the mayor with recommendations on what to do with the property.

The Property

A sketch of the property is included on the next page. The property has a farmhouse and a barn, corn field, 300 acres of woods with large populations of deer and turkey, a winding stream, an old railroad bed, a large pond with smallmouth bass, a hill that offers a clear view in all directions and a small population of the endangered wangi-wangi plant.

Issues to Consider

Use the sketch on the next page and draw in the features you would like to include in Greenville's newest park. But before you begin your planning, you may want to consider the following issues:

The Property's Features. You may want to examine existing features on the property and determine how they can be used for recreational or educational opportunities.

Greenville Residents. You may want to learn more about the growing number of residents and types of people who live in town. Future visitors to the park may include the handicapped, senior citizens, different ethnic groups and students. Do you want to talk to others about how they would like to use the park? How

would you locate these groups?

Access to the Park. You may want to think about how people will get to the park and how they will find their way around once they get inside the park. You may need to plan roads, trails, bike paths, parking lots, rest rooms, exhibits, signs or a visitor's center.

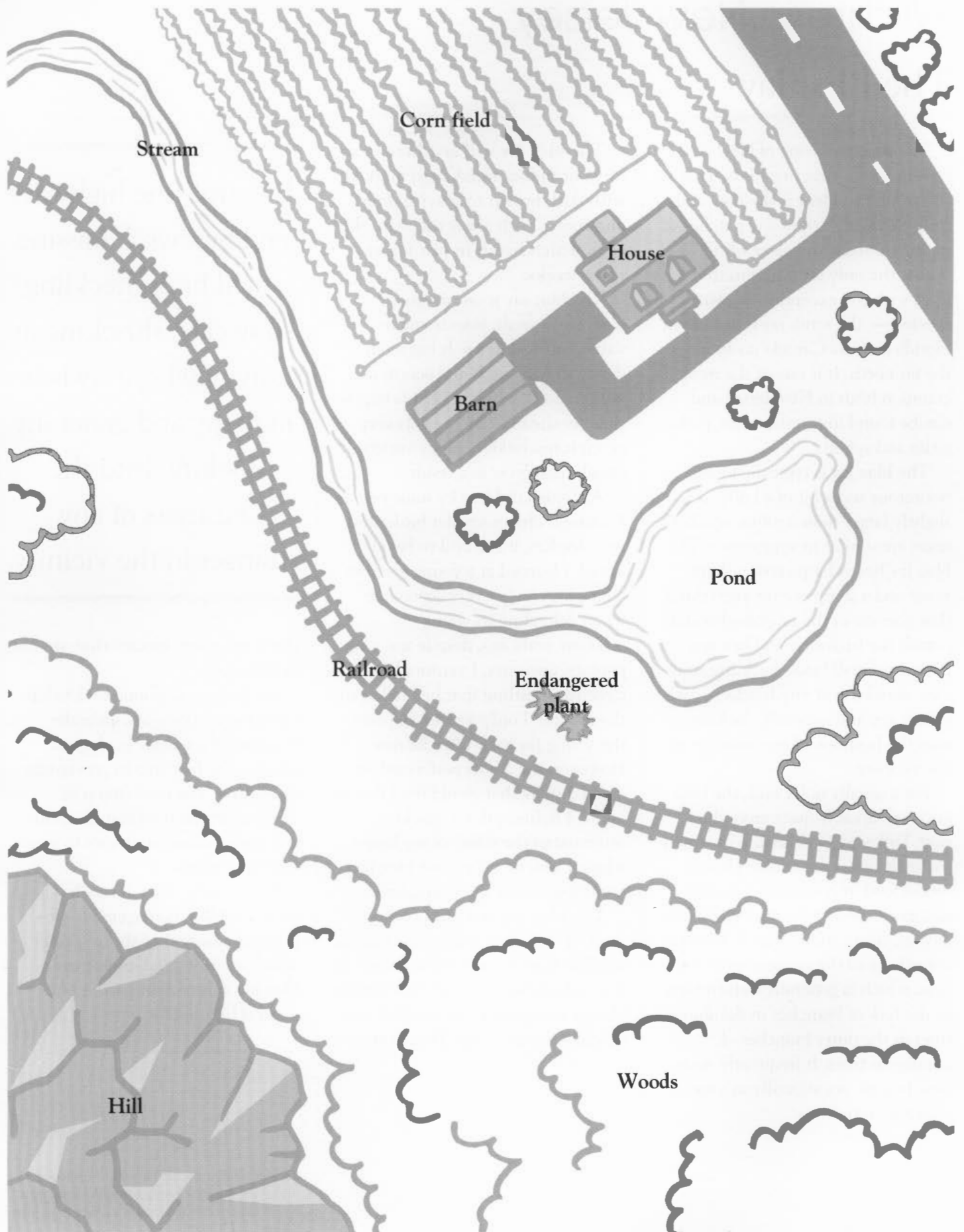
Managing the Facility. Once the park is built, you need to look at how it will be used. Are there certain areas that should be preserved or have limited use? Will some features be used more than others? How could you make sure everyone can enjoy and use the park properly for years to come?

Help Build the Perfect Park

These are just some of the issues to consider when planning a park. In fact, the Department of Environmental Protection is examining some of these very topics in developing a recreational plan for its newest state park, Kittatinny Valley in Andover. You can find out about some of the unique features of that property by reading "Kittatinny Valley State Park: A Stepping Stone through History" on page 36. Why not share some of your ideas on recreational or educational opportunities you might like to see at the park by writing to:

Editor
New Jersey Outdoors
NJDEP
CN 402
Trenton, N.J. 08625

by Tanya Ornowich of the Department of Environmental Protection's Environmental Education Unit



Wildlife in New Jersey

The Blue Jay

The blue jay is one of New Jersey's most attractive birds. This year-round resident is sky-blue and sprinkled with stripes and patches of midnight black and clear white.

It is the only jay found in the East, with the exception of two species — the scrub jay that lives in Florida and the Canada jay found in the far north. It is one of the most common birds in New Jersey and can be found in forests, farms, parks, cities and suburbs.

The blue jay is typically loud, boisterous and a bit of a bully. It is slightly larger than a robin, and both sexes are similar in appearance. The blue jay has a sharp crest, a sharp voice and a sharp eye for everything that goes on in the neighborhood. It patrols the highways and byways, harassing small birds, heckling stray cats, shrieking at any hawks or owls it may spy and generally looking into the business of any stranger in the vicinity.

For a usually noisy bird, the blue jay is remarkably quiet around its nest. Following a courtship in which the male offers the female choice bits of food, it constructs a bulky nest consisting of thorny twigs, bark, mosses, string and leaves. Both sexes contribute to the construction of the nest, which is generally well-hidden in the fork of branches in deciduous trees or the outer branches of coniferous trees. It frequently nests near houses, occasionally in vines growing on trellises.

The blue jay will lay three to six olive or buff-colored eggs, marked with dark brown to grayish dots and spots. Both sexes incubate the eggs, which hatch in just under three weeks.

The blue jay is omnivorous, feeding on seeds, insects and a variety of food items. It has a tendency to bury seeds and acorns as a winter food cache. Since it is impossible for the blue jay to find every acorn it has hidden, many varieties of oak trees grow as a result.

Although disliked by some people because it chases smaller birds away from feeders, it is a bird to be admired. I learned at a young age that a blue jay can get very aggressive when defending its young.

Many years ago, despite my parents' warnings, I ventured too close to a nestling that had fallen to the ground. I only wanted to place the young jay back into the nest. However, the adults performed an aerial display that would rival that of an F-14 fighter pilot. I quickly retreated to the safety of my house, where I watched the adult blue jays continue to feed the young bird.

The blue jay is a vital component of the tremendous diversity of wildlife that lives in New Jersey. It is so adaptable that one may find it almost everywhere in wooded areas throughout its range. However,

It patrols the highways
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stranger in the vicinity.

there are many species that are not as fortunate.

As humans continue to develop natural environments, an understanding of a species' ecological needs is the first step in preventing its decline. The next step is to develop professional management and conservation strategies to meet its requirements.

Fortunately, New Jersey has a strong wildlife management program to ensure that those species which are not as adaptable as the blue jay will remain part of our natural heritage.

by David Chanda, director of the Office of Information and Education at the Department of Environmental Protection's Division of Fish, Game and Wildlife



© 94
Carol Decker



A jellyfish polyp at Island Beach State Park is one of the wonders to behold along the Jersey Shore.
See an up-close view of life along the coastline in the next issue of *New Jersey Outdoors*.

Coming Soon

Explore the Highlands Region of North Jersey

Learn about New Jersey's Blueberry Industry

Discover Historical Sandy Hook

Drop a Line for Weakfish

Take a Hot Air Balloon Ride

Scope Out Places to Hunt