

NJPB

NEW JERSEY Outdoors

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Fall 1994



Tracking Down New Jersey's Underground Railroad
Counting the Fish in the Sea • Visiting the State's Wineries
Catching a Bird's Eye View of the Garden State • Hunting the Elusive Quail

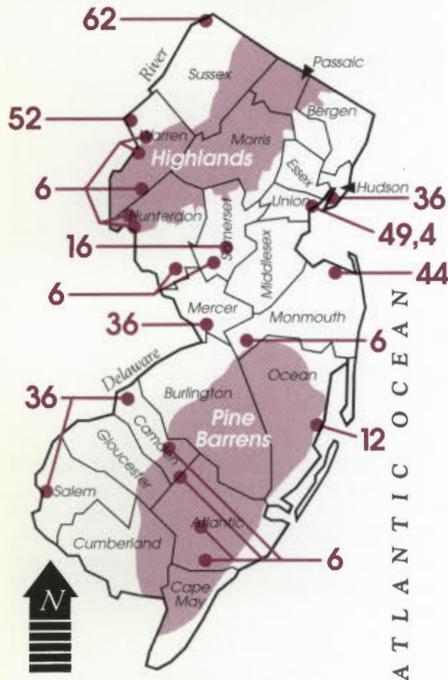
The cranberry harvest
at Birches north of
Chatsworth.



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Photo by Owen Kanzler

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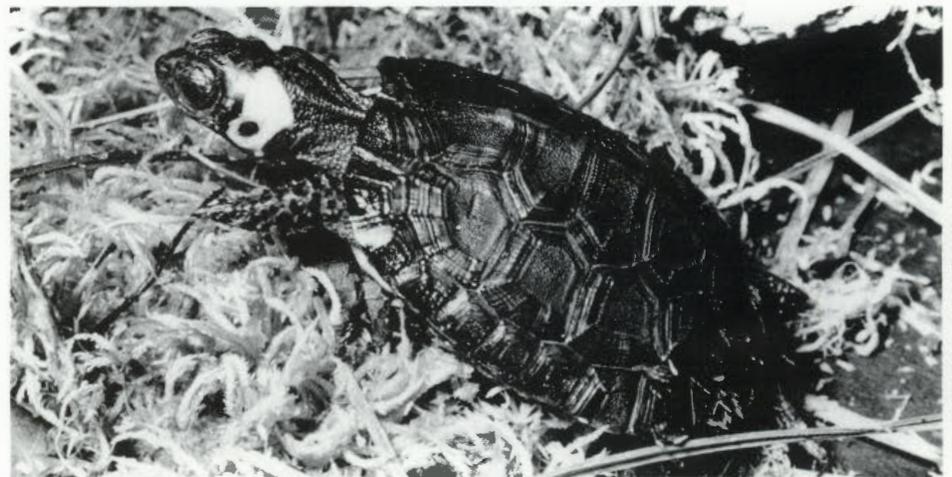
Prior to the Civil War, New Jersey provided one of several critical routes for southern slaves escaping to freedom in the north. Discover several locations in our state that may have served as stops on the Underground Railroad.

40 Protecting Rare Species in New Jersey's Landscapes

by Larry Niles and Jeanette Bowers-Altman

New Jersey is in the forefront of a new field of wildlife management that attempts to save several rare species at one time by examining their needs in larger areas. Find out how the latest computer technology and field studies are being used to "map" our endangered species.

After existing for 65 to 75 million years, the bog turtle is suddenly on the verge of extinction in New Jersey. Learn more about this unique species on page 10.



N.J. DIVISION OF FISH, GAME AND WILDLIFE

Editorials



Christine Todd Whitman, Governor

Message from the Governor

As another successful summer season comes to a close at the Jersey Shore, it is time to reflect on the future needs of this precious resource.

In May, public officials, business leaders and private citizens convened for Coastal Alliance '94 to begin developing a comprehensive Shore Master Plan during the next three years. This plan will help us chart a course for the future in which we can protect both the environment and the economy.

The shore is a huge part of who we are, of our history and culture. It is also the state's strongest tourism magnet, accounting for nearly half of our \$18 billion a year tourism industry. We need to preserve, protect and promote this region of the state for our children and grandchildren.

We also need to ensure that the waters we swim in, and the fish we eat, remain clean and healthy. We need to preserve beaches in a way that respects their practical and aesthetic aspects. We need to guide development in a way that benefits both the environment and the economy. And we need to promote the shore as a premier, yet affordable, vacation option.

Together we can make this plan a reality and send a message, loud and clear, that we are not trusting the shore's integrity to chance. The future of New Jersey and the quality of life in our state depend on it.



Robert C. Shinn, Jr., Commissioner

Message from the Commissioner

As we stand on the brink of a new century, it is time to have an environmental master plan for New Jersey. Thanks to the use of technology, we are about to map a course for the future of our state's natural resources.

Through \$500,000 in state and federal grants, the state's Geographic Information System is completing a computerized model of New Jersey that will provide us with key geographic and environmental data. This information, which will include species habitat, ground and surface water, hazardous waste sites, wells and septic tanks, will assist in planning in such areas as watershed protection, wildlife conservation, permitting and land use.

This plan will provide a foundation for future actions, a blueprint that will give us immediate and meaningful information about any given area. In most cases, it will show us the impact of a permit or warn us when we are infringing on the habitat of an endangered species. It will serve as a barometer regarding whether we are winning or losing ground in environmental matters.

Ultimately, this database will help us to plan for the generations to come. It will allow us to take a reasoned look at growth, and the impact it has on the environment. It will enable us to better balance economic and ecological concerns. In so doing, we can ensure that our children's children can live in a state that has clean water to drink, clean air to breath and open space to enjoy.

State of New Jersey
Christine Todd Whitman
Governor



Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

Judy Rotholz
Director of Communications

Roger Shatzkin
Administrator, Office of Publications

New Jersey Outdoors
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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

Kudos to Canoeists

We enjoyed the article on the National Canoe Safety Patrol ("[Not] Going Overboard," NJO, Summer, 1994). Dory Devlin did a great job in catching the essence of this unique group and its founder, Chris Nielsen. The National Park Service on the Upper Delaware and Scenic Recreational River is fortunate to have the volunteer services of these wonderful paddlers.

Thank you for sharing their accomplishments with your readers.

John T. Hutzky, Superintendent
Upper Delaware and Scenic
Recreational River

A Different View of N.J.

Congratulations on the summer 1994 issue of *New Jersey Outdoors*. The articles and color illustrations are excellent.

One correction, however, on page 5. The photo of the "brook trout" is really a "brown trout."

P.S. The photo on the back page is printed upside down.

William Flemer III
Princeton

Editor's Note: We received several letters about the trout which appeared in our article on the Thomas H. Kean New Jersey State Aquarium. The fish is indeed a brown trout. Thanks again for keeping us on our toes.

However, the photograph of the horse race on the back cover was printed properly — according to the artist's wishes. Pilot/photographer Owen Kanzler, whose aerial pictures are featured in this issue starting on page 30, forces us to take a new and different look at New Jersey. Kanzler's work reminds us that from the air, nothing is upside down — which is part of the unique perspective of his work.

Joggers Beware

Editor's Note: As hunting season approaches, we would like to offer this reminder to use caution when participating in outdoor activities on public hunting lands, so that all can continue to enjoy the great outdoors — safely.

If you were out jogging in the Pine Barrens last January in the Waterford area, then you know this letter is about you. As you came crunching through the crusted snow on Winding Woods Road, you really sounded like a large game animal of the white-tailed variety. My first glimpse of you as you rounded the bend was through a laurel bush. Your gray-colored jogging suit was very fashionable for jogging anywhere else but on public hunting land. A serious word of advice to you is to wear at least 200 square inches of hunter orange material. That is the state law hunters must abide by.

The hunting season is several months long and is not just the month of December, contrary to what a lot of people might think. I have been hunting for 30 years, and I readily identified you as a human being. Unfortunately, not every hunter is as experienced.

Your presence in the woods is respectfully acknowledged, and you have every right to be there. Please join in and voluntarily practice all the safety precautions that you can so both of us hopefully will never have to experience what could have happened that day.

Frank Intessimoni
Waterford

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.

Missing an Issue of New Jersey Outdoors?

Back issues of **New Jersey Outdoors**, when available, may be obtained at a discounted price of \$3. To order copies, call 1 (800) 645-0038.

Hiking the Trails

I would like to compliment you on the spring issue of the magazine. It is always enjoyable, but this issue was exceptionally interesting.

The New York-New Jersey Trails Conference is mentioned in two of your articles ("The Keepers of the Trails," "Get Ready to Go Hiking with Children," NJO, Spring 1994), but nowhere have you noted that among the good works it does is to serve as the coordinating organization for 30 or more hiking clubs. Anybody who is interested in joining a club of like-minded people can write to them for a listing of clubs and their contact people. I have known any number of people, myself included, whose lives have been changed (for the better) by becoming a member of one of these clubs.

Richard Wolff
Montclair

Editor's Note: The New York-New Jersey Trail Conference is a coordinating agency for 85 hiking clubs in New York and northern New Jersey. To find out more about these clubs, contact the New York-New Jersey Trail Conference, 232 Madison Avenue, Room 401, New York, New York 10016 or call (212) 685-9699.



A Stroll Through the Urban Jungle: The Arthur Kill Greenways Project

A snowy egret stalks fish in a lush spartina salt marsh. Blue crabs and diamondback terrapins inhabit the mud, while overhead a northern harrier swoops low, searching for its prey in the marsh grasses. American kestrels, hooded mergansers, breeding clapper rails, glossy ibises and common snipes also dot the marsh along with numerous species of migrating shorebirds.

Surprisingly, this glorious natural area, Piles Creek, exists between chemical companies and petroleum refineries in Linden — one of seven priority habitat areas among 75 natural sites discovered in the Arthur Kill watershed.

Six streams flow into the Arthur Kill, a narrow saltwater channel that separates New Jersey from Staten Island. Industry lines most of the 75 miles of shore along the waterways of the 130 square mile Arthur Kill watershed.

A greenway in the Arthur Kill watershed of New Jersey sounds like an unlikely project when one considers that, in addition to industry, roughly 690,000 people live in the 31 municipalities that make up the watershed. The population density is great at approximately 5,326 people per square mile; that's more than five times that of the state's density overall.

Surprisingly, this heavily populated and industrial region retains significant natural stretches along its streams and waterways. These areas of woods and wetlands mitigate water pollution and flooding, provide habitat for a variety of

Piles Creek is a natural area that lies between chemical companies and oil refineries in Linden.

wildlife and offer present and potential recreational opportunities for residents.

The Arthur Kill watershed is home to more than 195 bird species, including resident populations of shorebirds and ducks, vireos, flycatchers, grosbeaks, orioles, blackbirds and sparrows; wading birds such as herons, egrets and ibises; and many unusual migrating birds, like the male scarlet tanager with its bright red plumage.

The area also hosts small mammals including raccoons, chipmunks, rabbits, gray squirrels, muskrats, opossums, moles, shrews, bats, weasels, mice, rats and even an occasional white-tailed deer. In addition, it is a breeding ground for reptiles, fish and amphibians such as the painted turtle, snapping turtle, black racer, common garter snake, water snake, green frog, wood frog, bullfrog and spring peeper.

The Arthur Kill Tributaries Greenway Project began in 1990 when the New Jersey Conservation Foundation (NJCF) received funds resulting from a citizen's lawsuit against a chemical company accused of 352 violations of the federal Clean Water Act. The court passed along a portion of the settlement to the NJCF for undertaking an inventory of the wetlands, wildlife habitat and derelict properties along the Elizabeth, Rahway and Woodbridge rivers and the Morses, Piles and Smith creeks. (See related story on page 49.)

The Green Acres Program within the Department of Environmental Protection is assisting the NJCF by making funds available to help municipalities acquire priority sites in the watershed.

The New Jersey Audubon Society was hired to identify habitat in the watershed and classify the sites by a number of categories, including wildlife use, diversity of resident plant species, size, proximity to preserved tracts and overall contribution to flood control and water quality. The survey documented a surprising amount of excellent habitat, from the extensive estuarine marshes surrounding the mouth of the Rahway River, to the freshwater marshes on water company properties on the Robinson's Branch of



PHOTOS BY GEORGE M. ARONSON

A water tower looms above the west branch of the Elizabeth River in Union Township.

the Rahway River in Clark and on the Elizabeth River in Union Township, to the pin oak forest at the head of the Woodbridge River. The pin oak forest is an example of the type of forest that once blanketed much of the watershed.

The project seeks to connect important habitat sites with other unprotected habitat and publicly-owned lands in a system of greenways along each tributary. The state has begun to investigate the possibility of acquiring one priority site, the Lower Rahway River site in Linden, Carteret and Woodbridge, through funds from a settlement received from Exxon as a result of a spill at the Bayway Refinery in Linden.

Beyond land acquisition, considerable work remains to be done in the watershed. Until water quality improves, the health of existing habitat areas is in jeopardy. Coor-

dinating a project in 31 municipalities as diverse as Newark, Millburn and Edison Township — in the most densely populated region of New Jersey — is a daunting task, but only a regional approach will address water quality and habitat conservation problems and solutions, since each town in the watershed affects those downstream.

The NJCF has produced a brochure on the natural areas of the Arthur Kill watershed, water quality and the importance of habitat protection. For more information or a copy of the brochure, write to the NJCF, Mendham Road, Morristown, NJ 07960 or call (201) 539-7540.

by Dorina Frizzera, an environmental scientist with the Department of Environmental Protection, Office of Coastal and Water Planning in Environmental Regulation

Outings

The Toast of New Jersey

Among rolling green hills, beyond one-lane bridges on back country roads and a few miles from hot sand and beating surf grow short rows of deep green vines ready to yield their grapes to make award-winning wines.

But if you're picturing California or New York, think again.

New Jersey is home to 14 wineries nestled amidst some of the state's most scenic — and, in some cases, historic — places. From the sandy coastal plains in the south to the rocky hills of the north, New Jersey's wineries produce more than 180,000 gallons of wine a year in more than 40 different varieties, from dry Cabernets to fruity raspberry wines to Zinfandels and sparkling wines. And many of these wines are winning awards both at home and in national and interna-

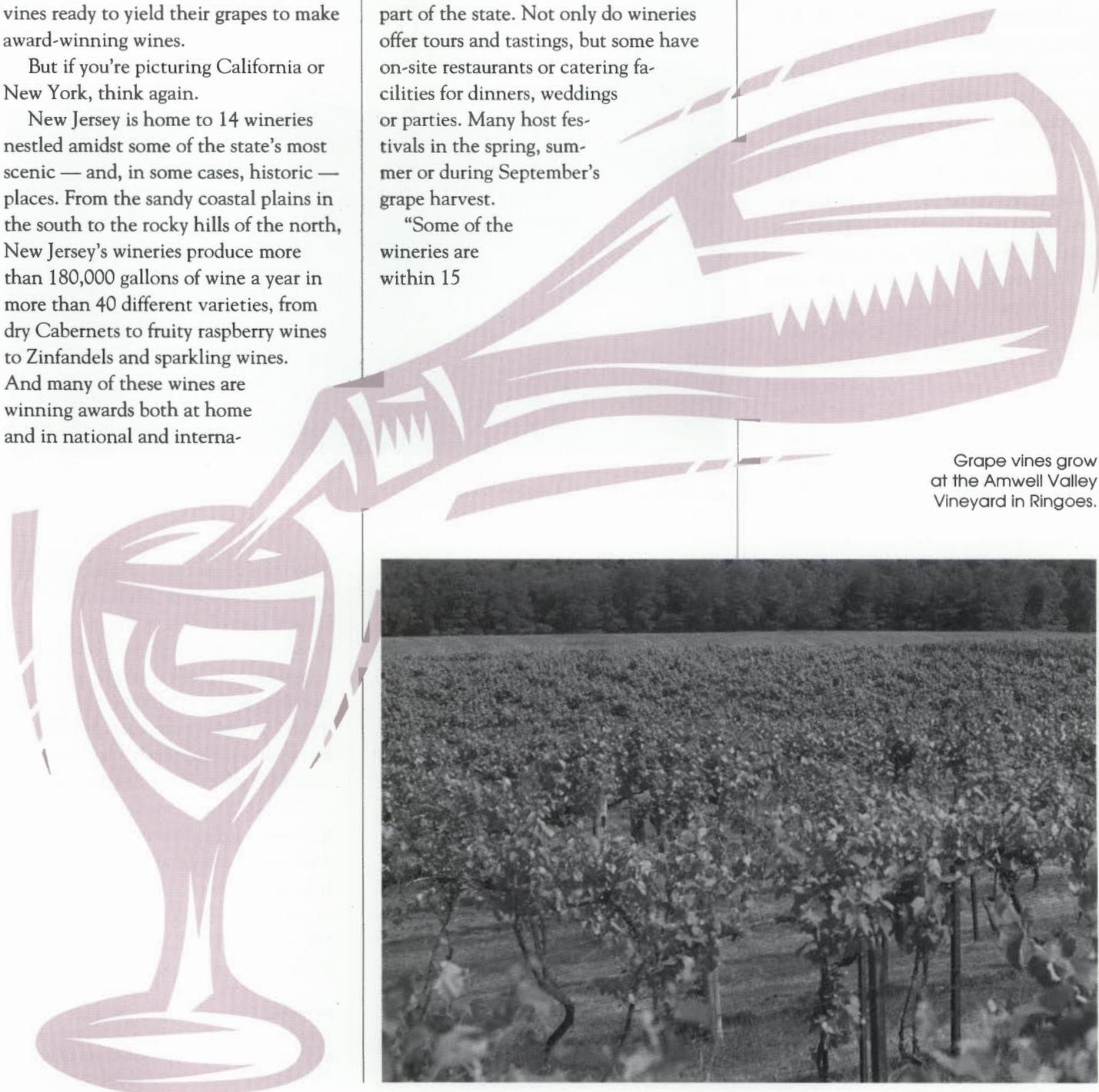
tional competitions.

Because of the concentration of wineries in four regions of New Jersey, it is easy to tour several wineries in a given area in a day or two. The Warren Hills Wine Trail and the Skylands Wine Trail are located in northwest New Jersey; the Delaware Valley Wine Trail is in central New Jersey, and the Atlantic Wine Trail is located in the southern part of the state. Not only do wineries offer tours and tastings, but some have on-site restaurants or catering facilities for dinners, weddings or parties. Many host festivals in the spring, summer or during September's grape harvest.

"Some of the wineries are within 15

minutes of one another, and everywhere you stop you can try something," says William G. Walker, a marketing specialist with the state Department of Agriculture. "(And) there are lots of special events."

Twice a year, once in the spring and once in the fall, New Jersey vintners gather to host wine festivals. This year's fall festival is



Grape vines grow at the Amwell Valley Vineyard in Ringoes.



GREGORY M. MCDERMOTT

These stainless steel tanks are used to ferment and age wines at Unionville Vineyards in Ringoes.

September 17-18 at Four Sisters Winery at Matarazzo Farms in Belvidere. The wineries also co-hosted the first New Jersey Wine and Food Festival in April, showcasing their wines with fine food from some of the state's best restaurants.

New Jersey's wine production ranks it among the top 15 states in volume in the nation, but Walker says few people know wine grapes are grown in the Garden State. This identity crisis is especially strange because the state's roots in wine making run deep.

Wines in History

The colonists who first settled New Jersey planted vines here. Two colonial vintners were recognized in 1767 by London's Royal Society of Arts for producing the first quality colonial wines.

Just a century ago, before Prohibition made the sale and consumption of alcohol illegal in this country, New Jersey was producing even more wines than California and New York, the top producers in the nation today.

"Prohibition knocked the industry out," says Joseph Fiola, a specialist in small fruit and viticulture with Rutgers Cooperative Extension Service.

Only one winery in the state — one of a handful in the nation — survived Prohibition. Renault Winery, less than 20 miles from Atlantic City in Egg Harbor City, got a special government permit during the 13 years of Prohibition to produce Renault Wine Tonic, which was used to "relieve fatigue," says Barbara Muller of Renault. A state historic site, Renault is believed to be the oldest winery with its own vineyards in continuous operation in the United States, she says.

Most of the state's wineries opened after 1981 when the state Legislature passed the Farm Winery Act, which lifted a restriction on the number of wineries here. Prior to 1981, the law, passed in the wake of Prohibition, only allowed one winery for every one million people.



GREGORY M. MCDERMOTT

Poor Richard's Winery in Frenchtown began planting its vineyards as a result of the 1981 law, says co-owner Richard Diltz.

"Before that, I was interested in wine in the 1970s as a home wine maker," says Diltz, who is also president of the Garden State Winegrowers Association. "With the changing of the laws, we decided to start this venture."

Many of the wineries are part-time or second jobs for their owners.

Sylvin Farms in Galloway Township, which has won the Governor's Cup for the best wine in New Jersey four times in the last nine years, is one of the state's smallest wineries and a "weekend endeavor" of owner and wine maker Franklin Salek, who teaches civil engineering at the New Jersey Institute of Technology.

Just a century ago,
before Prohibition,
New Jersey was
producing even more
wines than California
and New York, the
top producers in the
nation today.



MICHAEL S. MILLER



GREGORY M. MCDERMOTT

Salek attributes Sylvin's success to its grapes, saying: "Wine is grown in the field. It more or less makes itself."

The grapes seem to get a hand from Mother Nature. Nestled on a knoll between the Mullica and Great Harbor rivers, the vineyard's maritime climate and its gravelly loam soil have given it growing conditions akin to those of European regions that produce fine wines.

But it has also flourished under Salek's careful eye. Salek personally grafted all of his vines, combining the best elements from European viniferas with a hardy root system. The vinifera, known for producing such popular wines as Chardonnays and Cabernets, is delicate and susceptible to hard winters like last year's. Combining vinifera with a hardy, disease-resistant root stock enhances its chances in New Jersey's climate.

A Unique Harvest

New Jersey vineyards grow three types of grapes: Native Americans, such as Concord and Niagara, viniferas and French-American hybrids. Many of the wineries use hybrids and Native Americans to make their wines, and they seem



GREGORY M. MCDERMOTT

to win more awards each year.

New Jersey's largest wine producer is Tomasello Winery in Hammonton, which was established as a family business in 1934. Tomasello produces about 40 percent of all the wine in New Jersey, making it "by far the biggest producer in the state," says Fiola. It sells 27 different wines and eight champagnes.

But despite the sheer volume and variety of the wine business in the state, many residents are unaware of its presence. Walker says the Wine Industry Advisory Council, which he also represents, is trying to change that through special events and the New Jersey Wine Line. The line — (800) 524-0043 — announces different winery-related activities statewide such as harvest festivals, grape stomping events, Mother's and Father's Day celebrations, chili cook-offs, craft fairs and street festivals.

The events give people the opportunity to be introduced to the best of New Jersey wines.

"People aren't very adventurous," says Walker. "They will buy what they know. If you try Jersey wines, you'll find something you'll like."

by Colleen O'Dea, a reporter for The Daily Record of Morris County and a freelance writer who lives in High Bridge

This original wine barrel (opposite page, top) greets visitors at Renault Winery in Egg Harbor City.

Grape vines surround the Amwell Valley Vineyard in Ringoes (opposite page, bottom).

Wine tasting (left) at Unionville Vineyards in Ringoes.

New Jersey Wineries

North Jersey

❑ Four Sisters Winery at Matarazzo Farms

Route 519
RR 03, P.O. Box 258
Belvidere, NJ 07823
(908) 475-3671

❑ Tamuzza Vineyards

Cemetery Road
P.O. Box 247
Hope, NJ 07844
(908) 459-5871

Central Jersey

❑ Alba Vineyard

269 Route 627
Milford, NJ 08848
(908) 995-7800

❑ Amwell Valley Vineyard

80 Old York Road
Ringoes, NJ 08551
(908) 788-5852

❑ King's Road Vineyard

Route 579, P.O. Box 360
Asbury, NJ 08802
(908) 479-6611

❑ LaFoulette Vineyard & Winery

64 Harlingen Road
Belle Mead, NJ 08502
(908) 359-5018

❑ Poor Richard's Winery

220 Ridge Road
Frenchtown, NJ 08825
(908) 996-6480

❑ Unionville Vineyards

9 Rocktown Road
P.O. Box 104
Ringoes, NJ 08851
(908) 788-0400

South Jersey

❑ Amalthea Cellars

267A Hayes Mill Road
Atco, NJ 08004
(609) 768-8585

❑ Balic Winery

Route 40, P.O. Box 6623
Mays Landing, NJ 08330
(609) 625-2166

❑ Cream Ridge Vineyards and Champagne Cellars

Route 539, P.O. Box 98
Cream Ridge, NJ 08514
(609) 259-9797

❑ Renault Winery

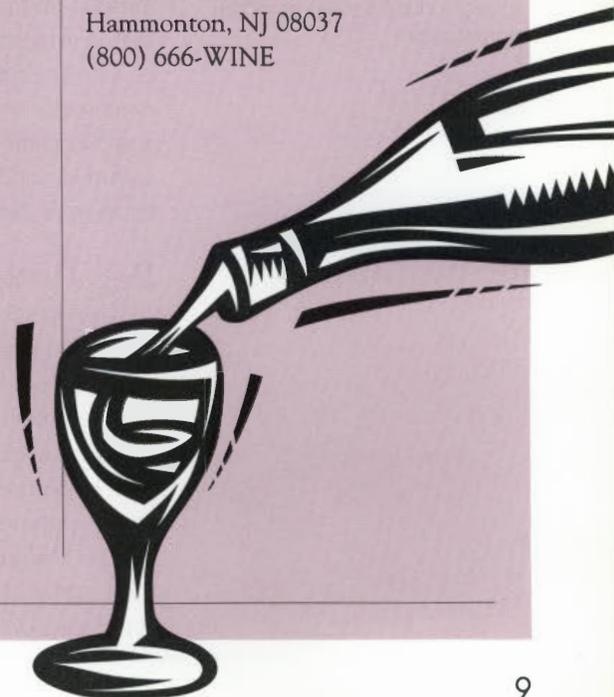
72 N. Breman Ave.
Egg Harbor City, NJ 08215
(609) 965-2111

❑ Sylvin Farms

24 N. Vienna Ave.
Germania, NJ 08215
(609) 965-1548 or
(201) 778-1494

❑ Tomasello Winery

225 White Horse Pike
Hammonton, NJ 08037
(800) 666-WINE



The Minister's Turtle

by Michael T. Olohan

The bog turtle is believed to have existed for 65 to 75 million years. But this small reptile waited until 1778 to be "discovered" in Lancaster, Pa. by Heinrich Muhlenberg, a minister and botanist.

In 1801, a German physician and naturalist, Dr. Johann David Schoepff, described the species and named it "Muhlenberg's turtle" in honor of its discoverer.

Today, it may be one of the most secretive, uncommon and threatened of all the endangered species that inhabit New Jersey. It has also become a symbol for endangered species throughout the United States.

Barely reaching four inches long, Muhlenberg's turtle (*Clemmys muhlenbergi*) is easily recognized by conspicuous orange-colored blotches on the side of the head. Its normally dark brown shell may be worn smooth from years of tunnelling into muddy burrows.

This reptile is most often found near undisturbed wetlands that have ground water discharge and plants such as sphagnum mosses, skunk cabbage, sedges, bulrushes, cattails, speckled alders and red maple. They often use runways, tunnels or holes created by other mammals like the muskrat and meadow vole. They favor habitat where the sun penetrates freely, and humidity is high during the warm months.

The bog turtle was historically found in 17 of New Jersey's 21 counties and has been studied extensively over the past two decades by the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program (ENSP). As of 1989, the bog turtle was found only in seven counties, and it continues to be listed as endangered in New Jersey due to development, the alteration or degradation of its traditional habitats and commercial exploitation by collectors.

Bog Turtles Found in 13 States

This species occurs in 13 states, ranging from Massachusetts to Georgia.

At one time, there were approximately 120 known bog turtle colonies in New Jersey. Today two-thirds of those colonies no longer exist.

Monitoring efforts by state wildlife agencies and knowledgeable herpetologists have documented a decline in both habitat and sightings. The ENSP is beginning the third year of a long term project to determine the bog turtle's status in New Jersey. The project will identify where viable populations still exist and formulate strategies to preserve their wetland ecosystems.

The United States Fish and Wildlife Service (USFW) is currently collecting data from all the states with bog turtles to determine if the species should be added to the federal endangered species list.



PHOTOS BY ROBERT T. ZAPPALORTI

A bog turtle (above) emerges from its egg.

The Life of the Bog Turtle

Bog turtles hibernate for approximately six months, from late September through March. When they emerge, they spend much of their time basking in the sun and moving to feeding sites. At night and during cool, cloudy periods, the turtles bury themselves in the soggy marshland. Bog turtles are omnivorous, eating mostly insects and berries. Although they rarely venture far from their chosen wetland, bog turtles are capable of moving long distances to find new habitat when their existing location becomes unsuitable.

With an average life span of 30 to 50 years, most bog turtles don't reach sexual maturity until eight to 10 years of age. Mating occurs from late April to early June and nesting mostly in June.

Mating behaviors include sexual recognition, aggressive biting and mounting. During mating season, females give off a strong chemical called a pheromone to attract the males, and there is some evidence that the orange blotches also serve to help the turtles identify one another. The male mounts the female, hooks the claws of all four feet to her shell and bites the female's neck while mating.

The female lays three to five eggs in shallow depressions on tussocks, which is mounds of sphagnum moss and sedges, in swamps. Incubation of the eggs takes six to 10 weeks.

The shallow, exposed nests are extremely vulnerable to predation. Hatchlings fortunate enough to emerge from the eggs face a dangerous world alone since there is no parental care of the young.

Natural predators include raccoons, skunks, opossums, hawks and even fish, especially when the turtles are young.

Bog turtles have very specific habitat requirements that are affected by the direct and second-hand effects of development and wetland alterations. The quantity and quality of the water within a wetland used by bog turtles are major factors in determining whether the wetland will remain suitable. Increased storm runoff, contaminants, sedimentation and water diversion accelerate the processes that make wetlands intolerable for bog turtles.

Another negative factor affecting bog turtles is the spread of



An adult bog turtle (top). Newly hatched bog turtles (bottom) are slightly larger than a penny and grow to only four inches in length.

invasive foreign plants like purple loosestrife and multiflora rose, which change a wetland's character. Illegal collecting for pets may be responsible for a 50 percent decline of the species.

The loss of wetland habitats and the cumulative effect of all these other negative factors make for an uncertain future for the bog turtle. A concerted effort by federal, state and local governments as well as private landowners will be necessary to identify and conserve the remaining wetland ecosystems that support this vulnerable species.

Michael T. Olohan is a public information manager with the U.S. Department of Agriculture Great Swamp Hydrologic Unit Area Project and program associate in water quality with Rutgers Cooperative Extension.



On the Trail of the Quail

by Robert Brunisholz

Hunting New Jersey's bob white quail is a gentlemen's and gentlewomen's sport. A brace of dogs, a good shotgun and cool autumn breezes that carry the pungent odor of frost-killed oak and sumac take the edge off modern, fast-paced life and offer some of the most exciting and challenging shooting in the outdoors.

It helps to be a proficient shot with a scattergun when you're trying to bag a bird with a penchant for buzzing full-bore through the thick underbrush while inherently placing some large obstacles between you and it. But quail hunters will tell anyone willing to listen that the ability to quickly shoulder a shotgun, judge the correct lead and then remember to follow through with a shot that results in a downed bird is but a tiny part of successful quail hunting.

Bob white quail are stocked in New Jersey by the Division of Fish, Game and Wildlife (DFG&W) in select Wildlife Management Areas (WMAs) throughout the state. These birds, which thrive east of the Rocky Mountains from Canada to Mexico, prefer thick, low bushy areas such as hedgerows in habitats that combine cultivated fields, brush, weed patches and a nearby hardwood forest.

The bob white usually raises one brood in spring, although it may nest again if there are adverse weather conditions during that season, or predators rob the eggs from the first nest. The family remains together throughout the summer and joins with other families in the fall in groups called coveys. These coveys offer the excitement in quail season, which runs from Nov. 12 through Dec. 3 and Dec. 12 to Feb. 20 (except in those WMAs offering shotgun permit for deer hunting during the same periods). A pheasant/quail stamp must be purchased from the DFG&W when hunting on public lands, and there is a bag limit of seven birds per hunter per day.

During the span of more than 40 misspent years traipsing through woods, fields and deserted apple orchards, the quail

hunters with whom I've rubbed elbows, and bent a few as well, without exception say the same thing.

"If I didn't have a good gun dog, steady to wing and shot, I wouldn't bother to hunt," one avid quail hunter once told me.

Make no mistake, it's dogs — setters, pointers and Brittany spaniels — that make quail hunting a gentlemen's and gentlewomen's sport. One of the keys to a successful hunt is a bird dog on point directing the hunter to where a covey of quail sit statue still in a bramble bush. Should a brace of birds fall, and the dog makes the retrieve, so much the better.

It has been said that great quail dogs, like close-working grouse dogs, are about as common as 500-straight trap shooters. Only about once in a lifetime does a hunter luck into such a dog, but many are touted as great, if only in the eyes of a forgiving master.

Despite the thousands of excuses owners offer for breaking point, or flushing birds far from range, the dog is central to a quail hunter's time afield. When the rank scent of a covey of bob whites fills a dog's nostrils, millions of olfactory senses connect with brain synapses, telling the well-trained dog that quail cannot be rushed; and such inherent knowledge comes from long bloodlines of ancestral quailers. Helping the dog along are the kind and patient words from the master more concerned with a fine performance than a full game pocket.

Quail hunters are more casual than pheasant hunters, who trudge the fields and hedgerows as though they were on a forced march. By its very nature and the nature of the bird, quail hunting consists of relaxed walks along old fence rows or overgrown orchards, interrupted by an occasional, albeit exciting, shot or two at one of the most challenging game birds in the Northeast.

Beginning quail hunters often ask what type and gauge shotgun is best suited for quail hunting. Although there are

Make no mistake,
it's dogs — setters, pointers
and Brittany spaniels —
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a gentlemen's and
gentlewomen's sport.

A bob white quail.



PHOTO BY ROBERT T. ZAPPALORTI

Quail hunting is best done slowly and offers the opportunity to taste bittersweet apples, dropped by the first frost, that are leisurely found in overgrown orchards.

probably as many preferences as there are hunters, the quick answer is a gun that fits.

Ideally, the quail gun should be light, such as a double barrel (side-by-side) or a stack barrel (over-and-under). The gun must shoulder quickly and be light enough for a rapid aim and follow through. Most avid quail hunters prefer the 20-gauge double barrel, but light, fast-handling auto-loaders such as the Remington 58 or 11-48 are also great quail guns.

Shot sizes should be no larger than a 7-1/2, but an eight or even nine shot can be used. (In shot sizes, the smaller the number the larger the shot.) It is best to use 7-1/2 in heavy brush but, in open fields, eight is ideal. Nines should only be used with larger bore shotguns such as the 12- and 16-gauge.

Perhaps everyday pressures are the reason quail hunting is growing, or maybe it's the availability of quail here in the Garden State that has enticed some to try their luck at bagging a brace of bob whites.

While there were 69,000 small game hunting licenses issued by the DFG&W during the 1992-93 season, it is estimated that only 9,000 to 12,000 of those hunters pursued quail, according to Patricia McConnell, project leader for the division's Upland Wildlife and Furbearer Office.

"No doubt, quail hunters are a different breed who seem to separate themselves from those who pursue other species," she says.

Considering the unique and highly-specialized nature of quail hunting, 12,000 hunters would require a rather substantial number of stocked birds to keep their dogs in shape. According to McConnell, some of the birds residing in Wildlife Management Areas are reared at the Forked River Game Farm in Ocean County, and others are the result of released quail that have naturally reproduced.

"The northern section of New Jersey is not conducive to

natural reproduction, at least not to the extent that birds can maintain viable populations," McConnell says. "Quail do reproduce in the northern climes of the Garden State, but severe winter conditions, especially heavy icing, take a toll.

"Starting at a point which could be generally classified as central New Jersey, to points south, however, quail do reproduce naturally with little difficulty. You must keep in mind that quail are indigenous to southern climates, and since birds flourish in warmer areas, southern New Jersey hosts a reasonably good population of native birds," McConnell says.

But wherever the quail may be, the art of this hunt is between the master and the dog.

Quail hunting is best done slowly and offers the opportunity to taste bittersweet apples, dropped by the first frost, that are leisurely found in overgrown orchards. And after the hunt, when the guns are cased, come the stories of how Bell fetched dead, or how Duke ran through a covey because he was on a woodcock in that swampy swale behind the farm's stonewall. But those are today's stories, and despite how many of yesterday's hunts are behind master and dog, the avid quail hunter will still tremble slightly when pondering future hunts, and quail preparing to blast from a bush when the command to flush is given.

Robert Brunisholz is a freelance outdoors writer who lives in Califon.

From Cages to Coveys

Far from the fields where a dog shivering with excitement tries to hold a solid point on a covey of quail, thousands of bob whites are captured from pens and placed in crates for their trip to New Jersey's Wildlife Management Areas (WMAs).

The place the quail call home prior to their release is the Forked River Game Farm off Route 9 in Ocean County. It is operated by the Office of Institutional Support Services in the Department of Corrections.

The birds are purchased as one-day-old chicks from a private quail-producing facility in Pennsylvania owned by Robert Wolf. Once the chicks arrive at Forked River, the birds are placed in a brood house, where they remain for approximately nine to 10 weeks, says Jim DeSoma, the game farm supervisor who has been involved in the facility's quail-raising efforts for 28 years.

"The Forked River Game Farm rears both pheasant and quail for the Division (of Fish, Game and Wildlife). Pheasants are also raised at Rockport Game Farm in Warren County, but our facility is the only one that raises bob whites which are released at specific WMAs," DeSoma says.

Approximately 19,000 bob whites are raised at the game farm annually, and

each fall the birds are released in those WMAs with the best habitat for quail in the Garden State.

Unlike ringneck pheasants, quail are relatively delicate. Because of their vulnerability to cold weather and disease, quail are raised in elevated pens. In addition, they are given a medicated feed to ward off disease including coccidiosis, which attacks the intestinal tract. But the medication is stopped a month before the release to allow the drugs to be purged from the birds' systems.

The Forked River facility presently employs two professional game managers and nine field workers. It's a modest staff when compared to the number of birds raised and the labor-intensive stocking efforts just prior to opening day.

Nevertheless, their efforts will culminate in rewarding hunts for a special breed of dog and hunter. These teams thank their lucky stars for the popular ringneck pheasant that attracts ever-increasing numbers of hunters, leaving the bob white quail to the minority of men and women who have invested heavily in just the right dog that will grow cautious with the first whiff of a covey of quail at 40 yards and will never be happy just flushing ring-necks. These quail hunters derive such crowning satisfaction from a dog locked on point that some will confess that they like dogs better than people.

Where to Hunt Quail

Since the bob white quail has certain preferences for the type of habitat and terrain in which it will flourish, New Jersey's Division of Fish, Game and Wildlife releases quail only in specific Wildlife Management Areas (WMAs). Following is a list of where quail are released, and the number of birds stocked annually.

North Jersey

- Pequest Wildlife Management Area**
Warren County
4,000 quail per year

Central Jersey

- Greenwood Forest Wildlife Management Area**
Ocean County
5,500 quail per year
- Colliers Mills Wildlife Management Area**
Ocean County
860 quail per year
- Assunpink Wildlife Management Area**
Mercer, Monmouth counties
860 quail per year

South Jersey

- Peaslee Wildlife Management Area**
Cumberland County
5,500 quail per year

Gardens

Everything's Coming Up Roses

If you've never been promised a rose garden, don't fret. Instead, head over to the Rudolf W. van der Goot Rose Garden in East Millstone.

Located within Somerset County's Colonial Park, this one-acre enclosure features more than 275 different species of roses and 4,000 bushes. Represented are lush displays of hybrid teas, grandifloras, floribundas, climbers, miniatures, shrubs, old fashioned and botanical roses in colors ranging from red to yellow to orange to white.

Everything's coming up roses from now to the first frost, and admission is free. The garden, established in 1971, was designed and developed by Rudolf W. van der Goot, Somerset County Park Commission's first horticulturist. Since receiving accreditation by the Chicago-based All-American Rose Selections Society in 1973 — an honor reserved for gardens whose roses have passed a two-year test for hardiness, bloom, disease resistance, plus ability to adapt to certain climates — the garden has been privileged to display award-winning roses from across the country a year before they're available to the public.

For an overall view of the four-sectioned garden, begin at the Mettler Garden, named in honor of the former owner of the estate, John W. Mettler, Sr., an industrialist who patented the process for interwoven socks. This garden features a gazebo, reflecting pond and brick-edged paths and hedges from the original estate.

A Rose is a Rose

Here miniature roses adorn the base of an impressive fountain, and hybrid tea roses, with their one large blossom



Medicinally,
roses were used to
cure hemorrhages,
stomach aches,
toothaches and
excessive
perspiration.

per stem, are contained within geometric beds. Although many of the hybrid perpetual and hybrid tea roses found in the garden date back to the 1820s, they're considered mere infants since roses have been cultivated in Greece

and the Orient for at least 4,000 years. It's believed that cultivated roses originated from the dog rose, *R. canina*, a theory substantiated by 35-million-year-old fossils found in Montana and other areas.

The Center Garden, lined with beds of rambling, low growing polyantha roses, is flanked by a brick path named Millicent Fenwick Rose Walk in honor of the late U.S. congresswoman. A Somerset County resident, Fenwick also served as director of the New Jersey Division of Consumer Affairs and as an ambassador to the United Nations. Radiating from the center walk are hybrid tea roses, grandifloras and floribundas, while at the perimeter of the garden, a trellis supports climbing roses. Grandifloras grow in trusses bearing three or four large blossoms, and floribundas are borne in clusters. Surprisingly, climbing roses don't actually climb, but have long canes that are tied to supports.

The compact Dutch Garden, resembling Holland's formal rose gardens, allows close viewing of both roses and the dwarf candytuft. Candytufts, a perennial flower first planted on the shores of the Mediterranean Sea, were historically used as a cheap substitute for mustard and to treat rheumatism. This garden also features heritage roses, which usually bloom only once in June and can easily attain a height of 15 feet. Many heritage species and hybrids were developed through the centuries as empires rose and fell.

As you stroll through this wonderful garden, you'll find a great variety of flowers. Steeped in history and found in all sizes, shapes and vivid colors, roses found here are frequently named in

Stop and smell the roses
(top) at van der Goot
Rose Garden.

A trellis supports climbing
roses (bottom).

honor of notable individuals and things, such as Mister Lincoln, Queen Elizabeth, Dolly Parton, Barbara Bush and Chrysler Imperial. However, Shakespeare recognized that the beauty of a rose transcends any name it might be called. And, as Gertrude Stein noted, "A rose is a rose is a rose is a rose."

The Rose in History

Many legends have been handed down regarding the rose. One tells how, in the days of the Roman Empire, the lovely Rhodanthe had so many suitors that she had to hide in the Temple of Diana. However, when her suitors broke down the gates to see her, Diana became so enraged that she magically transformed Rhodanthe into a rose and her suitors into thorns. After this incident, the rose became a symbol of love and beauty.

Historically, the rose has been treasured above all flowers, and Queen Hatsheput of the 18th Dynasty of Egypt is said to have sent ships to distant lands to search for roses. In addition, Confucius had at least 6,000 volumes in his library devoted to the culture of this flower.

Named our national flower in 1986, the rose has been highly regarded in numerous ways, including being displayed as a symbol, appreciated for its nutritional value, used in perfumes and made into rose water for cooking. During medieval times, compressed rose petals were used for making rosaries. Medicinally, it was used to cure hemorrhages, stomach aches, toothaches and excessive perspiration.

Flowers for the Senses

In addition to van der Goot garden's



ARLINE ZATZ



WALTER CHOROSZEWSKI



WALTER CHOROSZEWSKI

Many varieties of roses adorn the gardens surrounding the gazebo.

beautiful displays of roses, a few of the 80 varieties of annuals, herbs, perennials, flowering shrubs and vines may still be in bloom in the Fragrance and Sensory Garden at the western portion of the Rose Garden until the first frost in early November. These plants, chosen for their rich fragrance and

texture, are a must-see for everyone. Plant labels are printed in Braille and script for easy identification, and the barrier-free sunken garden is equipped with a wheelchair ramp and guide rail for the handicapped and visually impaired. Feel free to sit, sniff and listen to the birds in this pleasant spot.

Roses grow along a stone wall (top).

The Fragrance and Sensory Garden (bottom), featuring beautiful flowers, is accessible to the handicapped.

Don't leave without exploring the surrounding 467 acres within Colonial Park. The arboretum which encircles the rose garden, truly a living tree museum, is a delight to explore during any season. Labeled trees include dwarf conifers, lilacs and Japanese cherries, in addition to hollies, dogwoods and viburnums. Until frost, the unusual fruiting sweetleaf shrub sports bright sapphire-blue berries.

Plan on spending an entire day here. Besides admiring the flowers and trees and getting ideas for your own garden, you can work off extra calories on the Par Course fitness circuit, take a brisk walk, go for a short bicycle ride, or roller skate or blade on the level 1.4-mile path. Afterward, relax and watch hundreds of Canada geese begging for handouts at Powder Mill Pond and Mettler's Pond. When the ponds are frozen, bring your ice skates.

Whatever you do, don't miss the thrill of seeing the rose display during the second bloom in early fall. No doubt you'll return for the annual Rose Day celebration in June.

Colonial Park and the Rose Garden, located on Mettler's Road in East Millstone off Somerset County Route 514, is open year-round from dawn to dusk. For more information, call (908) 234-2677 or (908) 873-2459.

by Arline Zatz, a freelance writer, photographer and author who lives in Metuchen



WALTER CHOROSZEWSKI



WALTER CHOROSZEWSKI

Get Ready to Go...

In Search of a Feast for the Gods

Text, Photos and Illustrations by Neal Macdonald

With the hot dry days of summer fading and the onset of autumn heralding rainy and cooler weather, avid mushroomers of all ages can be found in woodlands and pastures, quietly gathering up their treasures in baskets and carting them home for the cooking pot. These treasures are the edible mushrooms so abundant here in New Jersey this time of year.

Mushrooms are the fungi that can be found growing all over the Garden State — anywhere from meadows to woodlands to roadsides to lawns. Unlike green, leafy plants that create their own energy through photosynthesis, mushrooms survive by get-

The chicken mushroom.

WARNING:

If you are not *absolutely* positive about the proper identification of a mushroom, **DO NOT EAT IT!** Some of New Jersey's mushrooms are poisonous and eating them could be harmful, if not fatal. Be sure to consult with an expert before trying this hobby.



ting their nutrients from other plants that are either dead or alive. They use their roots, or mycelium, to absorb their food, and the often colorful caps are used for reproduction.

The caps often serve another purpose — as delicious delicacies for side dishes or main courses for humans and other animals. **But beware! All mushrooms are not edible, and some are, in fact, very poisonous. Minor variations in appearance can mean the difference between edible and inedible mushrooms. So before you begin this unique hobby, learn about a few safe mushrooms from a good guide and stick to those species.**

Perhaps the best way to begin this hobby is to join the New Jersey Mycological Association on one its many forays in search of delectable mushrooms. This fall, expeditions are planned for Sept. 11 at Cheesequake State Park in Matawan, Sept. 25 at Kittle Field in Stokes State Forest in Branchville, Oct. 9 at Pakin Pond Picnic Area in Lebanon State Forest in New Lisbon and Oct. 23 at Knox Grove in Washington's Crossing State Park in Titusville. In addition, the association will hold its annual Fungus Fest, featuring lectures, walks, displays and cooking demonstrations on mushrooms, on Oct. 2 at the Somerset County Environmental Education Center on Lord Stirling Road in Basking Ridge.

After a mushroom has been positively identified as a safe species, it should be eaten the first time in small portions, sauteed in a small amount of butter or oil. This will allow you to taste just the flavor of the mushroom, while determining if your body can tolerate the fungus.

The Field Mushroom

Your mushroom hunt can begin in pastures, meadows or even the front lawns of houses on a weekend hike or a ride through the countryside. The white mushrooms often found on lawns that are like the store-bought variety, with smooth white caps, pink to brown gills and sturdy white stems, are called the common field mushroom (*Agaricus campestris*).

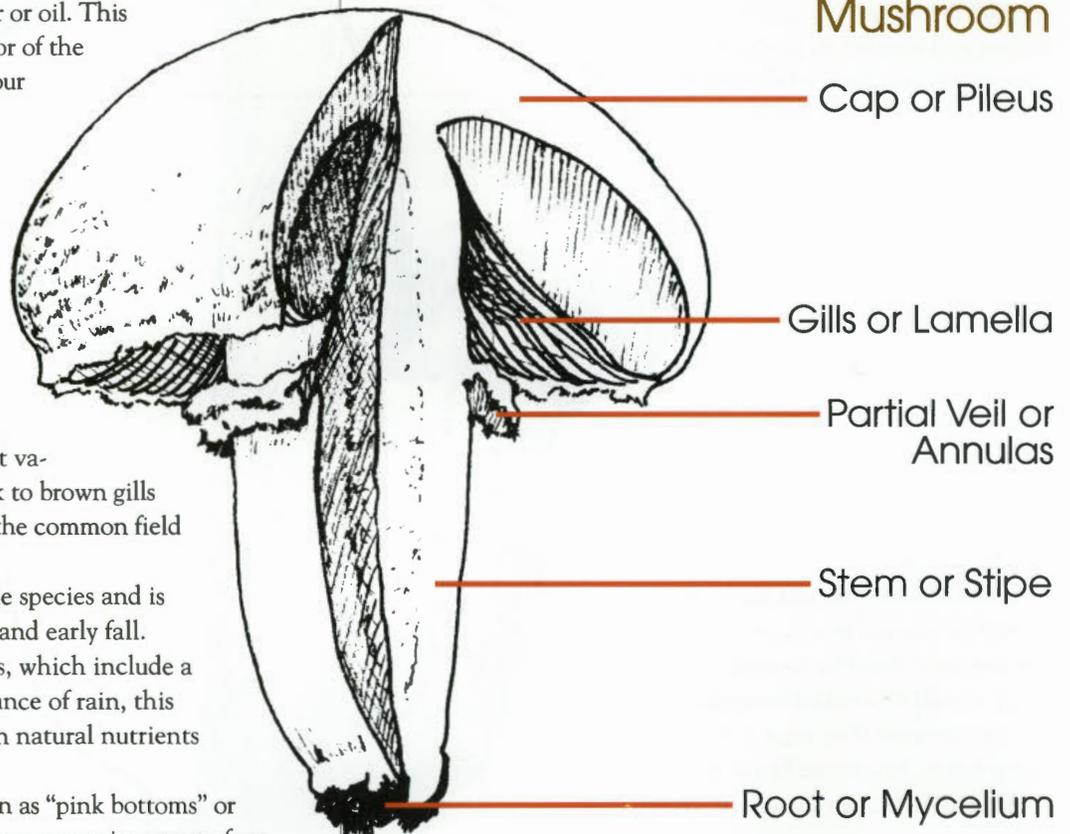
The field mushroom is an edible species and is abundant during the late summer and early fall. With the right weather conditions, which include a cool early summer with an abundance of rain, this mushroom thrives on lawns rich in natural nutrients and in undisturbed pastures.

The field mushroom, also known as "pink bottoms" or "pink undies," has a white domed cap measuring one to four inches, which becomes nearly flat, dry, smooth and brownish



The common field mushroom.

Common Field Mushroom



when old. Always look for pink gills, or the ribbed underside of the cap of the mushroom, to verify your find. Then look for a short white stem, one to two inches long, tapered towards the base with a cottony ring near the top where it attaches to the cap.

These features, along with a firm white texture and chocolate brown spores, or seeds, should confirm your find. **Be sure to avoid tall white mushrooms with white or gray-green gills growing in grass — these are poisonous!**

The Shaggy Mane

Another good edible mushroom that grows in grassy places in the fall is the shaggy mane or lawyer's wig (*Coprinus comatus*). This is a tall, white mushroom, but there are several characteristics that distinguish it from an inedible variety. These include: the gills become blackish with age; young specimens have wavy, close whitish gills tipped with pinkish-gray; and the long shaggy white caps are tufted with brown. The shaggy mane is about two to four inches tall, but older specimens can grow to eight or nine inches and may be no more than a smooth white stem slightly swollen at the base with a black liquifying cap and a drooping ring on the stem.

These mushrooms appear in the spring and fall after cold, hard rain. They are often found on the edges of lawns and golf courses or along the road in tall coarse grass. They generally cluster in large groups at all stages of growth, like tall white fingers poking out of the grass.

The shaggy mane is a somewhat delicate mushroom with soft flesh, and it should be sauteed gently on medium heat for no more than five to eight minutes. They should be cooked immediately after picking because they tend to liquify in four to six hours, becoming black and mushy.

Shaggy manes are excellent for use in a cream sauce or a soup or as a garnish for salads or on meat or eggs.

Shaggy Mane Soup

The aroma from this soup, made with shaggy mane mushrooms, could whet any appetite!

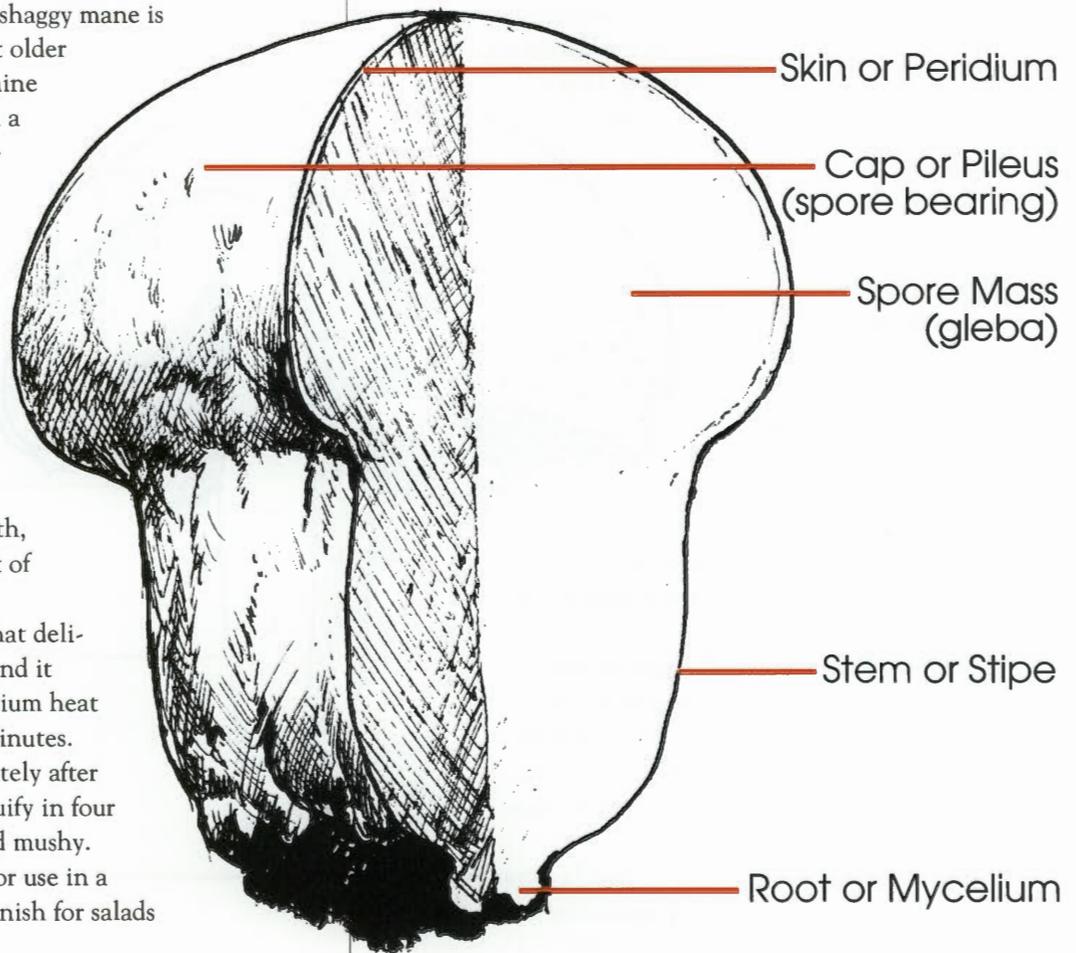
- 1 cup water
- 2 chicken bouillon cubes
- 1/3 cup Provolone cheese
- 3 cups shaggy mane mushrooms
- Pinch of pepper
- 2 tbs. butter
- 1 tsp. flour
- 3 cups milk

Shaggy mane mushroom.



Heat one cup of water in a two quart kettle. Dissolve bouillon cubes in water. Crumble cheese into mixture, stirring until the cheese is melted. Add mushrooms and pepper. Simmer one half hour. In a separate saucepan, make a roux by combining the butter and flour, heating until bubbly. Add the roux to the kettle and stir. Add milk. Bring to a boil for one minute. Serve with chopped parsley. Serves 4 to 6 people.

Brainhead Puffball



Puffballs and Brainheads

In the pastures or dells in open grassy fields, you may encounter the giant puffball (*Calvatia gigantea*). This and the similar brainhead (*Calvatia craniformis*) and the cup-shaped puffball (*Calvatia cyathiformis*) are three of the largest puffballs that you will discover in New Jersey. The giant puffball can be found in grassy, damp pastures or along roadsides in the northern highlands; the brainhead and the cup-shaped puffball range in open grassy places over most of the state.

Giant puffballs and brainheads are easily identifiable, although not as tasty as the field mushroom or shaggy mane. The giant puffball grows from 24 to 30 inches in diameter and can weigh up to 30 pounds. It has a soft, white textured skin or peridium that is sometimes pock-marked, and a sturdy root that anchors the mushroom, which sometimes requires a hearty tug to release this prize.

The puffball must be pure white inside; a yellow interior indicates it has passed its edible stage and will be bitter. It should cut through like cream cheese.

To assure a fresh puffball, harvest only young ones, generally eight inches to a foot across. There is enough in these mushrooms for an entire family. This mild-tasting mushroom can be cut into slices a quarter-inch thick, dipped in batter and seasoned or unseasoned bread crumbs and gently sauteed in oil or butter until brown.

The brainhead and the cup-shaped puffball, two more edible puffball varieties, can be found in open areas like lawns and meadows. The more common brainhead puffball grows from six to eight inches across and has a head and neck that is skull-shaped. The surface has a light tan-pink color that feels like soft leather and tends to wrinkle as it ages. The brainhead and the cup-shaped puffball are similar in appearance; however, the cup-shaped puffball does not have the distinctive wrinkling on the head. In addition, neither variety has the tough, cord-like root of the giant puffball.

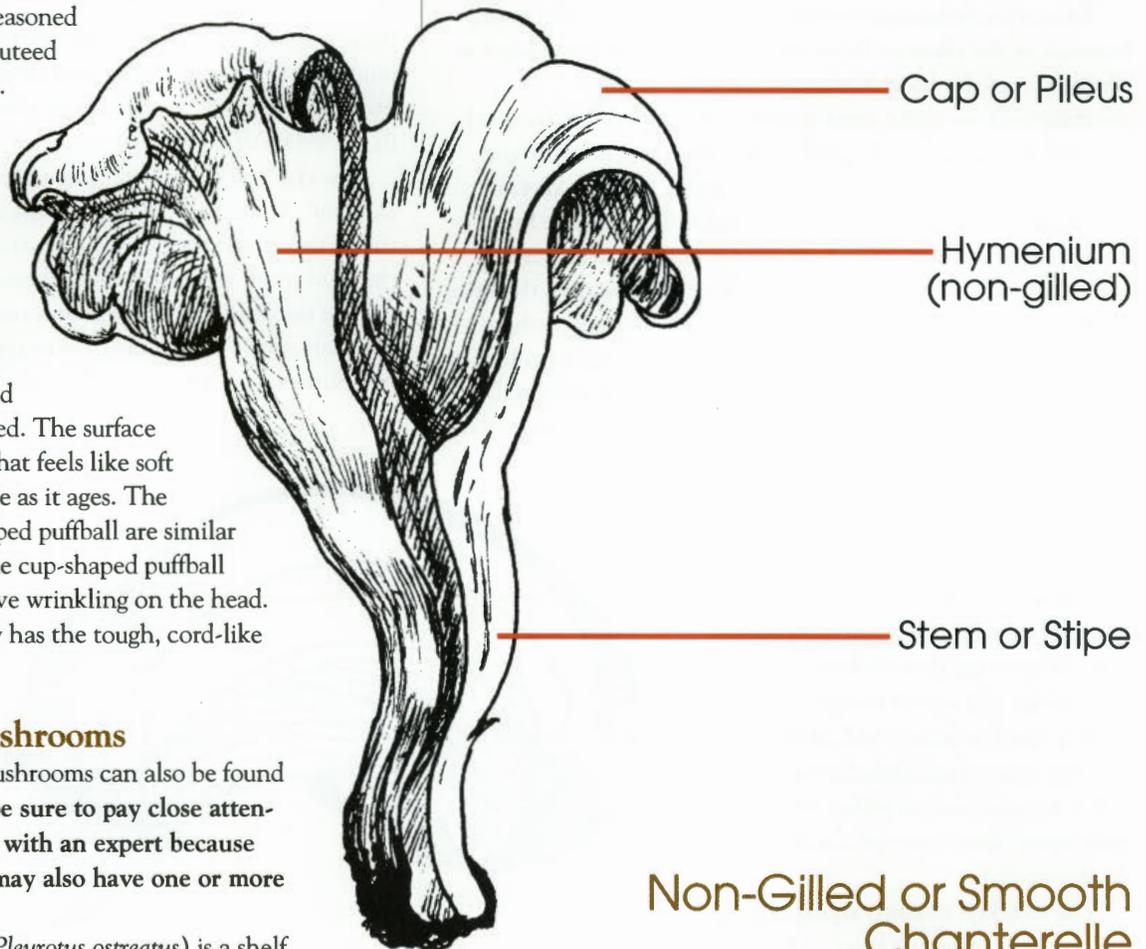
The Woodland Mushrooms

Three distinct edible mushrooms can also be found in woodlands. However, be sure to pay close attention to details and consult with an expert because some poisonous varieties may also have one or more similar characteristics.

The oyster mushroom (*Pleurotus ostreatus*) is a shelf



Chanterelle mushrooms.



Non-Gilled or Smooth Chanterelle

mushroom, which means it sprouts laterally from the side of a tree. It grows to the size of a large teacup plate and looks like gray-white to dark brown tongues growing in close, overlapping layers on the trunks of scarred or wounded trees, usually maples. This is a gilled mushroom, with knife-like extensions on the underside, and these gills are whitish.

To remove the mushroom from the tree, it is best to cut off the stem, leaving just the tender gilled section and cap. Wash it gently with cold water to remove the dirt. Slice the mushroom and saute' in butter or oil for about 10 minutes. Place the mushrooms in a baking dish, creating alternating layers of Parmesan cheese and croutons. Add the juice from the pan and bake at 300 degrees until brown.

New Jersey also produces another prize, the non-gilled or smooth chanterelle (*Cantharellus lateritius*), an expensive delicacy that is sometimes found in finer restaurants. This yellow-orange mushroom has a flared horn or cornucopia shape and emits an odor of apricot when crushed between the fingers.

The non-gilled chanterelle can be found in hardwood forests in rich, moist soils from mid-summer through the fall. The underside or hymenium, the spore-bearing surface of the mushroom, is smooth or slightly wrinkled. The cap of a mature chanterelle is generally no more than three to four inches across.

Two other poisonous mushrooms have some of the same features as the chanterelle — the jack-o-lantern (*Omphalotus illudens*) and the false chanterelle (*Hygrophoropsis aurantiacus*) — so be certain to positively identify the specimen before eating it. The jack-o-lantern is much larger and grows in great clusters around tree trunks, usually oaks. It also tends to be pumpkin orange in color, has definite knife-like gills and a broad domed cap that is slightly depressed in the center with a small nob on top. Another imitator, the false chanterelle, has a depression similar to the non-gilled chanterelle, but this specimen tends to be brown-orange in color and has gills on the underside. It grows in soil or on wood.

Once you have positively identified the smooth chanterelle, it can be cut into strips and lightly sauteed in butter for a special culinary treat.

Another woodland mushroom is the chicken mushroom or sulfur shelf (*Laetiporus sulphureus*), a yellow and orange fungus that can be found most often on old oak trees. This is another shelf mushroom but, unlike, the oyster mushroom, the underside has fine lemon-yellow pores instead of gills. A solid mushroom with a white to pale-pink to yellow interior, it pulls apart like a piece of chicken meat in stringy strands.

The chicken mushroom can also be found on ash, hickory or locust trees. At times, it grows in

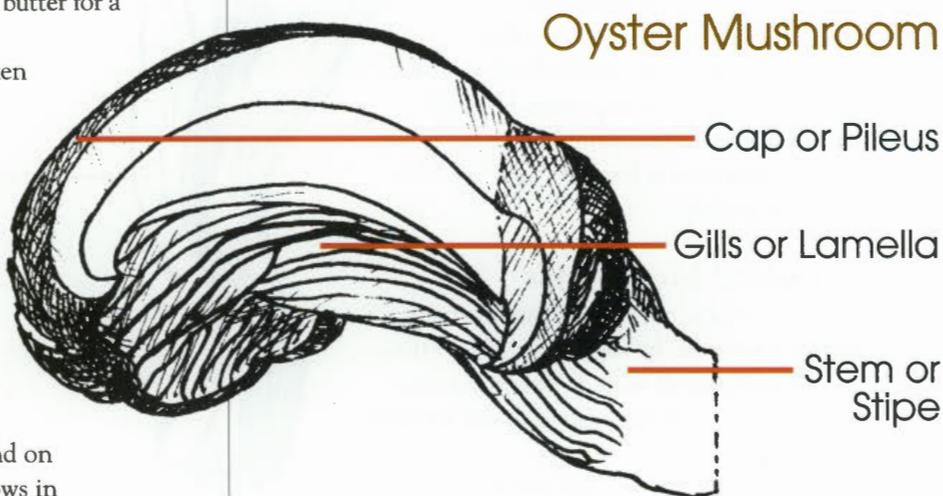


An oyster mushroom.

huge, overlapping layers, and one mushroom can weigh as much as 50 pounds. It also may develop as an individual shelf on a tree trunk, as a single large rosette on the ground or up in the crook of a tree.

The chicken mushroom is best hunted in late summer or early fall. To harvest this mushroom, cut off just the tender tips; the further down the base you get, the tougher it is. At its best, the mushroom will cut like soft cheese.

The tastes and smells of mushrooms can create delicate aromas, sometimes strong, pungent or peppery, but always intriguing. Some may carry the subtle scent or flavor of almonds, va-



Oyster Mushroom

Cap or Pileus

Gills or Lamella

Stem or Stipe

The Mushroom Pickers

Mushroom picking can be an exciting and fun hobby. But it also can be dangerous if you do not properly identify edible species. Before you begin your first expedition, it is highly recommended that you consult the following field guides and/or experts.

Experts

- ☐ New Jersey Mycological Association
Box 291
Oldwick, New Jersey 08858
or
RR 1, Box 166
Franklin, New Jersey 07416

Field Guides

- ☐ The Audubon Society Field Guide of North American Mushrooms, by Gary Lincoff, published by Alfred Knopf, Inc., New York, 1981. \$17.50. 1-800-733-3000.
- ☐ MacMillan Field Guide to Mushrooms of North America, by Alan E. Bessette, published by MacMillan, New York, 1987. \$12.95. 1-800-257-5755.
- ☐ Mushrooms of North America, by Roger Phillips, published by Little, Brown and Co., Boston, 1991. \$24.45. 1-800-331-1664.
- ☐ Edible Wild Mushrooms of North America: A Field Kitchen Guide, by David W. Fischer and Alan E. Bessette, published by University of Texas Press, Austin, Texas, 1987.

Once edible mushrooms have been positively identified, they may be used in soups, meats, omelets or as side dishes. Following is a list of cookbooks to create those unforgettable mushroom dishes.

- ☐ Wild Mushroom Recipes, by the Puget Sound Mycological Society, published by Pacific Search, Seattle, Wa., 1973.
- ☐ Joe's Book of Mushroom Cookery, by Jack Czarnecki, published by Atheneum, New York, 1986. \$14.95. 1-800-257-5755.

nilla, apricots, crushed walnuts or even chocolate. Textures, too, can range from tough or chewy to soft or crunchy. When you explore the many edible varieties of mushrooms New Jersey has to offer, you will find most a delight to the palate, truly a feast for the gods.

Neal Macdonald is a freelance writer, photographer and illustrator from Princeton.

Children (below) pose next to a giant puffball mushroom.

The brainhead puffball (right).





Counting the Fish in the Sea

By Donald M. Byrne

This trawl net (above), which opens like a parachute under water, is used to sample the fish that live off the Jersey coast.

Trawl nets are 200 feet long and weigh about 3,400 pounds (right).



At 5:57 a.m., the 20-minute tow time is up. Don Bradford, captain of the research vessel *ARGO Maine*, throttles back the engine and finishes recording observations on position, weather and sea conditions. On the work deck, the haul back routine begins. John Steer and Jerry Blanford, veteran commercial fishermen, engage the two winches and begin winding in 300 feet of tow wire. In a couple of minutes the trawl doors break the surface and bump the hull.

The net is hauled aboard, opened and, like Neptune's cornucopia, 590 pounds of fish and invertebrates burst forth — squid, butterfish, skates, windowpanes, scups, lobsters, anchovies and more.

State survey crew members, meanwhile, have been preparing to process the catch, pulling on sea boots, hitching up the suspenders of foul weather overalls and rummaging about for fish sorting gloves that aren't cold and wet inside or covered on the outside with what looks like primordial protoplasm from the previous day's work.

This particular catch contains 25 fish and five invertebrate (crabs, starfish and snails) species. For each species, the total weight is determined, and the lengths of all individuals are measured, except for large numbers where samples are taken. Longfin squid contribute the greatest weight, 180 pounds, and bay anchovies represented the greatest number, 76,204 fish. A small goosefish, several big tautogs and lobsters are a welcome surprise. Al Stearns, the boat's hardworking cook, hands out a bowl and requests some of the bigger squid for a lunch entree.

After the catch is tallied, most are thrown back to the sea. A few prize fish are stowed away for the crew to take home to their families.

Five Days at Sea

At the next station, the sampling routine is repeated. And the next station. And the one after that. It is all part of the trawl survey program begun by the Bureau of Marine Fisheries in the Department of Environmental Protection (DEP's) Division of Fish, Game and Wildlife in August 1988. Information collected during these expeditions, in conjunction with similar surveys from other East Coast states and the federal government, is used to help manage saltwater fish populations. As a result of these surveys, minimum size limits, daily catch limits, closed seasons, quotas, gear restrictions and other regulations are established.

Tapping 1,200 Square Miles of Ocean

The survey area is large, about 1,200 square miles extending from Sandy Hook, N.J., to Cape Henlopen, De., and offshore from seven to 18 miles, following the 90 foot depth contour. The area is subdivided into 15 sampling zones based on depth and latitude. A minimum of two samples is collected from



The October trawl aboard the *ARGO Maine* yields butterfish, skates, windowpanes, scups, anchovies and more.

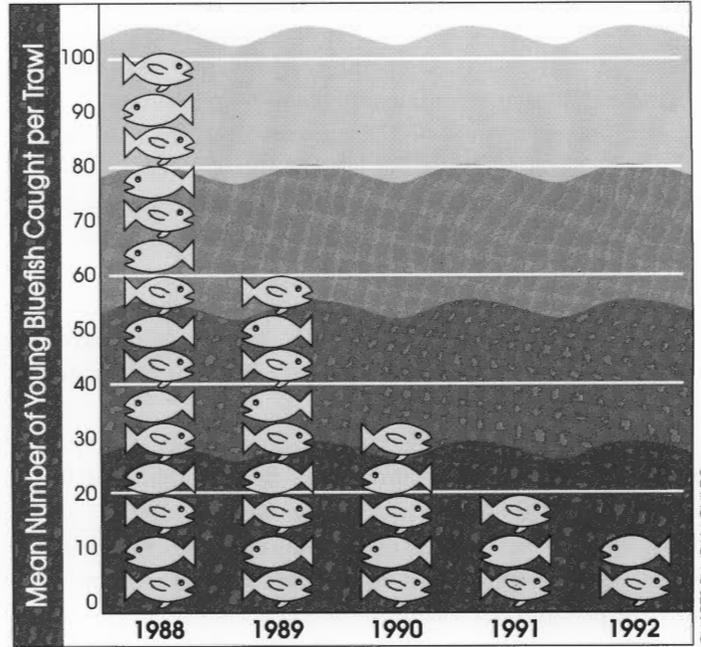
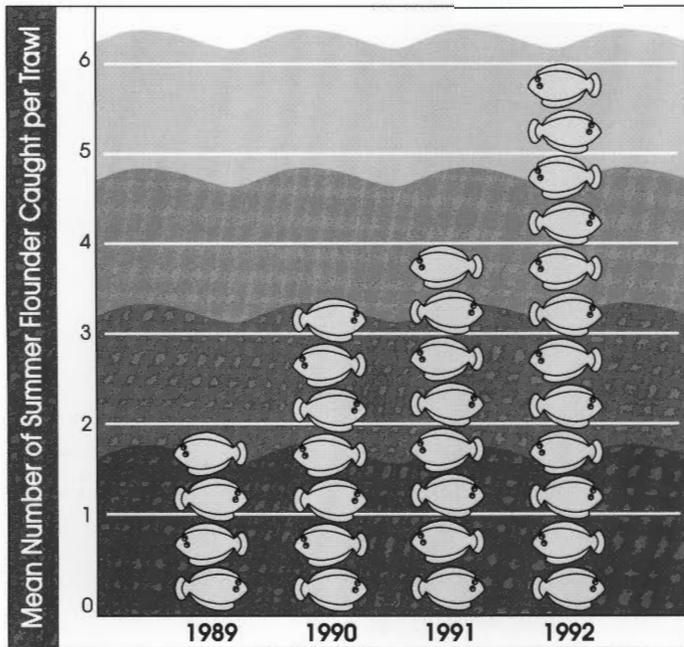
each zone. A complete survey therefore may consist of 39 samples; it takes five to six days at sea to collect them all.

Five surveys are performed each year — in January, April, June, August and October. The catch for each is distinct due to the migratory nature of the fish inhabiting New Jersey coastal waters. Species move inshore and offshore, north and south, and into and out of estuaries in annual cycles of spawning, feeding, juvenile development and seeking preferred temperatures.

January is dominated by skates and herrings. Winter flounder are most abundant in April surveys when warm water species begin to appear amid those preferring the cold. June belongs to butterfish and squid. August catches hold stingrays, weakfish, bluefish, fluke and smooth dogfish.

October is rush hour. Warm-water species are moving offshore and south, while cold water counterparts are starting to come in. Juveniles are pouring out of estuary and back bay nursery grounds. Strays from subtropical waters such as triggerfish, filefish and burrfish are caught regularly, but more unusual species require frequent consultation of identification books. Multiple data sheets are sometimes needed to record all the information from a single catch in October, a phenomenon occurring at no other time of the year.

The size of fish captured is, to say the least, extreme: At one end are fish so young and small, like the bay anchovy, that their internal organs are visible through unpigmented skin. At the other end is the largest fish captured to date, a nine-foot sand tiger shark weighing 308 pounds. When this monster slid into the sorting table after a trawl 20 miles off Cape May, the crew rapidly fled to safe distances and stared in amazement.



CHARTS BY JEAN CHILDS

Although not as big as the tiger shark, large individual fish are caught that would be the envy of saltwater anglers. Several “trophy” size striped bass have been taken, including a 34.5-pound, 44-inch specimen from four miles off Great Egg Harbor Inlet in April 1991. The biggest winter flounder was a four-pound, 20-inch fish caught 2.5 miles off the Manasquan Inlet in January 1991. The trawl’s two record fluke — one caught in 1989 off the Mantoloking beachfront and the other in 1991 one-half mile off of Lavallette — each weighed 5.4 pounds and measured 24 inches long.

Fast-swimming bluefish, although seldom caught in the trawl, occasionally show up, the two biggest being 16.5 pounds and 32 inches long caught 5.5 miles off Corsons Inlet. Other large fish include a 6.5-pound, 27-inch weakfish from four miles off Sea Bright; a 12-pound, 25-inch blackfish (tautog) two miles off Cape May Inlet; and a 21.5-pound, 37-inch Atlantic cod off West Long Branch.

All these fish, whether large, small or in-between, make up a valuable data base over time which describes the fish and larger invertebrates inhabiting New Jersey coastal waters, their seasonal distribution patterns and trends in their population levels. It has become a valuable asset in restoring species over-fished from New Jersey waters.

Identical Trawling

Consistency is a critical aspect of the survey. Because the distribution and abundance of fish are highly variable, it is important to eliminate or reduce as much other variation as possible. This is done through identical trawling methods. Thus, all tows are of the same duration, 20 minutes; towing

speed has a tight range, 2.5 to 3.0 knots; the five trawl nets used are identical and interchangeable; and samples are taken only during daylight hours.

The trawling equipment is huge, weighing about 3,400 pounds. The doors are weighted hydrofoils, both spreading the trawl open and keeping it on the bottom while towing. Each door has a heavy steel runner or shoe, which shines brightly after each tow, the result of polishing by the sandy bottom of the Jersey coast. The net, which opens like a parachute during a tow, is about 200 feet long.

Another important aspect of survey methodology is random selection of sampling locations. This ensures that every fish within the survey area has the same chance of being caught as any other fish, a requirement of valid statistical analysis.

Such information is important in managing wide-ranging fish stocks. The New Jersey information represents one piece of the fisheries stock assessment puzzle which, when added to pieces provided by other states and agencies, hopefully makes a true picture of existing conditions and provides a basis for action.

The resulting regulations, although somewhat restricting the sport of saltwater fishing, are designed to give their quarry a respite, a chance to spawn at least once, and the opportunity to grow bigger before being caught. Fortunately, most anglers are aware that regulations, however troublesome, are necessary medicine for ailing fish stocks and should result in better fishing in the long run.

Donald M. Byrne is a principal biologist with the Bureau of Marine Fisheries in the DEP’s Division of Fish, Game and Wildlife at the Nacote Creek Research Station in Port Republic.

Working the Slime Line

What do a computer programmer, nurseryman, housewife, TV lighting director, retired flight engineer and high school teacher all have in common?

They are all veterans of the Division of Fish, Game and Wildlife's "slime line." As members of the Wildlife Conservation Corps (WCC) for the New Jersey trawl survey program, they help sort flounders, count horseshoe crabs, tally dogfish lengths, weigh weakfish and measure scups.

"I guess we must be a little crazy to enjoy this, huh?" asks Bud Bulsiewicz of some nearby volunteers as sea spray drips off his nose onto his squid-ink stained rain jacket, and the boat rolls heavily starboard.

"When you need help again, just give me a call," April Hughes says as she disembarks in Cape May after three days work in rough seas and cold February winds.

WCC volunteers filled the breach when the charter boat changed from a fishing vessel to a research vessel and survey crew requirements exceeded the staff available from the Bureau of Marine Fisheries. The WCC volunteers generally provide about 50 percent of the labor force for each survey or three members of a six-person crew.

Besides shipping out to sea with the trawl survey crew, WCC volunteers contribute their time and energy in a wide variety of programs for the Department of Environmental Protection's Division of Fish, Game and Wildlife. These include stocking trout, monitoring bald eagle nests, staffing



Volunteers and crew members sort fish by species and then record weights and measurements.

information booths at shows for hunters and anglers and teaching hunting and fishing skills.

Volunteers must be at least 18 years old, willing to contribute at least 40 hours of work per year and have

their own transportation to work assignments. For more information on the program, contact S. J. Toth, Volunteer Coordinator, N.J. Division of Fish, Game and Wildlife, CN 400, Trenton, N.J. 08625.

The Ups and Downs of the Catch

By examining trawl survey results for several consecutive years, trends in fish populations become apparent. Summer flounder and bluefish are two cases in point.

The annual average number of summer flounder caught during each survey shows a steady increase since 1989. But the reverse is true for young bluefish.

(Fast-swimming adult bluefish are not readily susceptible to capture by trawl because they do not stay near the bottom.)

The summer flounder stock in recent years was at low levels because of over-fishing. A number of regulations were enacted to restore the population, including size and catch limits, closed seasons and a commercial catch quota. These management actions appear to have had the desired effect, and the population has rebounded.

For bluefish, the story is

different. There has been a disagreement in New Jersey among regulators and the fishing industry that the bluefish population needs conservation measures. In 1989, the federal government imposed a catch limit of 10 fish per person per day to reduce the catch by saltwater anglers fishing in U.S. waters. The measure was adopted for state waters by all the East Coast states except New Jersey, where party and charter boat operators successfully opposed it. Recent federal legislation has empowered the Atlantic

States Marine Fisheries Commission, the central authority for fisheries management on the Atlantic Coast, to identify states not complying with its management programs and to impose fishing moratoriums until compliance is obtained. New Jersey regulators are now working to have our state adopt the 10 fish limit. However, the steady decline in trawl survey catches of young bluefish raises concerns that the 10-fish limit may be too generous.

*Details of
New
Jersey's
Landscape*

A Bird's Eye View



*Text and Photographs
by Owen Kanzler*

Since 1978, the skies over New Jersey have been my photography studio.

As a professional aerial photographer, I make my living taking pictures for home owners, real estate brokers and New Jersey corporations. But my avocation is documenting many of the unique land-

scapes the Garden State has to offer.

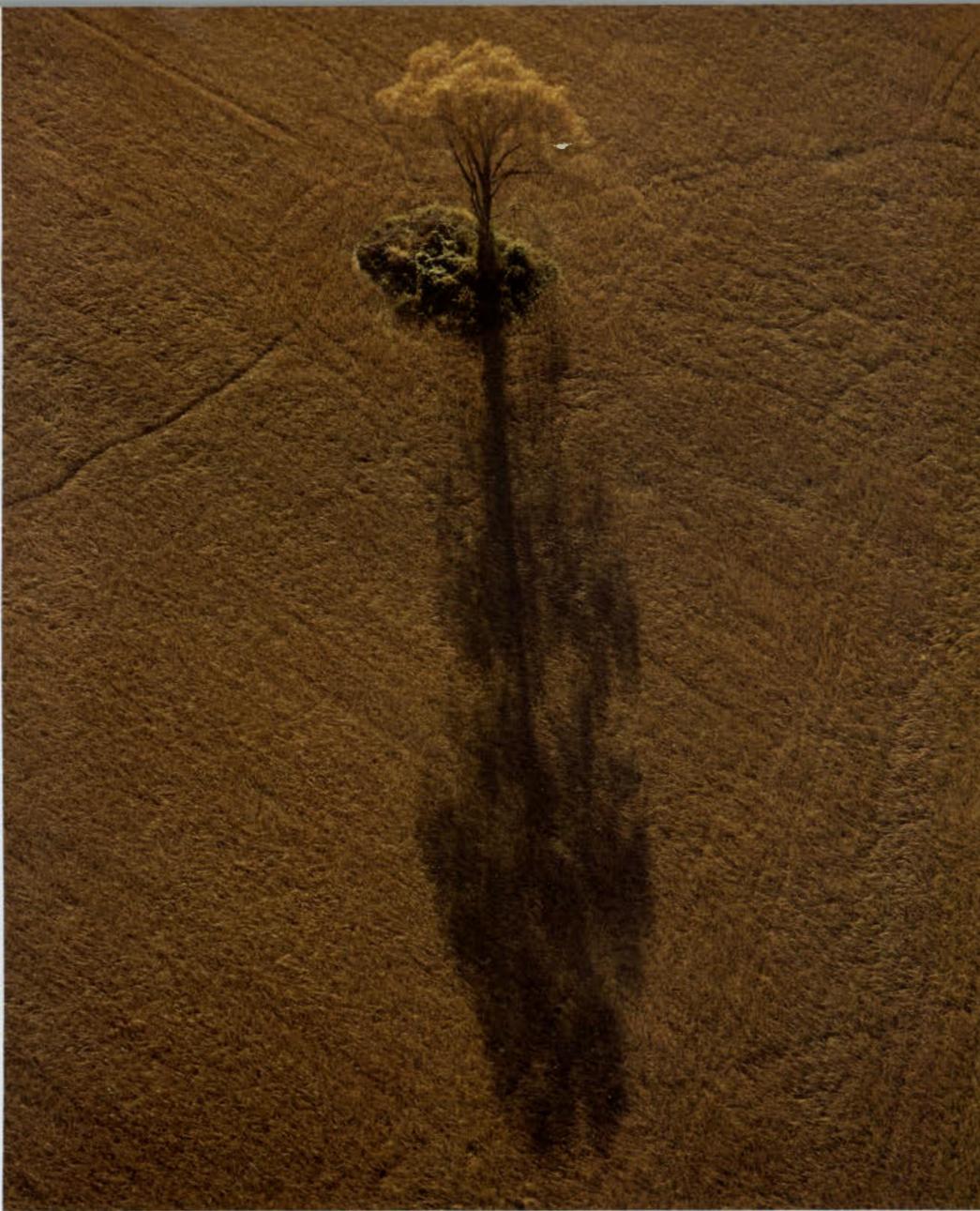
Although I became interested in aviation as a child and have been photographing since before my teens, it was a chance meeting with a retired aerial photographer named Ulysses Fritts of Dover in 1974 that took my photography career into the skies. Fritts and I shared a deep interest both in photography and

flying and soon became close friends.

At Fritts' urging, I learned to fly and became a pilot/photographer. Being the pilot instead of a passenger allows me greater control over the whole process in order to achieve the desired result.

Flying and successfully photographing at the same time is a skill that takes considerable effort to master. Although it eventu-

ally becomes second nature, it always requires attention and discipline. Flying the plane safely is the first order of importance, and it must be done without spending too much time peering through a camera lens. After all, this photography is done through an open window with one hand on the camera and one hand on the controls while going 70 miles per hour hun-



The aerial artistry of Owen Kanzler will be on display at the Department of Environmental Protection's Art Gallery on the 7th Floor of 401 East State Street in Trenton from September through October.

Suburbia replaces another New Jersey farm in Piscataway, Middlesex County (opposite page).

An oak tree stands alone in a field in Monroe Township, Middlesex County (left).

dreds and, sometimes, thousands of feet above the ground. So developing a sense of timing for snapping the picture is critical.

From my aerial vantage point, I have been privileged to see many sights and perspectives most people will never experience. Some are beautiful and inspiring; others disturbing and perplexing; while others are simply interesting or entertaining.

I have seen the beauty in New Jersey's varied landscapes. During the last 16 years, I have also witnessed the transformation of agricultural and rural land into New Jersey's latest crops — housing developments, condominium units and industrial parks.

While the state's Green Acres program, the state purchase of development rights of farmlands and

other open space protection programs will preserve some of the Garden State's rural reaches, I am concerned that the majority of farms and natural areas will eventually disappear forever. The metamorphosis I have seen throughout my career seems as though it may never stop.

The images on the following pages were not done for any of my clients.

These scenes were discovered by chance and photographed simply for the joy of doing it. They focus on New Jersey's constantly changing natural, agricultural and cultural landscapes. They are my way of sharing with others a bird's eye view of New Jersey.

Owen Kanzler is a pilot and photographer who lives in Linden.





Drying mud dredged from Raritan Bay in Cliffwood Beach, Middlesex County (opposite page).

Baling hay in Howell Township, Monmouth County (above).

A sod farm in Great Meadows, Warren County (left).







Tree trunks in a swamp
in Harding Township, Morris
County (opposite page).

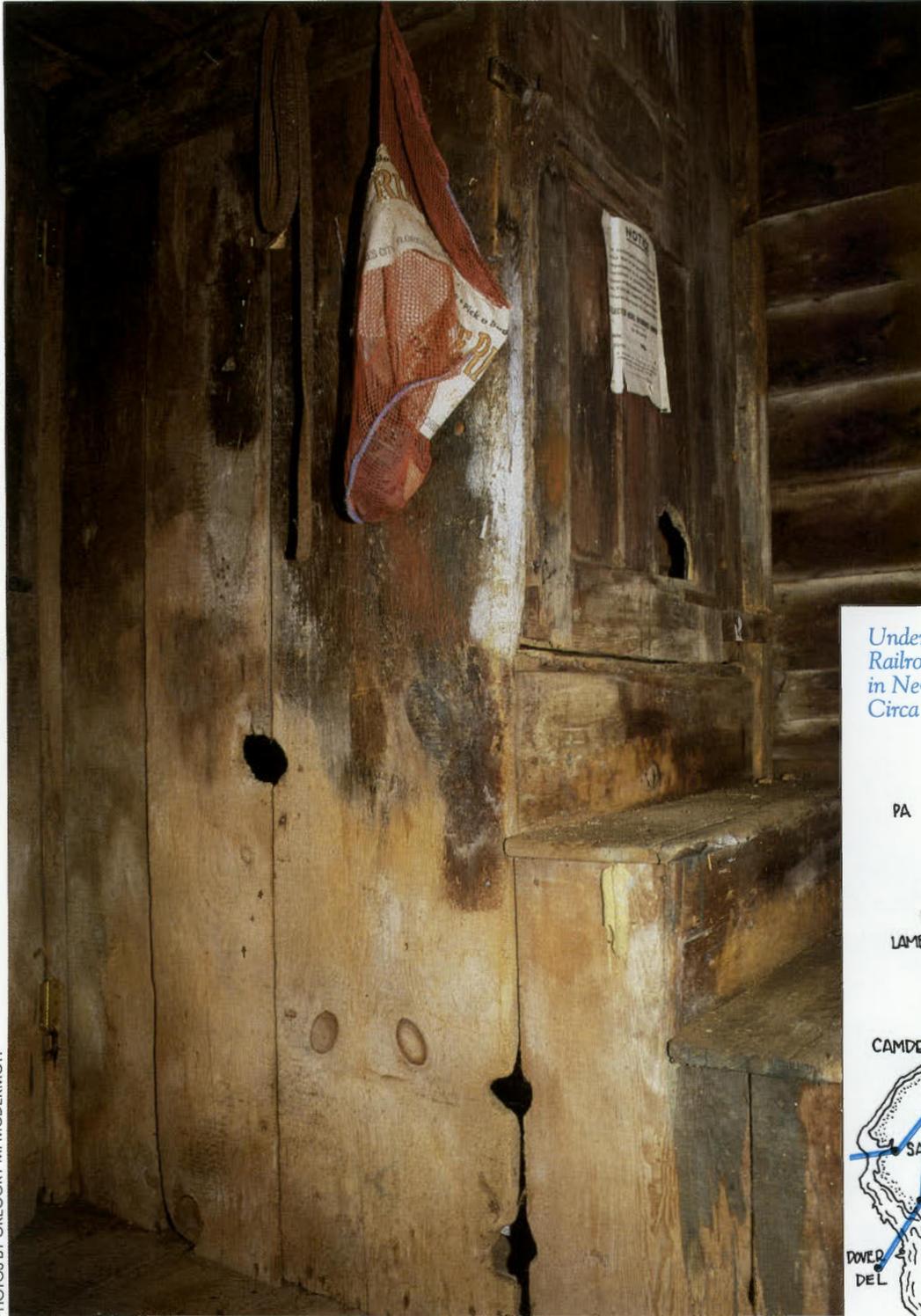
A photograph (above)
entitled "Self Portrait" shot
over Seaside Heights,
Ocean County.

Beach bungalows dot
Ocean Beach, Ocean
County (right).



Escape to Freedom:

Tracking Down New Jersey's Underground Railroad

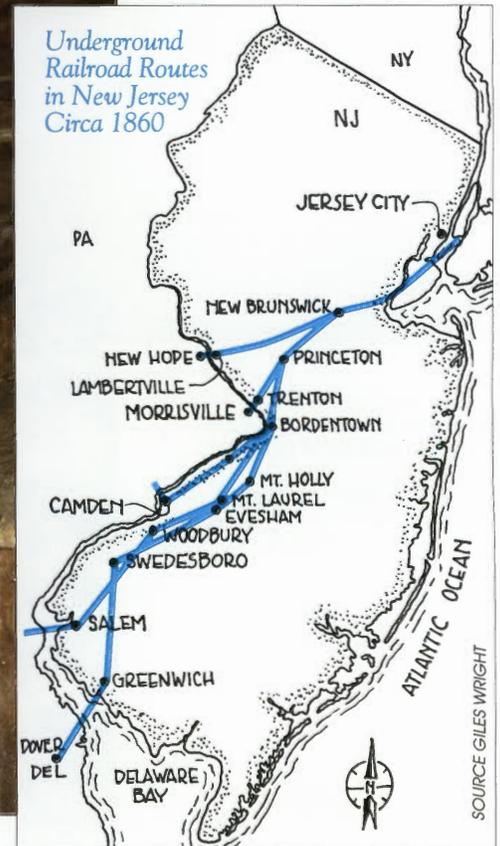


PHOTOS BY GREGORY M. McDERMOTT

Runaway slaves may have hidden in this room under the stairs in Enoch Middleton's barn. The hole in the center may have served as a peephole.

The basement of the original Mintas house (opposite page), which was found during renovation of the Al Meyers building in Marlton. James Mintas was a freed black slave and brick maker in the late 1700s.

This map (below) shows the possible routes of the Underground Railroad in New Jersey.



SOURCE GILES WRIGHT

by Antoinette M. Ford

Imagine reading your Sunday newspaper and finding this among the classifieds: "\$30 Reward. Ran away on the 24th of December last, a Negro boy named Major or Charles. . . . Said boy is about 18 years of age, 5 feet 11 inches high and speaks low when spoken to. . . . The above reward will be given to any person who will lodge him in jail so that I may get him."

That was an ad placed by John Minor of Hillsborough Township on Jan. 19, 1818.

If you were like most New Jerseyans prior to the Civil War, you wouldn't bat an eye at advertisements like this. They ran almost every day in newspapers throughout the state. After all, New Jersey was the last northern state in the Union to abolish slavery, first in 1804 and again in 1846.

The 1804 law allowed blacks born after July 4th of that year to be free once they reached their 21st birthday; the 1846 law freed African Americans born after that year. But those slaves unlucky enough to miss those dates remained slaves until they died or until the 13th Amendment to the United States Constitution took effect in 1865, says Giles R. Wright, director of the Afro-American History Program at the New Jersey Historical Commission.

New Jersey was also one of the few northern states to sanction the Fugitive Slave Act of 1850, which issued severe penalties against those found harboring runaway slaves.

Given that history, you may think that New Jersey would have been the last place a fugitive slave would seek safe haven. Yet, during the days of the Underground Railroad, a secret network that helped African Americans escape slavery in southern states, thousands of runaway slaves found their way to freedom through a clandestine system that existed in the Garden State.

The Underground Railroad evolved in the 19th century and operated into the Civil War. No one knows for sure where the term underground railroad originated, but one popular theory is that it came from slave catchers themselves. Just when these hunters thought they were getting close to a runaway, the prey would disappear off the face of the earth — as if they had moved underground.

New Jersey was crucial to the operation of the Underground Railroad for slaves from southeast states trying to get to "free" territory in the north or Canada. Canada was a popular destination because the British government there outlawed slavery in 1833, and a federal law in 1850 allowed fugitive slaves found in northern states to be returned to their owners. Nevertheless, some escaped slaves did settle in New Jersey in all-black communities like Timbuctoo in Burlington County, Wright says.

The underground railroad network in New Jersey is believed to have operated along three main routes, but Wright says five or more routes may have existed in the state. Each route had a number of "stations," where fugitives would stop



for rest and provisions.

The Camden route, believed to be the one most traveled in the state, took slaves from Camden through Burlington, Bordentown and Princeton. The Salem route went through Woodbury, Mount Laurel and Bordentown. The Greenwich route may have had stations in Swedesboro, Mount Holly and Burlington. Wright also says there were two additional routes — one from Morrisville, Pa. to Trenton and the other from New Hope, Pa. to Lambertville. From Central New Jersey, the fugitives could head to New Brunswick, Jersey City and north to Canada.

As slaves were secreted from one location to another, very little evidence was left behind about this forbidden smuggling system, making it difficult to verify the people or places that played a role in the Underground Railroad. Still, some locations in the state are believed to have played an integral role in this secret network. The National Park Service and the New Jersey Historic Preservation Office are seeking to document the people or places with a connection to this historic system.

The Goodwin Sisters

Abigail Goodwin, a Quaker woman from Salem, spent nearly 30 years helping fugitive slaves. Goodwin and her sister Elizabeth were what those in the system called "station masters" — people who operated stops on the railroad. Their three-story, white clapboard home, which still stands on Market Street in Salem, hid many runaway slaves. While there is little or no evidence left in the house, which has undergone several renovations, historian Robert Harper says letters written by Abigail detail her involvement in the railroad.

In an 1837 letter sent to Mary Grew of the Philadelphia Anti-Slavery Society — a year after the sisters took in their

first slave — Abigail Goodwin said she wanted to do more.

“I am truly willing to take upon myself the superintendence of Salem County,” she said in her letter dated June 20. “I have acquaintances in different townships who will assist me . . . but you must not expect a very long list of names. We are poor here in the abolitionist faith; it has not made much progress in our State, particularly in the lower parts of it.”

Many neighbors knew about the Goodwin sisters’ involvement in the Underground Railroad, but looked the other way.

“It was pretty common knowledge that they were involved in the railroad,” says Harper, a retired professor from Glassboro State College, now Rowan College. “Everyone knew about their actions, but no one did anything to stop them.”

In addition to the people, the terrain of the region assisted the runaways.

“It’s tidal — marsh surroundings made it easy to go into an inlet and hide in the marsh’s reeds, and the tides would wash over any tracks,” says Sherada Rempe, curator of the Salem County Museum. “Although not all people in Salem were sympathetic to the runaways, a fugitive could find food, clothing or a kind word from the people who did sympathize.”

Another stop on the underground network for slaves coming from Salem may have been the Ashhurst Mansion in Mount Holly. Built in the late 1850s by Lewis Ashhurst, a Philadelphia banker, the mansion, located off Route 537, has been converted into an office building. When developers wanted to knock it down, preservationists produced various publications that they say proved the house was part of the railway, says Bill Dunsmore, who works in the building and took an interest in its history.

Station Masters — Past and Present

One of the best first-person accounts written about the secret network is *The Underground Railroad* by William Still,

These markings, found in the loft of the Enoch Middleton barn, may have indicated the number of fugitive slaves that hid there.



published in 1872. Still, a conductor who operated a coal and lumber yard in Philadelphia as a front for the cause, provides today’s historians with rare accounts of the victories, defeats and near misses endured on the railroad.

Still worked with Harriet Tubman, perhaps the best-known conductor on the Underground Railroad. In his book, he also writes about money and letters he received from Abigail Goodwin in the ongoing efforts to aid runaway slaves. And his legacy lives on today in his descendants.

Clarence Still, a resident of Lawnside in Camden County, is the fourth generation nephew of William Still. Like his forebears, Clarence Still is the keeper of a station on the railroad. A member of the Lawnside Historical Society, he is helping to restore the Peter Mott house, a site that is expected to be listed on the New Jersey and National Registers of Historic Places in part for its association with the Underground Railroad.

The Mott house, located just three-quarters of a mile from Still’s home, is a two-story wood frame structure that sits hidden in a corner behind a new housing development. Built in 1845 by Mott, a free black farmer, the house was said to be a stop on the Camden route of the railroad between Burlington and Camden counties, according to Clarence Still.

The house now sits on an overgrown lot surrounded by a tall wooden fence. Its windows are covered with weathered particle board and its walls with brown shingles. Even in its dilapidated state, the house stands proudly, its sense of history still strong.

In fact, Still says some residents believe spirits of the runaways remain in the house.

“Some of the people who lived here after Mott say a ghost lives here,” he says. “Some say they’ve seen the ghost in the form of a ball of fire, and others say they’ve seen it in the form of a huge black man barrelling down the stairs.”

Even Clarence Still believes he has witnessed the ghost while rounding up a group of visiting school children.

“I saw a little boy in brown clothes standing less than 10 feet from me,” Clarence Still recalls. “I looked away and then turned back toward the boy, and he just disappeared. I walked around the entire house looking for him, but couldn’t find him.”

The Mott house was believed to be a primary station in Lawnside, a town heavily settled by abolitionists and a “popular refuge” for slaves after 1840, Still says.

“There is where it was said Mott hid runaways when the slave catchers came,” Clarence Still says as he points out a false doorway that leads to the basement. “This here is a stand-in closet with a false wall in the front.”

A Station on the Railroad

Many routes in New Jersey converged near Bordentown. The Middleton House in North Crosswicks, now a section of Hamilton Township, sits four miles north of Bordentown. It is one of Mercer County’s most famous railroad stations. The



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These posters were common in pre-Civil War New Jersey. This slave collar showed that a slave “belonged” to the Spader estate in Middlesex County in the early 1800s.

house, owned by Quaker Enoch Middleton, may have once harbored as many as 30 fugitive slaves at one time. Middleton’s barn and horse-drawn wagon helped him wage a daily war on one of America’s most barbaric institutions.

The two-story mansion, built in 1836, is now the home of Eric and Norma Jean Talley. The Middleton homestead, which lodged abolitionists such as Lucretia Mott, sometimes provided overnight accommodations for fugitives, or runaway slaves were moved immediately from here onto the next stop.

“Usually they came singly by themselves or were brought in squads of three, four or five,” Rudolph Middleton, Enoch’s youngest son said in a 1915 article in *The Sunday Times-Advertiser* of Trenton. “Father would conceal them by day and at night either take them himself or send them to Allentown or Cranbury or New Brunswick. Father was very secretive as to the system. We children never heard anything about it. I have seen him open a letter, read it, give mother a wink and throw it in the fire.”

While danger lurked in all parts of the journey through New Jersey, runaways had to be especially cautious when reaching New Brunswick. Slave catchers set up their headquarters in the city because it was a crucial juncture on the road to freedom. There fugitives could stow away on boats or trains on their way to Rahway, Newark and Jersey City.

For some, Jersey City, known as Bergen until the late 1860s, was the last stop on the railroad in the state.

Just before hopping a boat to New York, a runaway might find himself at the back door of Col. David L. Holden, an ardent abolitionist and an astronomer, according to Glenn Cunningham, a native of Jersey City who has researched African-American history in the city. Although there is no written documentation that proves the Holden house was part of the network, Cunningham has found the family’s strong oral history convincing.

“You have to understand that during that time it was illegal to help runaways,” Cunningham says. “So you would rarely

find written testimony on these activities. This evidence is based on the family’s history and what they know to be passed down through generations. Also, it’s logical that the house would have been used during the railroad because of its location and construction.”

The Holden homestead, a 16-room mansion that overlooks what was once a cliff that faced the Hudson River, is on Clifton Place. Now apartment buildings and industrial warehouses obstruct what was once a magnificent view of the river, according to Holden family members who still occupy the 140-year old home.

“Most came from being hidden in a wagon,” says Charles Knubbert, husband of Barbara Knubbert, the fifth generation granddaughter of Col. Holden. “They would come through the back door near the barn and carriage house to the cellar’s back door and then to the wine cellar or the secret room upstairs.”

The Holden Mansion, despite its charm, has an eerie sense about it. A narrow staircase that leads from the kitchen on the first floor to the third floor is reminiscent of a creaky haunted house in an Alfred Hitchcock movie. On the third floor, hidden behind a built-in bookcase, is a very narrow, dark room nine feet long and ranging from three to five feet wide — large enough to fit ten runaway slaves uncomfortably.

Once a fugitive left the Holdens, many were quickly ushered off to conductors who would send them to New York by boat. From there they would head north toward Canada where they were greeted by others who had survived the journey. Still others settled in free northern states in this country.

In Canada, the former slaves could start a new life of independence and new-found responsibilities. They could own land and build homes for their families. But while their journey ended, the Goodwins, the Middletons, the Stills, the Motts, the Holdens, as well as countless others, continued to deliver slaves out of bondage.

It wasn’t until 1865, and the 13th Amendment to the United States Constitution which abolished slavery, that the network came to a halt. The Amendment freed all slaves, rendering the railroad obsolete. Now legally free, some of the African Americans who fought so hard to escape the chains of slavery returned to the United States and fought in the northern army’s “colored” regiments. There they began a new fight — one for equality.

If you have any documentation that a property or person was associated with the Underground Railroad, write to Robert Craig, New Jersey Historic Preservation Office, CN 404, Trenton, New Jersey 08625-0404. All documentation will be shared with the National Park Service.

Antoinette Ford is a reporter with The Times of Trenton and a freelance writer who lives in Washington Township.



The endangered Pine Barrens tree frog (above).

The endangered tiger salamander (right).



Protecting Rare Species in New Jersey's Landscapes

by Larry Niles and Jeanette Bowers-Altman

In 1984, a developer wanted to build a small shopping center in a forested area of South Jersey. But the area was home to the endangered tiger salamander. As a result of state regulations protecting endangered species, the developer had to create a plan to protect the amphibian. The center was built on a nearby property, and the original area was saved for the tiger salamander.

Almost 10 years later, it turns out that the tiger salamander population was not saved. Since the shopping center was constructed, almost all of the surrounding land was developed. Children started playing in the pond the salamanders used for breeding; trash was casually tossed in the water; and runoff from roads and parking lots changed the water chemistry. Adult salamanders leaving the breeding pond were crushed by the increased traffic in the area. For all the well-intentioned efforts, the tiger salamander will eventually be lost at this site.

This scenario is not an isolated event. In many places across the state and, in fact, across the country, biologists and regulators are taking great pains to protect locations where endangered species are found. But protecting individual sites is not enough.

But what is enough? This is the primary question facing all endangered species biologists. The tiger salamander in South Jersey demonstrates that there is a need to go much further than preserving sites that protect a few individual animals. Instead biologists must be concerned with the needs of the larger populations of rare species for 10, 50 or 100 years into the future.

A new field of wildlife management is trying to meet that challenge in New Jersey and across the country. Called landscape ecology, this field focuses on the relationship between organisms and their environment, with an emphasis on the larger region in which these communities occur. The distribution of smaller populations of rare plants and animals, along with the geography and human impact on a given area, help to determine the region or "landscape."

Here in New Jersey, the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program (ENSP) is developing a program with public and private organizations to use the latest computer technology and field studies to "map" endangered species. This information can be shared with regulatory and land management agencies to better plan for development.

The ENSP has identified five landscapes in the state with unique ecosystems, large concentrations of public land and key areas for endangered species. These include the Coastal Plain

in the south with its wooded wetlands and uplands, the Highlands in the north with its mountains and woodlands, the Pinelands in the southeast with its pitch pine forests, Mannington in the southwest with its large freshwater tidal marshes and wooded wetlands and Piedmont in the central part of the state with its farmlands and grasslands.

New Jersey is a critical area for many rare species because it falls in two distinct environmental regions in the country. South Jersey has characteristics similar to southern states with its pine and oak forests and often serves as the northern range of some southern species. On the other hand, the northern regions are typical of New England with its mountains and large mature forests, attracting some northern species to the southern limits of their ranges. In addition, since New Jersey is one of the last northern states to freeze in winter, it is a popular migratory route for many bird species.

More than 75 percent of New Jersey's endangered terrestrial species can be found in the Coastal Plain, a 610,787 acre region of freshwater wetlands, tidal marshes, grasslands and forested wetlands at the southern tip of the state. It is here that the ENSP began its pilot project on landscape planning in 1994 with grants from the federal government and private foundations, as well as funding from the income tax checkoff

The barred owl is listed as a threatened species in New Jersey.



ROBERT T. ZAPPALORTI

for wildlife and the new wildlife conservation license plate.

The Coastal Plain has one of the most diverse bird populations in the state, including New Jersey's largest concentration of bald eagles; marsh birds, such as black rails, harriers and herons; beach nesters, such as terns, skimmers and piping plovers; shorebirds migrating from South America; and raptors and passerines. In addition, several rare species of reptiles and amphibians are found here, including the tiger salamander, the pine snake and the Pine Barrens tree frog. Finally, it has many unique invertebrates, including various species of butterflies, moths, dragonflies and damselflies.

Staff zoologists working on this five-year project will use existing data from public and private organizations, as well as ongoing studies, to identify rare species and develop management strategies. This information will be shared with regulators and planners at the federal, state and local levels so they can better plan for development and the protection of rare species.

Although there are large areas of public land in New Jersey and strong regulatory protection for rare species, there are several reasons landscape planning is necessary.

- ❑ In New Jersey, as in most states, existing rare species information is incomplete and biased toward those species that are easily observed.
- ❑ Important habitat may be destroyed or degraded because the species' ecological needs are not fully understood or key locations have not been identified.
- ❑ The loss of contiguous habitat can be exacerbated by protecting individual sites without considering the need for the surrounding habitat.
- ❑ Land ownership and regulation often fall to several land management agencies, each with its own planning mechanisms and management strategies.
- ❑ Imprecise data lead regulatory agencies to be conservative in restricting development.
- ❑ There is presently no mechanism for incorporating rare species habitat protection into land use planning at the local level.

The ENSP hopes to address these issues in its landscape planning project. Using computer technology including the the Department of Environmental Protection's (DEP's) Geographic Information System — which will include such information as species habitat, ground and surface water, hazardous waste sites, wells and septic systems — the project will be able to “map” key information on rare species.



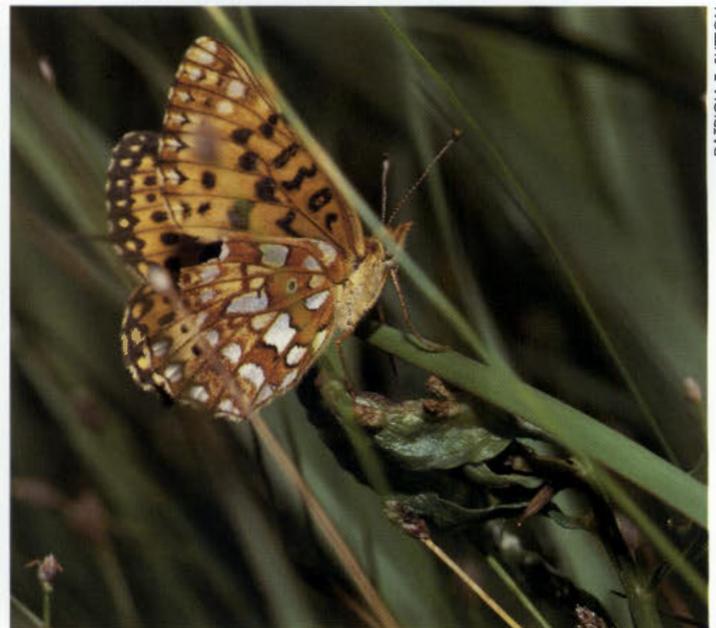
The Endangered and Nongame Species Program is funded through a state income tax checkoff and the new wildlife conservation license plate, featuring the threatened red-headed woodpecker. The plate, which costs \$50, can be ordered by calling 1-800-W-PLATES.

Information will be compiled with the help of existing studies by public and private agencies as well as any new field studies that are undertaken. This will enable the project to delineate key areas in need of protection, one of the goals of the state environmental master plan.

Armed with this information, the project will work with federal, state and private landowners to help develop protection strategies that could include such techniques as forest cutting, field maintenance and land acquisition. It will also provide precise mapping of rare species habitat along with innovative methods of managing several important species at once.

In addition, this key information will be integrated into maps used for regulation at the federal, state and local levels, including the New Jersey Land Use Regulation Program, the New Jersey Office of the United States Fish and Wildlife Service and the Cumberland County Planning Office. The project will highlight

The silver-bordered fritillary is a rare butterfly species.



PATRICIA T. SUTTON



PEGGY VARGAS

Wetlands found in the Coastal Plain of southern New Jersey.

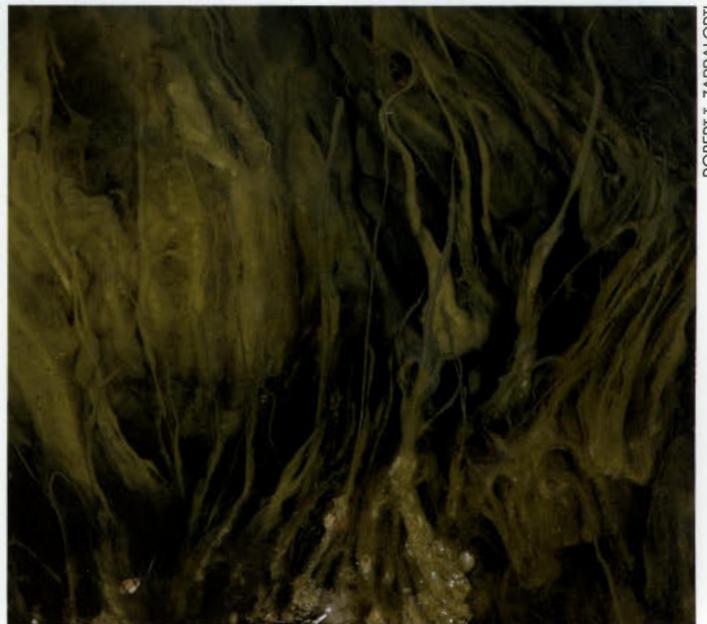
vulnerable areas critical for the protection of rare species as well as those areas needing little or no protection. This will promote cooperation in the planning process and the protection and effective management of critical species.

The Landscape Model of Rare Species Protection is a bold initiative to transform the often-contentious issue of protecting rare species into an interactive plan that not only involves state and federal governments, but community governments as well. It will coordinate the actions of land managers, regulators and planners in decisions that affect the protection of rare species, while considering that economic development is necessary to local communities.

For more information about the Landscape Project, call the ENSP at (609) 292-9400.

Larry Niles is the chief of the Endangered and Nongame Species Program and Jeanette Bowers-Altman is an assistant zoologist with the ENSP.

Algae grows in a stream in the Pine Barrens (bottom).



ROBERT T. ZAPPALORTI

SPURred onto Victory



PHOTOS BY MICHAEL S. MILLER



Amanda Bills is a typical 13-year-old, showing up for her horseback riding lesson with big hooped silver earrings and tubes of lipstick and perfume in the pocket of her plaid blue flannel shirt. But she willingly puts away the cosmetics and takes off the hoops as she dons a safety helmet for weekly equestrian exercises here among the rolling hills of Huber Woods Park in Middletown Township, Monmouth County.

For one hour, Amanda uses her leg muscles to improve her carriage and to guide Lucky, a quarter horse she rides with the help of two aids who walk beside her around the outdoor ring. Amanda sits in a marathon saddle, a seat with a high back used for long distance riding, to further support her back, which is slightly curved as a result of spina bifida.

"Squeeze those legs together when you post," calls out riding instructor Mimi Higgins, watching as Amanda moves her body up and down to the rhythm of the

horse. "Don't lock those knees. If you do, I'll tickle them."

Higgins' playful threats are part of her tricks of the trade in encouraging Amanda and 100 other mentally or physically challenged individuals who are part of Special People United to Ride (SPUR), a popular therapeutic program offered by the Monmouth County Park System.

SPUR's aim is to give riders not only physical activities and conditioning, but also confidence and a sense of being in control of a situation. For them, it is the opportunity to take the reins of a very large animal measuring an average of 53 inches high and weighing more than 1,000 pounds.

SPUR is accredited by the North

Riders get a chance to show off what they've learned during Hunter Paces, a seven-mile course simulating a fox hunt where riders follow a series of ribbons through meadows and woodlands.

Catherine Ehlinger, a 15-year old with Down Syndrome, sharpens her equestrian skills aboard Zereb (opposite page, top) at the SPUR program.

Colorful balls and toys atop barrels (opposite page, bottom) are used as teaching aids to increase hand-eye coordination and enhance gross motor skills during horseback riding instruction.

Six-year-old Blake McDermott (right) is helped onto Rocky by volunteers from the SPUR program.



Profile

American Riding for the Handicapped Association in Denver, the national governing board for therapeutic riding programs. In 1988, the association bestowed its National Therapeutic Horse Honor on Rocky, the program's first — and now oldest — pony for his even disposition and ability. SPUR has eight well-tempered horses — all donated to the program.

This year, for the first time since the program began in 1986, there is a waiting list of riders who have registered for the sessions, which run from August through October and from April through June. The park system, which already has 100 volunteers for this program alone, is always on the lookout for more individuals to walk alongside the students during lessons given by three full-time instructors.

"We could not operate without volunteers," says Anne Simon, who directs the therapeutic recreation department for the county park system. While some riders will always have side walkers because of the severity of their disabilities, others will gradu-

ate to a level of proficiency that will allow them to participate in the annual State Special Olympics and Tournament of Champions at Horse Park in Allentown.

Also, in the fall, riders get a chance to show off what they've learned during Hunter Paces, a seven-mile course simulating a fox hunt where riders follow a series of ribbons through meadows and woodlands. Higgins designs these courses in three locations: Huber Woods, Tatum Park in Middletown and Turkey Swamp Park in Freehold Township.

During the event, riders are timed as they guide their horses through open meadows, where the animals have the opportunity to run, and woodlands, where the riders can practice their skills in steering their steeds and jumping over small obstacles.

A Haven at Huber Woods

But at SPUR and the Monmouth County Park System, there are other ways for those that are physically or mentally challenged to enjoy horses or the out-

doors. Throughout the 255-acre Huber Woods are various trails for hiking and horseback riding, including several that are handicap accessible.

Huber Woods was originally part of the estate of businessman Hans Huber, whose family donated the 118-acre property and horse barn to the county in 1974. Since then, another 155 acres overlooking the Navesink River have been added to the park system by the Monmouth Conservation Foundation. Today, the woods boast wildflower meadows, and woodlands dotted with towering tulip trees and an oak hickory forest.

Back inside the huge outdoor riding ring, Higgins is busy with another SPUR student. She is teaching hand-eye coordination to Rae Leigh Farina, a mentally challenged youngster on a Welsh pony named Cinnamon Twist.

"We put our hands on red for jumping, on blue for walking," says Higgins, pointing to the different bands of color of the reins, and then turning to lettered cones in the ring. "Look where you're going, Rae, so the pony doesn't crash into the letter B."

"Walk on," says 11-year old Rae, commanding the pony to go forward.

Randy Farina, Rae Leigh's father, says the horseback riding has sparked something special in his daughter. Rae doesn't talk much at home, nor does she linger after other activities like softball. But SPUR holds a special attraction. No only does she clamor to go to her lessons, but she doesn't want to leave after the lesson is over. She often lingers to feed Cinnamon Twist a carrot or talk to the other horses.

For Rae, it is a special relationship.

"Cinnamon is my best friend," she declares.

For more information about SPUR, write to SPUR, 805 Newman Springs Road, Lincroft, NJ 07738 or call (908) 842-4000.

by Helen Pike, a freelance writer who lives in Eatontown

Drew Scott, 5, feeds his horse, Cinnamon Twist, following his lesson.



The SPUR program at Huber Woods is one of several horseback riding organizations for the handicapped in New Jersey.



Other New Jersey Equestrian Programs

SPUR is one of 14 equestrian programs in New Jersey for the handicapped that are accredited by the North American Riding for the Handicapped Association. To learn more about other programs in the state, call or write to the following organizations:

North American Riding for the Handicapped Association, Inc.
P.O. Box 33150
Denver, CO 80233
(800) 369-RIDE

North Jersey

Milford Center for Therapeutic Riding
1030 Clifton Avenue
Clifton, NJ 07013
(201) 773-6262

STEED

P.O. Box 84
Allendale, NJ 07401
(201) 447-2692

Somerset Hills Handicapped Riders Club
P.O. Box 455
Bedminster, NJ 07921
(908) 234-2024

Central Jersey

A Different View
2030 Cedar Lane Extension
Bordentown, NJ 08505
(609) 499-0920

Atlantic Riding Center for the Handicapped
214 Asbury Road
English Creek, NJ 08333
(908) 927-3785

Chariot Riders Inc.
4004 Quarry Road
Lakehurst, New Jersey 08733
(908) 657-2710

Handicapped High Riders
145 Route 526
Allentown, NJ 08501
(609) 259-3884

Heads Up Special Riders
P.O. Box 123
121 Laurel Ave.
Kingston, NJ 08528
(609) 921-8389

R R Special Riders
116 Bramao Ave.
Berlin, NJ 08009
(609) 768-9029

SPIRIT

448 Federal City Road
Pennington, NJ 08534
(609) 737-0018

Unicorn Handicapped Riding Association
40 Cooper Tomlinson Road
Medford, NJ 08055
(609) 953-0255

South Jersey

Algonkin Stables of Bancroft
Route 581, Box 367
Mullica Hill, NJ 08062
(609) 769-0078

Thunderbird Equestrian Program for Challenged Riders
RD 2, Box 605
Woodstown, NJ 08098
(609) 769-4028



A canvasback duck and marine worms were some of the casualties of oil spills in the New York-New Jersey area in 1990.



OFFICE OF NATURAL RESOURCE DAMAGES

Putting a Price On Priceless Resources

How much is an endangered piping plover worth in New Jersey?

This, and similar questions — for example, about the sea otter in the Pacific Northwest and the gray wolf in Montana — are increasingly becoming hot topics for economists, biologists, ecologists, resource managers, and yes, even lawyers, across the country. The reason these professionals are looking to set a monetary value for seemingly priceless wildlife and other public resources is to provide a basis and means for restoring these rare or declining species and habitats.

The loss of habitat to development and the death or injury of wildlife from oil spills or chronic releases of pollutants have taken their toll on natural resources across the nation for decades. But it was the 1989 Exxon Valdez oil spill in Alaska — with images of oiled birds and otters and saddened commercial anglers — that drove home the message that the loss of natural resources hits both our pocketbooks and quality of life. It also gave birth to the fastest

growing, and sometimes controversial, specialty in the environmental arena — natural resource damage assessment and restoration.

New Jersey has been making the case for the restoration of natural resources for a number of years. But it wasn't until a series of oil spills in the Arthur Kill and Kill Van Kull in 1990 that the Department of Environmental Protection (DEP) was faced with putting a price tag on natural resource damage.

But what is the price of a fish, an osprey or a wetland?

When oil is spilled into a body of water, it may sink, float or mix in with the water. As a result, microscopic plankton can be injured or destroyed. The eggs, larvae or juveniles of some commercial fish, which depend on the plankton for food during their early stages of development in estuaries or near shore waters, may be affected. As a result, the spill could have an impact on future recreational and commercial fisheries.

Oil may also spread to salt marshes,



coating plants and settling in the mud. Not only could this destroy the vegetation, but also the algae and invertebrates that live there. Oil can remain in the sediments for long periods of time, and its toxic effects can be felt for decades.

Without the resources of the salt marsh, other species such as herons, egrets, ospreys, eagles, waterfowl, muskrats and foxes may be unable to find food or shelter.

Thus the cumulative effects of a spill on wildlife and their habitat can be devastating.

Furthermore, damages to natural resources can include the impairment of state parks, beaches or other public resources when spills or releases affect the public's access and use of these public lands.

Therefore, considering the range of and types of damages, setting a price for these resources can be complicated.

To help address the issue, the DEP formed the Office of Natural Resource Damages within the office of the Assistant Commissioner for Natural and Historic Resources. The program, guided by federal and state laws, is charged with working with federal and state agencies to address the natural resource injuries

resulting from oil spills and other releases of pollutants. The goal of this office is to ensure that damaged resources, like oiled beaches and piping plovers, are appropriately valued, that damage settlements are processed so that restoration of injured resources can be initiated.

The Office of Natural Resource Damages responds to spills and contaminated sites to document and quantify the injuries to resources. Since many of the impacted resources cross state boundaries, the program works with such agencies as the National Oceanic and Atmospheric Administration (NOAA), the Department of the Interior and adjacent states to prepare restoration strategies and present them to the responsible parties for implementation. Responsible parties may be invited to undertake the restoration themselves just as they would undertake a site cleanup.

Unlike cleanup activities, which are designed to abate the contamination, restoration is aimed at the next step — revitalizing or replacing the damaged resource. In terms of wildlife damage, restoration could include the purchase or rehabilitation of threatened or sensitive habitat, such as wetlands or forests, or

Personnel from the Endangered and Nongame Species Program erect a fence to keep out predators as part of a restoration project to protect a piping plover nest.



OFFICE OF NATURAL RESOURCE DAMAGES

the rehabilitation of damaged resources, such as repairing wetlands or performing piping plover enhancement projects. Restoration of the public's loss of resources like parks and beaches could include public access enhancement projects such as boat ramps, fishing access improvement and educational projects.

Monetary settlements or agreements for restoration projects are not to penalize those who created the problem, but rather to compensate the public for resources that were lost. The office is currently negotiating to use settlement funds in restoration projects in the Arthur Kill/Kill Van Kull area, the Rahway River, the Woodbridge River, the Delaware River and Island Beach State Park.

The office works closely with other DEP programs, including the divisions of Fish, Game and Wildlife, Parks and Forestry, and Site Remediation. It also seeks assistance from other environmental organizations for their expertise in a given area and knowledge of restoration projects. Finally, it offers technical support to the state Attorney General's Office in natural resource damage litigation.

The office also becomes involved in DEP's contaminated site cleanup program if the department is approached with a proposal to perform a site cleanup or to settle outstanding claims. The office will evaluate some sites for damages to natural resources and prepare a restoration plan as part of the overall settlement package.

The Office of Natural Resource Damages' involvement in these projects, and the steps taken by DEP to address natural resource damages through the creation of this office, has brought New Jersey to the forefront of this emerging field.

In 1990, when oil spilled from a pipeline at the Exxon Bayway Pipeline into the Arthur Kill and Kill Van Kull, the state was called upon for the first time to address the damage to the "islands of habitat" that exist in this heavily industrialized, urban area in the state. The incident required state and federal agencies to assess the value of Shooters Island, and other wetlands, as breeding



The endangered piping plover nests on the beaches and dunes of New Jersey.

and wintering areas for such species as herons and canvasback ducks.

As a result of litigation and negotiations by DEP, NOAA, the New York State Department of Environmental Conservation (NYDEC), New York City and Elizabeth, a \$10 million settlement was reached with Exxon for damages caused by the spill. These funds, and other settlements reached since then, will be used to begin the restoration and protection of the damaged resources in the harbor and its tributaries along the coast, which in turn will benefit the wildlife that depends on these areas and will also promote public access.

In addition to the restoration efforts, these projects have also helped establish a unique working relationship between public agencies and interested groups. Among the agencies that assisted in the Arthur Kill/Kill Van Kull spills were the DEP, the NYDEC, the New Jersey Attorney General's Office, the New York City Parks Department, the United States Coast Guard, the NOAA Damage Assessment and Restoration Center, the National Marine Fisheries Service, the Department of Interior and the United States Fish and Wildlife Service. Organiza-

tions that will lend their expertise include the American Littoral Society, the Audubon Society, the Natural Resources Defense Council, the New Jersey Conservation Foundation, the Association of New Jersey Environmental Commissions and the Woodbridge River Watch.

The goal is to provide a cooperative effort to initiate and oversee restoration projects in and outside of the harbor, to promote measures to prevent future spills and to prepare for any spills that may occur in the future.

When spills occur, these groups may be called upon to help document the damage and put a price tag on New Jersey's precious resources. In addition, responsible parties may assist in quantifying the damage for a quicker restoration. It is a complicated process which can take into account all plants, animals and resources in a given area. For it is more than just the cost of a single rare species — like the piping plover — at stake. Rather it is an effort to protect and enhance the intricate web of life in our state that enriches us all.

by Martin J. McHugh and John Sacco of the Department of Environmental Protection's Office of Natural Resource Damages

A Night in the Woods; A Journey of the Mind

The best way to take your first solo camping trip is to plan carefully, check and recheck your gear, take the advice of someone who has experience and listen to the weather.

Unfortunately, I learned this too late.

But despite a sleepless night in the woods, it gave me a chance to reflect on a friend and the outdoor adventures that brought us together.

I set out one Saturday morning on the Appalachian Trail at the base of Mt. Tammany, which serves as the New Jersey portion of the pass known as the Delaware Water Gap. I shouldered my small pack and adjusted the straps so that I could barely feel the weight.

Once I got out of sight of the parking lot and a short way into my hike, I began to realize the freedom which comes with solitude, the simple ability to stop at will and not have to stop for others. The calming effect of walking and the beauty of my surroundings made me think of a passage from Thoreau: "The man who goes alone can start today; but he who travels with another must wait till the other is ready, and it may be a long time before they get off."

The absence of conversation allowed me to catch on to those little sights, sounds and smells that draw us to the mystique and uncertainty of the outdoors. The purity and cleanliness of my surroundings were astounding. It was like no other feeling I had ever experienced.

I packed in about five miles in light rain over relatively easy terrain, ascending gradually until I reached the ridge of the local Kittatinny



Author Joshua Van Kirk prepares for his solo camping trip at the head of the Appalachian Trail.

Mountains. The late fall air was fresh and incredible to breathe, and I was delighted to be away from a world of books, rules and commitments.

I decided to pitch my tent early when it began to rain harder. My tent was already damp, so once I got inside I lay my emergency blanket down and put my sleeping bag on top of that. That was 4 p.m. Between then and 7 a.m. the following morning I got very little sleep.

My tent is suited for summer use. Since the ceiling is mesh, when water accumulates on the rain cover, the condensation leaks through. Drops would hit my face no matter where I moved. A puddle began to form in the bottom of my sleeping bag. The small amount of food that I had brought with me became soaked, and my clothing

became a sopping pile of fabric.

But despite this constant barrage of moisture, I did not agonize over my misfortune. Instead, it gave me an opportunity to reflect on many things, primarily the recent death of a close friend.

Dennis Shangraw had been like a second father to me, and he had in many ways sparked my interest in the outdoors. Despite his busy schedule, he had always found time to wake me up on those cool New Hampshire mornings and take me to the most remote and serene fishing spots the area had to offer. He would give little tidbits of information that I then disregarded, but now realize were life lessons cloaked in casual conversation.

Dennis had spent his whole life in the country. He was raised with many of



PHOTOS COURTESY OF JOSHUA VAN KIRK

those values and characteristics that we associate with a "country boy." Hunting and fishing since a young age, he rapidly gained a love and knowledge of the outdoors. He was also introduced early on to the meanings of hard work and dedication. These were both a product of his upbringing and his inherent strength of character. He was a dreamer who built a life, a home and a family in the most honest of ways — with his own two hands and his heart.

I can remember many cold mornings when I was surrounded by trees and mosquitoes but, at the same time, filled with inner peace. The thrill of fighting a 12-inch rainbow trout on Granite Lake or the glint of sun on the silvery back of a lake trout as it calmly breaks the waters of Spoonwood are images and

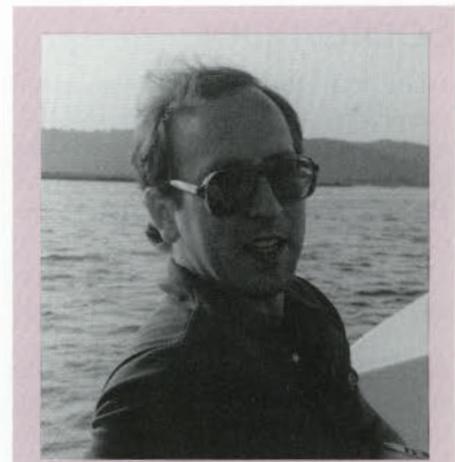
faraway ideas to some, but to those of us who have experienced it, we know that these are the things for which we live. Dennis, through teaching me to cast, troll and tie knots, opened up this world to me.

The places which we visited have become shrines, holy places where the prayer lies in the delicacy of the cast. It has brought me great joy to pass this on to others. I once bought my mother a fishing license for her birthday and then got her up at 5:30 one morning to teach her to cast. I was only about eight years old, and this was our only lesson, but we still talk about it to this day.

Since moving to New Jersey, I'd seen Dennis less and less. The lasting image that flashed into my mind the night I learned of his death was one of the previous summer. A friend and I were in New Hampshire on vacation, and Dennis — 37 years old and self-employed — had taken time to fix his rowboat, haul it for us and put it in the water so my friend and I could do some fishing. When my mother asked Dennis if he had any work which we could do to repay him, he simply replied for us to have fun so that he could imagine himself there fishing. This is the last memory I had of Dennis as I drifted in and out of sleep.

When I awoke in the morning, I was soaked. I had endured the wet and the cold. The pack now was uncomfortable as it had gained 10 to 15 pounds in water weight. I also realized that I had neglected to bring fresh socks and pants. This made the trek down all the more tedious.

When I got down to the parking lot, I looked up to the mountains and followed the newly-formed streams as they spilled down the hills, around the trees, over rocks, across the highway and into the river. At this moment, all the feelings from the night were embedded deep in my inner being. I had learned a lot about self reliance, self respect and resourcefulness — lessons first intro-



Dennis Shangraw.

He was a dreamer who built a life, a home and a family in the most honest of ways — with his own two hands and his heart.

duced by my boyhood friend on the lakes of New Hampshire. These are necessities not only for the outdoors, but for life in general.

Dennis, more than all others I have met in my life, shared a deep-rooted passion and respect for the world around him. I have learned a lot from my experiences with Dennis — and now through adventures of my own. I know that if we respect the world around us, that we can indeed make this a better place to live. For this realization, brought home to me on a wet New Jersey mountain top, and for Dennis, I am eternally grateful and indebted.

by Joshua Van Kirk, a 16-year old junior at Blair Academy in Blairstown

Events

September

10 BEAST OF THE EAST Join in this event featuring a metric century, 100-mile century or double metric century bicycle race through the Pine Barrens. **Hours:** 7 a.m. **Admission:** Pre-registration, \$8; day of race, \$10 **Phone:** (609) 235-2457 **Location:** Lebanon State Forest Nature Center, Route 72, New Lisbon

10 HERITAGE DAY FESTIVAL This annual event features arts and crafts, antique cars, food, the Ocean County String Band and more. **Hours:** 10 a.m. to 6:30 p.m. **Admission:** Free **Phone:** (908) 793-5114 **Location:** Downtown Lavallette

10-11 APOLLO: THE INCREDIBLE VOYAGE (Also Sept. 17-18, 24-25) Enjoy this show on the Apollo space flights at the New Jersey State Museum Planetarium. **Hours:** 2 p.m. **Admission:** \$1 **Phone:** (609) 292-6308 **Location:** New Jersey State Museum, West State Street, Trenton

10-11 BELVIDERE VICTORIAN DAYS Step back into the past with Victorian house tours, an antique car and motorcycle show, a parade, an antique auction, crafts, food and live entertainment. **Hours:** 10 a.m. to 4 p.m. (Sept. 10); noon to 4 p.m. (Sept. 11) **Admission:** Call for information **Phone:** (908) 475-2176 **Location:** Court House, Belvidere

10-11 GARDEN STATE ART AND DECOY SHOW This 14th annual show features competitions in decoy carving and painting. **Hours:** 6 to 9 p.m. (Sept. 10); 8 to 10 a.m. (Sept. 11) **Admission:** Call for information **Phone:** (908) 747-5023 **Location:** St. Leo the Great Gym, Highway 520, Lincroft

10-11 SANDY HOOK SHORE HERITAGE FESTIVAL Enjoy this celebration of the music, food, crafts and history of Sandy Hook and the Jersey Shore. **Hours:** 11 a.m. to 6 p.m. **Admission:** Free **Phone:** (908) 872-0115 **Location:** Gateway National Recreation Area, Sandy Hook

10-11 SPORTSMEN'S FIELD DAY An outdoor event featuring trap and skeet

shooting, sighting-in targets, archery 3-D shoots and a free BB-gun range. **Hours:** 9 a.m. to 5 p.m. **Admission:** Free **Phone:** (609) 629-0090 **Location:** Ft. Dix Rod and Gun Club, Ft. Dix

11 RAILROADERS DAY Join the 30th anniversary of the Pine Creek Railroad in Allaire Village and State Park with multiple steam and diesel trains, slide shows, displays, exhibits, live music and more. **Hours:** Call for information **Admission:** \$2.50 **Phone:** (908) 938-2371 **Location:** Allaire Village and State Park, Farmingdale

11 SPRINT TRIATHLON A transition race consisting of a quarter-mile ocean swim, 13-mile bike ride and four-mile run. For beginners and seasoned triathletes. **Hours:** 8 a.m. **Admission:** \$25 **Phone:** (908) 542-1642 **Location:** Seven Presidents Oceanfront Park, Long Branch

17 CRUISE NIGHT A thousand cars from the 50s and 60s will be displayed and cruise through downtown Vineland. Enjoy block parties, sock hops and more. **Hours:** 5 p.m. **Admission:** Free **Phone:** (609) 794-8653 **Location:** Landis Avenue, Vineland

17 GREAT BAY TRIATHLON Begin with a half-mile swim, then a 17-mile bike ride, followed by a 3.1-mile run. **Hours:** 8 a.m. **Admission:** \$30 **Phone:** (609) 398-3935 **Location:** Kennedy Park, Somers Point

17 NEW JERSEY HIGHLANDS George Anderson will present a slide program on this important wildlife area in New Jersey. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Schooley's Mountain Park, Long Valley

17-18 FALL WINE AND CHEESE CLASSIC Sample a variety of New Jersey wines, as well as cheeses from around the world, and enjoy live music. **Hours:** Noon to 5 p.m. **Admission:** Adults, \$15; non-drinking participants ages 13 to 20, \$6; children 12 and under, free **Phone:** (908) 475-3872 **Location:** Waterloo Village, Waterloo

17-18 GARDEN STATE WINE

GROWERS FALL WINE FESTIVAL Sample wines from 11 different New Jersey wineries and enjoy wine tours, seminars, grape stomping and live entertainment. **Hours:** Noon to 5 p.m. **Admission:** Adults, \$10; participants under 21, \$2 **Phone:** (908) 475-3671 **Location:** Four Sisters Winery, Route 519, Belvidere (see related article on page 8 of this issue)

17-18 MINIATURE DOLL SHOW Hand-crafted miniatures and dolls for the collector will be featured along with demonstrations and special door prizes. **Hours:** 10 a.m. to 4:30 p.m. **Admission:** Adults, \$5; children, \$2.50; senior citizens, \$4.50 **Phone:** (908) 382-2135 **Location:** Holiday Inn Jetport, Newark Airport

17-18 NEW JERSEY ORGANIC COUNTRY FAIR Learn about organic farming and enjoy activities including seminars, demonstrations, tours, food, crafts, a farmer's market, an auction, farm/garden suppliers, garden doctors, raffles, animals, vegetable contests, children's games, music and more. **Hours:** Call for information **Admission:** Adults, \$5; children ages 3 to 13 and senior citizens, \$3 **Phone:** (609) 737-6848 **Location:** Stony Brook/Millstone Watershed Association, 31 Titus Mill Road, Pennington

17-18 WINGS 'N WATER FESTIVAL Celebrate the arrival of autumn with this 12th annual event featuring famous naturalists, environmentalists and nature crafters. Includes wood carving, quilts, a wildlife art show, fish carvings, marsh walks, photography, retriever demonstrations, fly fishing demonstrations, wildlife crafts, folk music, duck stamps, a boat cruise and model boats. **Hours:** 10 a.m. to 5 p.m. (Sept. 17); 10 a.m. to 4 p.m. (Sept. 18) **Admission:** Adults, \$10; children ages 4 to 12, \$2 (for one or two day admission) **Phone:** (609) 368-1211 **Location:** The Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

18 FALL FESTIVAL Take a look at life in the 1800s through pioneer craft demonstrations, live bluegrass music, children's activities and more. **Hours:** Noon to 5 p.m. **Admission:** Adults, \$3; children, \$2 **Phone:** (201) 835-2160 **Location:** Weis

Ecology Center, Snake Den Road, Ringwood

18 HUNTER PACE This horseback riding event allows you to work in pairs and race against the clock as you follow a course through the woods. The course features some obstacles to go over or around. **Hours:** 10 a.m. to 1 p.m. **Admission:** \$30 (per pair) **Phone:** (908) 842-4000 x237 **Location:** Turkey Swamp Park, Freehold Township

18 WALKING TOUR OF HO-HO-KUS Explore the hidden historic treasures of Ho-Ho-Kus, including the Hermitage, the cotton mill, Zabriskie dam and more during a two-hour tour. **Hours:** Call for information **Admission:** Adults, \$8; children, \$4 (Reservations required) **Phone:** (201) 445-8311 **Location:** The Hermitage, Franklin Turnpike, Ho-Ho-Kus

24 JERSEY DEVIL CENTURY Take a 25, 50, 75, 100 or 125-mile bicycle ride through Cumberland, Gloucester and Salem counties. **Hours:** 8 a.m. **Admission:** Pre-registration, \$10; day of ride, \$12 **Phone:** (609) 848-6123 **Location:** Thundergust Picnic Area, Parvin State Park, Elmer

24 SILVER JUBILEE CELEBRATION DAY This field day at Poricy Park features guided walks, music, games, competitions, colonial craft demonstrations, tours of the 18th century Murray farmhouse, treasure hunts, fossil hunts, presentations and more. **Hours:** 10 a.m. to 4 p.m. **Admission:** Free **Phone:** (908) 842-5966 **Location:** Poricy Park Nature Center, Oak Hill Road, Middletown

24-25 APPLE DAY Enjoy this family festival featuring folk music, wagon rides, craft shows, and pick-your-own apples and pumpkins. **Hours:** 10 a.m. to 5 p.m. **Admission:** \$4 **Phone:** (609) 924-2310 **Location:** Terhune Orchards, Lawrence Township

24-25 OLD TIME BARNEGAT BAY DECOY AND GUNNING SHOW More than 400 exhibitors take part in this show featuring antique and modern decoys, duck calling and more. **Hours:** 8 a.m. to 5 p.m. **Admission:** Free **Phone:** (609) 971-3085 **Location:** Tip Seaman County Park, Tuckerton

25 BIRD IN HAND See your favorite feathered friends up close in this program by certified bird bander Al Lubchansky. **Hours:** 8 a.m. **Admission:** \$4 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

25 FAMILY FESTIVAL Renowned puppet maker Paul Peabody and his troupe of hand-carved marionettes will be featured at this day of family fun, which also includes craft demonstrations, tours and food. **Hours:** 10 a.m. to 4 p.m. **Admission:** Adults, \$5; children ages 6 to 12, \$1; children under 6, free **Phone:** (201) 445-8311 **Location:** The Hermitage, Franklin Turnpike, Ho-Ho-Kus

25 HARVEST FESTIVAL This celebration of early American life includes games, food and live music. **Hours:** 1 to 5 p.m. **Admission:** \$1 **Phone:** (908) 789-3670 **Location:** Trailside Nature and Science Center, Mountainside

25 MANASQUAN RESERVOIR RUN Compete with others in your age group in this five-mile run around the scenic Manasquan Reservoir. **Hours:** 9 a.m. **Admission:** Free **Phone:** (908) 542-1642 **Location:** Joseph Irwin Recreation Area, Manasquan Reservoir, Howell

25 WALK FOR WILDLIFE Help the area's wildlife by joining this walkathon to benefit the Animal Welfare Association's Wildlife Division and the Woodford Cedar Run Wildlife Refuge. **Hours:** Noon **Admission:** \$7 **Phone:** (609) 427-7777 **Location:** Lebanon State Forest Nature Center, Route 72, New Lisbon

30 AMERICAN INDIAN DAY CELEBRATION Celebrate Native American culture with entertainment, food, a health fair and more. **Hours:** 3 p.m. **Admission:** Free **Phone:** (609) 261-4747 **Location:** Rancocas Indian Reservation, Westampton Township

October

1 FALCONRY DEMONSTRATION Ray Pena gives a talk on raptor ecology,

followed by a flight demonstration of live birds including a peregrine falcon, kestrel, screech owl and gyrfalcon. **Hours:** 10 to 11 a.m. **Admission:** \$4 **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

1 RIDE-A-THON This annual horseback riding event, featuring trails of 10 or 15 miles, will help raise money to save open space in Warren and Sussex counties. **Hours:** 9 a.m. **Admission:** \$20 **Phone:** (908) 852-0597 **Location:** Heste Gar Horse Farms, Fairview Hill Road, Fredon

1-2 CHOWDERFEST WEEKEND Taste chowders from 25 of the Shore's finest restaurants or enjoy music, entertainment, sailboat races and clam shucking contests. **Hours:** 10 a.m. to 4 p.m. **Admission:** Adults, \$6; children 12 and under, \$2 **Phone:** (800) 292-6372 **Location:** Bayfront Park, Taylor Avenue, Beach Haven

1-2 PRIME TIME ASTRONOMY (Also Oct. 8-9, 15-16, 22-23, 29-30 and Nov. 5-6, 12-13, 19-20, 26-27) Enjoy this show on the night sky. **Hours:** 1 and 3 p.m. **Admission:** \$1 **Phone:** (609) 292-6308 **Location:** New Jersey State Museum, West State Street, Trenton

2 BIG CATTUS DAY This all-day environmental fair includes pontoon boat rides, nature walks, slide shows, live animal talks and more. **Hours:** 8 a.m. to 4 p.m. **Admission:** Free **Phone:** (908) 270-6960 **Location:** Cattus Island Park, 1170 Cattus Island Blvd., Toms River

2 FUNGUS FEST Experience the world of mushrooms with cooking demonstrations, walks, lectures and slide shows. **Hours:** 11 a.m. to 4 p.m. **Admission:** Adults, \$1.50; Participants under 16, 75¢ **Phone:** (908) 782-5227 **Location:** Somerset County Environmental Center, Lord Stirling Road, Basking Ridge (see related article on page 20 of this issue)

2 GOVERNOR'S SURF FISHING TOURNAMENT Prizes will be offered in several fishing categories in this third annual event sponsored by DEP's divi-

Events

sions of Fish, Game, and Wildlife and Parks and Forestry. **Hours:** 6 a.m. **Admission:** Adults, \$10; ages 13-18, \$5; 12 and under, free **Phone:** (908) 637-4125 **Location:** Island Beach State Park, Seaside Park

6 RIBBIT Learn about frogs, tadpoles and other aquatic life through this unique program held at a pond. **Hours:** 4 to 5:30 p.m. **Admission:** \$4 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

8 LBI SURF FISHING CONTEST (Through Nov. 21) A six-week tournament for striped bass and bluefish features thousands of dollars in cash prizes and gift certificates. **Admission:** Adults, \$25; children 14 and under, \$15 **Phone:** (800) 292-6372 **Location:** All ocean and bay beaches, Long Beach Island

8 PEDRICKTOWN DAY Enjoy this living history demonstration on the Civil War. **Hours:** 9 a.m. to 5 p.m. **Admission:** Free **Phone:** (609) 299-2333 **Location:** Hudson Methodist Church Cemetery Grounds, Pedricktown

8-9 COLUMBUS CELEBRATION Join in this event featuring an Italian festival, ethnic goods, arts and crafts, rides, games and a parade. **Hours:** All day **Admission:** Free **Phone:** (908) 793-1510 **Location:** Grant Avenue, Seaside Heights

8-9 MATARAZZO FARMS FAMILY HARVEST FESTIVAL Picking your own pumpkins, hay rides, live entertainment, wine tasting, vineyard and cellar tours and children's activities are all part of this day of family fun. **Hours:** 10 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 475-3671 **Location:** Matarazzo Farm, Route 519, Belvidere

8-10 AMERICAN INDIAN ARTS FESTIVAL Nearly 50 tribes are represented in this three-day festival, which features more than 150 American Indian artists and entertainers and native foods. **Hours:** 11 a.m. to 6 p.m. **Admission:** Adults, \$7; children and seniors, \$3; children under 6, free **Phone:** (609) 261-4747 **Location:** Rancocas Indian Reservation, Westampton Township

15 COLLIER CRAFT SHOW More than 50 artisans will display and sell their juried crafts on the Collier High School campus. **Hours:** 10 a.m. to 4 p.m. **Admission:** \$2 donation **Phone:** (908) 946-4771 **Location:** Collier High School, Conover Road, Wickatunk

15 DERBY DAY Enjoy this day in the sun with derby races. **Hours:** 8:30 a.m. to 5 p.m. **Admission:** Free **Phone:** (609) 299-0013 **Location:** Dunn's Park, Shell Road, Carneys Point Township

15-16 TECHNICOLOR WEEKEND Enjoy Mother Nature's annual color show while riding the train. **Hours:** Noon to 3 p.m. **Admission:** Call for information **Phone:** (908) 938-2371 **Location:** Allaire Village and State Park, Farmingdale

16 1770s FESTIVAL Take part in a historical simulation including historical artifacts, 1770s folk music, colonial military marches and more at the site of Lord Stirling's Basking Ridge estate. **Hours:** 10:30 a.m. to 4:30 p.m. **Admission:** Free **Phone:** (908) 766-2489 **Location:** Lord Stirling Road, Basking Ridge

16 TURKEY SWAMP DAY A festive family day featuring children's games, wagon rides, pumpkin painting, pony rides, an arts and crafts show and other entertainment. **Hours:** 11 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 842-4000 **Location:** Turkey Swamp Park, Freehold Township

19 CRAFT GUILD OPEN HOUSE See the work of the craft makers of the 19th century. **Hours:** Noon to 4 p.m. **Admission:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village and State Park, Farmingdale

21-22 NIGHT OF HORRORS Enjoy this Halloween fright walk through the woods. **Hours:** Call for information **Admission:** \$4 **Phone:** (609) 625-1897 **Location:** Atlantic County Parks, State Highway 50, Estell Manor

21-22 HAUNTED NIGHT HIKE Roam the trails of Kateri's Wood, aglow with more than 200 jack-o-lanterns, as you learn

about the traditions of Halloween. **Hours:** Call for information **Admission:** \$7 (Reservations required) **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

27 MEADOW MONSTERS HALLOWEEN PARTY Join in the Halloween fun with an evening of games, treats, a hay ride and mystical outdoor adventure. **Hours:** 7 to 9 p.m. **Admission:** \$5 **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

28 BAT DINNER Learn about bats and other Halloween animals during this holiday dinner. And don't forget to wear a costume. **Hours:** 6 p.m. **Admission:** Call for information **Phone:** (609) 368-1211 **Location:** The Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

28 SPOOKY SPECTACULAR Celebrate Halloween with a costume parade, hay rides, games, contests and crafts for children and adults alike. **Hours:** 1 p.m. **Admission:** Free **Phone:** (609) 625-1897 **Location:** Atlantic County Parks, State Highway 50, Estell Manor

29 EVENING LANTERN TOURS Experience how Allaire Village looks at night during Halloween weekend. **Hours:** 6 to 9 p.m. **Admission:** Free (Reservations required) **Phone:** (908) 938-2253 **Location:** Allaire Village and State Park, Farmingdale

29 GOING BATTY Come and learn about bats from Joe D'Angeli during this Halloween extravaganza. **Hours:** 11 a.m. **Admission:** \$3.50 **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

29 HALLOWEEN PARADE Watch this annual holiday parade featuring floats, costumes and string bands. **Hours:** After dark **Admission:** Free **Phone:** (609) 935-7046 **Location:** Greenwich and Main streets, Alloway Township

30 ALL HALLOW'S EVE Join in the

fun of Halloween as it was in the 1830s. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village and State Park, Farmingdale

31 GREAT PUMPKIN SAIL Bring your own jack-o-lantern and float it with a lit candle on Echo Lake. Also enjoy story tellers, folk singers, campfires, marshmallows and hot chocolate. **Hours:** Call for information **Admission:** \$5 **Phone:** (908) 527-4916 **Location:** Echo Lake Park Boat-house, Mountainside

November

3-4 SCHOOL'S OUT PROGRAM Participate in nature and astronomy programs for children and families during days off from school. **Hours:** Call for information **Admission:** Call for information **Phone:** (908) 789-3670 **Location:** Trailside Nature and Science Center, New Providence Road, Mountainside

8 COLONIAL CRAFTS Find out how children had fun 200 years ago and make corn husk dolls. **Hours:** 4 to 5:30 p.m. **Admission:** \$6 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

11 LEAF MONSTER DAY Learn why leaves change colors through games, crafts and a unique visit from the Leaf Monster. **Hours:** 1:30 to 3 p.m. **Admission:** \$4 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

19-20 TENTH ANNIVERSARY CELEBRATION Celebrate 10 years with Four Sisters Winery with wine tasting, cellar tours, door prizes, refreshments and new wine releases. **Hours:** 11 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 475-3671 **Location:** Four Sisters Winery, Belvidere

20 THANKSGIVING See how Thanksgiving was celebrated in the 1830s. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (908) 938-2253 **Location:** Allaire Village and State Park, Farmingdale

23 REUNION FOLKFEST Folks from all across New Jersey stuff the turkey and

relax with friends and family the night before Thanksgiving at this annual event. **Hours:** 7 p.m. **Admission:** \$5 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

26 HOLIDAY HOOPLA This annual holiday bazaar features a variety of crafters and artists, wildlife books and toys, food, entertainment and a visit from Santa. **Hours:** 10 a.m. to 4 p.m. **Admission:** Call for information **Phone:** (609) 368-1211 **Location:** The Wetlands Institute, Stone Harbor Boulevard, Stone Harbor

26 JURIED ART AND CRAFT SHOW This show will feature crafts displays, a bake sale, a poinsettia sale and a children's Holiday Shop. **Hours:** 10 a.m. to 4 p.m. **Admission:** Free **Phone:** (908) 350-7314 **Location:** Ambassador Christian Academy, Main Street, Toms River

27-28 ANNUAL CHRISTMAS EXPRESS (Also Dec. 3-4, 10-11, 17-18) Santa trades his sleigh for a steam-powered train during this annual shore event. **Hours:** Noon to 3 p.m. **Admission:** \$2.50 **Phone:** (908) 938-2371 **Location:** Allaire Village and State Park, Farmingdale

30 PROJECT LEARNING TREE Teachers and youth leaders are invited to participate in this innovative, hands-on workshop with a free book containing exciting lesson plans for bringing environmental concerns to life in the classroom. **Hours:** 9:30 a.m. to 2 p.m. **Admission:** \$5 **Phone:** (908) 946-9694 **Location:** Kateri Environmental Center, Conover Road, Wickatunk

December

2 CHRISTMAS IN BAY HEAD Join this annual holiday event featuring Santa Claus, children's music programs, Christmas tree lighting, strolling church choirs and barbershop quartets, Frosty the Snowman and more. **Hours:** Call for information **Admission:** Free **Phone:** (908) 295-4040 **Location:** Bay Head Business District, Bay Head

2 CHRISTMAS LANTERN TOURS

OF ALLAIRE VILLAGE See how Allaire Village would have looked at Christmas in the 1830s during this guided tour. **Hours:** 6 to 9 p.m. **Admission:** Adults, \$5; children, \$3 (Reservations required) **Phone:** (908) 938-2253 **Location:** Allaire Village and State Park, Farmingdale

2 WOODSTOWN BY CANDLE-LIGHT Tour historic Woodstown and enjoy a crafts show. **Hours:** 4 to 10 p.m. **Admission:** Call for information **Phone:** (609) 769-2997 **Location:** Various locations, Woodstown

3 CHRISTMAS PARADE The City of Burlington Historical Society will sponsor the event featuring bands, vehicles, clowns, marching units and beauty queens. **Hours:** 2 p.m. **Admission:** Free **Phone:** (609) 386-3993 **Location:** High Street, Burlington

3-4 JOYS OF CHRISTMAS PAST An 1830s Christmas celebration in Allaire Village. **Hours:** 10 a.m. to 4 p.m. **Admission:** Adults, \$5; children, \$3 **Phone:** (908) 938-2253 **Location:** Allaire Village and State Park, Farmingdale

3 MAGIC OF CHRISTMAS PARADE Watch this colorful holiday spectacle featuring floats, parade queens and local organizations on Salem's main drag. **Hours:** 10 a.m. **Admission:** Free **Phone:** (609) 935-1415 **Location:** East and West Broadway, Salem

3 PINE CONE WREATH WORKSHOP (Also Dec. 10) Join the fun of making your own holiday pine cone wreath. Basic wreath is supplied, but bring your own glue. **Hours:** 10 a.m. to noon **Admission:** \$7.50 **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

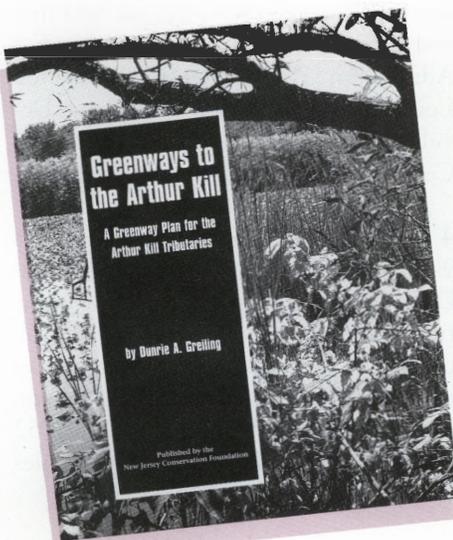
4 PINE BARRENS HIKE Join this 9-1/2 mile hike from Carranza to Mannis Duck Pond as it meanders along winding trails and old woods roads on its way to an obscure pond which reflects the beauty of the Pinelands wilderness. **Hours:** 10 a.m. **Admission:** Free **Phone:** (609) 267-7052 **Location:** Carranza Memorial, 6.7 miles southeast of Tabernacle

Bookshelf

Clean Water Begins With Me!, published by the New Jersey Department of Environmental Protection (DEP), is a coloring book designed to introduce children to the problem of nonpoint source pollution and how they can help stop it. "Sam the Clam" focuses on two ways that young children can keep waterways safe from pollution — by proper disposal of trash and by keeping storm drains clean. It's entertainment with a message: we all can help keep our waterways clean and healthy. *The coloring book is free. Available from the DEP's Office of Land and Water Planning at (609) 633-1179.*

Country Roads of New Jersey, by Judi Dask and Jill Schensul, published by Country Roads Press, is a tour of the Garden State's rural towns, roads and byways. The book focuses on 12 routes through New Jersey that are ideal for day-long or weekend rambles and includes historic sites, natural areas, recreation and more. *Cost is \$9.95. Available from Country Roads Press at (800) 729-9179.*

The Craft of Sail, by Jan Adkins, published by Walker and Company, is a how-to primer on sailing for the beginner. Important skills such as rigging, maneuvering and charting are presented and intertwined with old sea tales. Also includes ink and wash illustrations. *Cost is \$10.95. Available from Walker and Company at (800) 289-2553.*

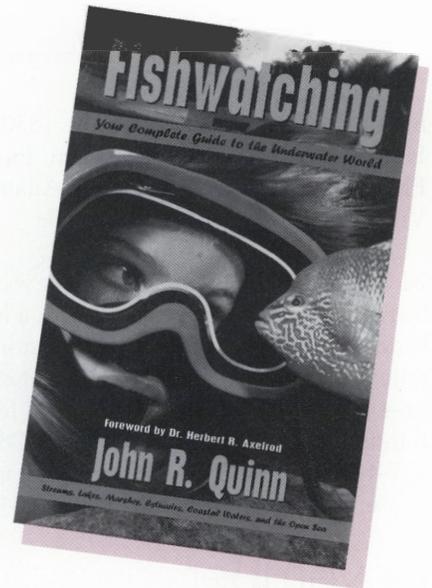


Fishwatching: Your Complete Guide to the Underwater World, by John R. Quinn, published by The Countryman Press, is a journey through underwater life in rock-strewn ponds, marshes, coral reefs and rivers. This book includes techniques, equipment and advice on becoming a fish watcher as well as the different freshwater and marine environments that can be seen. *Cost is \$18. Available from The Countryman Press at (800) 245-4151.*

Gardening in the Pinelands, by R. Marilyn Schmidt, published by Pine Barrens Press, is a guide to gardening in the Pine Barrens. This book presents the native plants that can be used for home landscaping and a plant directory of vegetation that thrives in the acidic soils. Growing conditions and line drawings are included. *Cost is \$10.95. Available from Pine Barrens Press at (609) 494-3154.*

Greenways to the Arthur Kill: A Greenway Plan for the Arthur Kill Tributaries, by Dunrie A. Greiling, published by the New Jersey Conservation Foundation, is a plan to protect stream banks, increase wildlife diversity and offer recreational opportunities along the tributaries of the Arthur Kill. This book contains information on the geology, natural resources, habitat, history, land use and zoning of the watershed as well as suggestions on how to rejuvenate the shores of the waterway. (See related article on page 4). *Cost is \$15. Available from the New Jersey Conservation Foundation at (201) 539-7540.*

The Naturalist's Path, by Cathy Johnson, published by Walker and Company, discusses the art of experiencing nature with all of your senses. Learn to appreciate the glorious variety of trees and plants by using artists' tools and techniques to view the natural world. Includes illustration by the author and tips on keeping a field journal. *Cost is \$14.95. Available from Walker and Company at (800) 289-2553.*



The Outdoor Woman, by Patricia Hubbard and Stan Wass, published by MasterMedia Limited, is a handbook for adventure for today's woman. The book provides a guide to the basics and resources for outdoor activities such as hiking, sailing, rock climbing, canoeing and bicycling, plus stories on the most adventurous outdoor women and ways to incorporate outdoor activities into a busy lifestyle. *Cost is \$14.95. Available from MasterMedia Limited at (800) 334-8232.*

Partners in Revitalization: Linking Urban Redevelopment and Environmental Resource Planning, by Judith R. Shaw, Leigh Ann Von Hagen Pietz and Judy Gandy, published by the Department of Environmental Protection, is a summary of department initiatives, meetings and research to develop a plan of action for redevelopment and resource planning to improve the quality of life in urban areas. *The booklet is free. Available from the DEP Division of Science and Research at (609) 984-5312.*

Welcome to Exit 4, by Rosemary Parillo, published by August Press, is an anthology of newspaper columns by Rosemary Parillo of the *Courier-Post* examining life in South Jersey. Parillo uses humor, irony and a sense of outrage to describe the colorful and everyday people of this region. *Cost is \$12. Available from August Press at (609) 728-4062.*

Roundup Notes on the Environment

An Alliance to Protect the Coast

The Jersey Shore is a haven for those who like to swim or surf, fish or walk the boardwalks or just lie in the sun. But the shore is also a vulnerable resource subject to attack by violent winter storms and debris and bacteria that can compromise water quality.

This spring, Gov. Christine Todd Whitman held Coastal Alliance '94 to start developing a shore master plan that will address the environmental and economic issues related to our state's coastline. With the help of the Department of Environmental Protection (DEP) and the State Planning Commission, the Governor will develop a plan to prioritize the concerns facing the shore including water quality, beach access, land use, environmental integrity and historic preservation.

The Jersey Shore is the state's most important tourist industry, accounting for half of the \$18 billion in tourism revenues generated this year. Whitman pledged to protect the interests of those who work and vacation at the shore and assured shore property owners whose homes are damaged in storms that they would maintain a right to rebuild.

As part of Coastal Alliance '94, Whitman held a public meeting to listen to the concerns of residents and business people. In addition, the event featured displays from many state agencies focusing on their activities at the shore.

Whitman called for all state agencies to work together on strategies to protect the coast.

"For the first time in a long time, New Jersey is making headlines for its clean ocean," Whitman says. "It's taken too long to get the pollution out of our ocean to start moving backward."

Roundup by Paulette McKay, an intern from Yale University majoring in history and literature.



The Changing Face of the DEP

Has the Department of Environmental Protection lost its energy? In a manner of speaking, yes.

The Department of Environmental Protection and Energy is now once again known by its former name, the Department of Environmental Protection (DEP). The change, which took effect on July 4, resulted from Gov. Christine Todd Whitman's efforts to improve the regulation of energy costs, and is part of her overall plan to restructure and streamline government and boost economic growth.

The functions of the Office of Energy will now be taken over by the Board of Public Utilities (BPU), formerly the Board of Regulatory Commissioners (BRC). The BPU, which regulates energy utilities, communications and the television and cable industry, is now an independent board with cabinet-level status in, but not of, the Department of Treasury.

The Office of Energy and the Department of Environmental Protection had been unified as the Department of Environmental Protection and Energy since 1991. Energy planning issues will now be handled by the BPU Division of Energy Planning and Conservation. The regulation of solid waste will remain under the control of the DEP.

"This dissolution provides us with the opportunity to take New Jersey toward a new era of increased economic activity while maintaining an elevated level of effective energy regulation," Whitman says.

Fishing and sunbathing are two popular activities at the Jersey Shore.



AL IVANY, DIV. OF FISH, GAME AND WILDLIFE

PHOTO COURTESY OF SURFRIDER FOUNDATION



Surfers Catch a Wave for the Environment

Some surfers at the Jersey Shore are combining their favorite sport with environmental activism.

In an effort to protect the waters of the Atlantic Ocean and the people who use its beaches, the Surfrider Foundation, a national grassroots environmental organization, enlisted the help of surfers and beach goers to monitor the quality of coastal waters throughout the summer and fall.

The Surfrider Foundation is conducting tests on the bacterial levels in water samples taken from the Jersey coast. Among the sites being sampled are Long Beach Island, the area between Sandy Hook and the Manasquan Inlet and the stretch between Brigantine and Ventnor. The samples are analyzed by public and private laboratories for bacterial indicators such as coliform and e. coli. The results will be shared with the Department of Environmental Protection's coastal monitoring program.

The foundation hopes that its efforts will enhance the accuracy of the information collected through the weekly testing program coordinated by the state and will provide a clearer picture of the health of coastal waters.

In all, six states along the East Coast are participating in the Surfrider Foundation's Blue Water Task Force, which is being sponsored by the Coors Pure Water 2000 project. John Tiedemann of the Marine Sciences Consortium in Sandy Hook is coordinating the New Jersey Task Force. The information collected in this state will also be added to a national data base on marine water quality.

"Our concerns are primarily beach access and coastal water quality — concerns of special importance to surfers," Tiedemann says.

New Jersey is among the few states with a comprehensive coastal monitoring program, testing 323 sites in the state's ocean waters and bays annually. In fact, the Natural Resources Defense Council recognized New Jersey's testing program as one of the most stringent in the nation.

However, nationwide, although nearly 30 percent of the country's freshwater bodies are monitored, only about 6 percent of coastal marine waters are tested regularly, the foundation says. Surfrider plans to increase that number and assist government agencies in their testing along the entire coast. They hope that this program will also increase public awareness about the importance of environmental monitoring programs and will foster a sense of stewardship among those who use natural resources.

Surfers are helping to test the waters of the Jersey coast through the Surfrider Foundation.

Recycling Old Materials into New Jobs

There is an unexpected surprise in New Jersey's efforts to recycle and use recycled products — it really is good for the economy. Recycling, it seems, has become a significant employer in the state.

A recent study by the Department of Environmental Protection (DEP) shows that more than 13,500 people are employed in recycling related fields throughout New Jersey. That figure includes everything from processing raw materials to making new products from recycled materials.

Guy Watson of the DEP's Bureau of Source Reduction, Market Development and County Planning, says that his office has identified at least 386 businesses in New Jersey that are involved in recycling, and there may even be more. With the help of a 1993 state law and executive order that requires state offices to purchase recycled products whenever possible, and the Buy Recycled Business Network, which includes 50 of the state's top employers, the demand for recycled materials has increased dramatically. As a result, the prices for paper, and some other recycled products, have been decreasing and are now approaching the costs, and in many

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A Map for the Future

Have you ever wondered how you could obtain information about the impact of a lake front development on natural resources? Or where to study detailed maps of your neighborhood to search for hazardous waste contamination? Your search may soon be over. And the program that will bring this information to you is the Geographic Information System (GIS).

As part of the environmental master plan, Gov. Christine Todd Whitman announced that, with the help of \$500,000 in state and federal funds, the state will complete its GIS. A GIS is a powerful tool which allows one to combine and analyze a series of detailed computer maps and associated data to obtain information about the ecological, as well as geographic, lay of the land.

The state's GIS, which began at the Department of Environmental Protection (DEP) in 1987, will link information about the natural infrastructure and the regulated community in the state and will help state regulators, developers and environmentalists determine the best interests of areas as diverse as suburban commercial properties and ecologically-sensitive tidal marshes. The GIS will aid in determining the effects of development on neighboring ecosystems and will enable government agencies to establish a set of "green priorities" for state preservation efforts.

The DEP has almost completed collecting statewide information for the map, including data on soil type, land use, flood zones and the status of development.

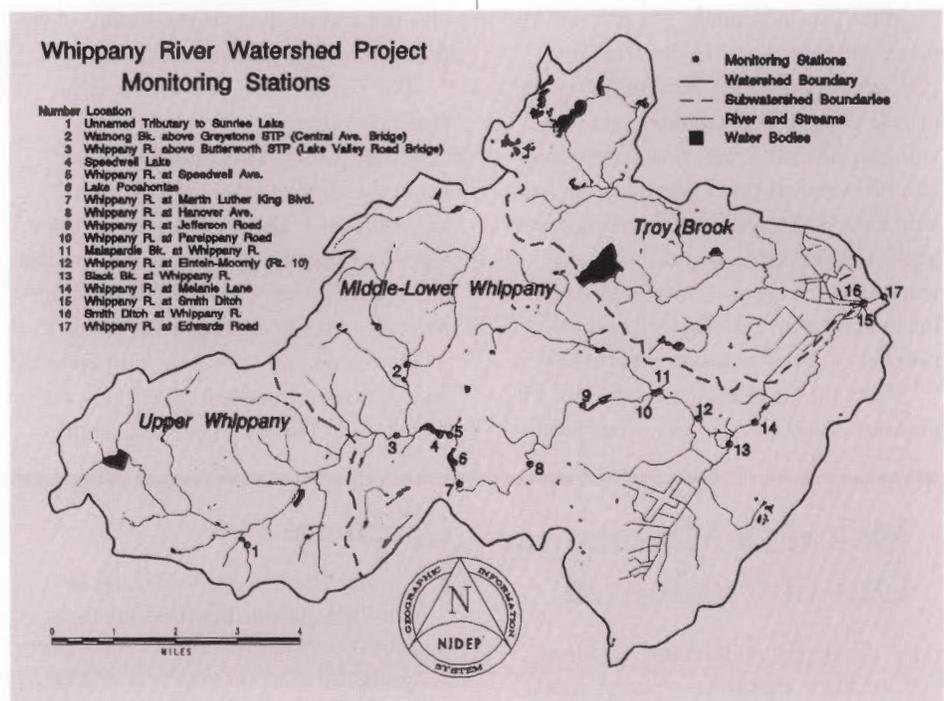
The GIS is already being used in programs such as the Whippany River Watershed Project, which is studying the public water supply in that area and the pollution and contaminants that may affect it. And that's not all. The GIS will be used in making more sound and efficient decisions concerning permitting, planning and development throughout the state.

The state hopes to integrate this computer imaging and analysis program into every aspect of decision-making and community planning from the local to the fed-

eral level. The DEP has established GIS data-sharing partnerships with numerous federal, state and local agencies which also use GIS as a decision-making tool.

With extensive database information collected through painstaking work, the GIS can provide specific information about a given location, including soil composition, flood potential and possible contamination from nearby hazardous waste sites. It can even prepare natural resource inventories.

The GIS can be run on a personal computer and, with new software to make it even easier to access the information, its services should soon be available to the public through local libraries and on-line computer services.



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cases, are below the cost, for virgin papers (those made from unrecycled wood fibers).

"An increase in the demand for recycled products and the availability of raw materials means more jobs," Watson says. "We are trying to bring more (recycled product) producers into the state. The market is here."

The DEP is offering incentive programs to companies to bring their recycled

product operations to New Jersey. There are already 12 paper mills in the state which produce recycled paper exclusively and several steel mills which use recycled materials. Watson predicts that even more jobs will be created by an increasing demand for recycled products throughout the state and by the strengthening economy.

There are a number of steps you can take to increase the demand for recycled products in New Jersey. Talk to your em-

ployer to find out whether your business uses recycled products or if it will consider switching to them. You can ask your local stores to carry products made from recycled materials as well. The success of recycled products depends upon a consumer demand for them.

For more information about the study or recycling in New Jersey, contact the Office of Recycling and Planning at (609) 530-8208.



Explorer

Hey, Explorer!

See New Jersey Through a Bird's Eyes

New Jersey has many landscapes to enjoy. It has mountains, valleys, rolling hills, flat fields, lakes and winding rivers, to name just a few of its physical features.

Maps can help guide you through the many different areas in our state.

If you drive with your family in a car or ride with your classmates on a bus, you may already know how a road map can be useful. It can keep you from getting lost. It can tell you where counties and cities are located and show you where waterways and state boundaries lie. A road map can also tell you the number of miles between locations.

Many hikers, geologists, builders, city planners, land owners and other profes-

sionals need to use a special map called a "topographic map." A topographic map shows the landscape of an area as it might appear in three dimensions, including manmade features, bodies of water and the elevation or height.

The curved lines of a topographic map are important. They are called "contour lines." These contour lines show the shape of the land — its hills and valleys — and its elevations. They represent imaginary lines on the ground along which every point is at the same height or elevation above sea level.

Here is a small portion of a topographic map of Sussex County in northwestern New Jersey. This map gives you a bird's

eye view of High Point State Park — as if you were looking down from the sky.

Can you find some of the key features of this area? Using the map's symbols, answer the following questions.

1. What is located at Point A?
2. What is located at Point B?
3. What is located at Point C?
4. How many feet above sea level is Point D? Point E?
5. If you walked from Point D to Point E, would you be going uphill or downhill? How many feet did you climb or descend?

To see more of New Jersey's many different landscapes as seen from the air, look at the photo essay by pilot/photographer Owen Kanzler on page 30. To learn how biologists are using "maps" to protect rare species in many of the state's diverse regions, see the story on "landscape planning" on page 40.

Making a Mountain... Out of Cardboard

To better understand how contour lines are used to show a mountain, you can make a mountain and draw your own topographic map out of cardboard.

You will need a large piece of thick, corrugated cardboard, a pencil, scissors and glue.

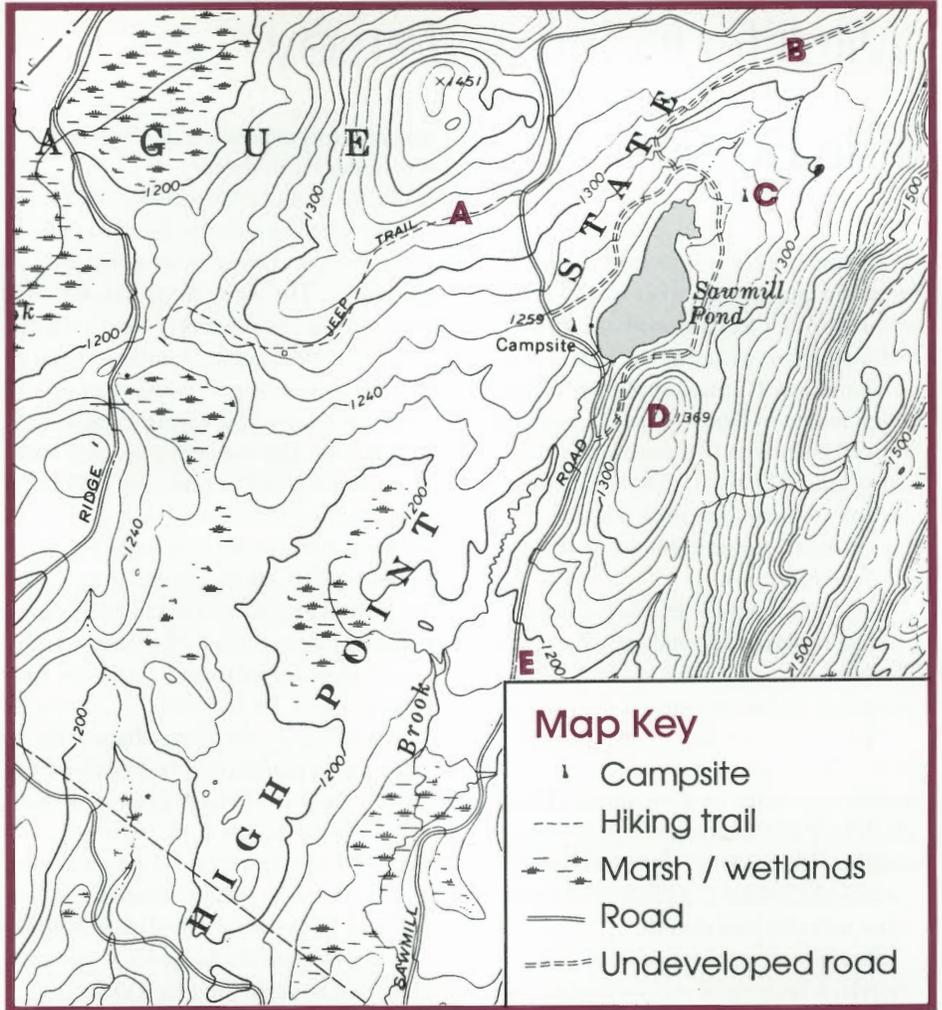
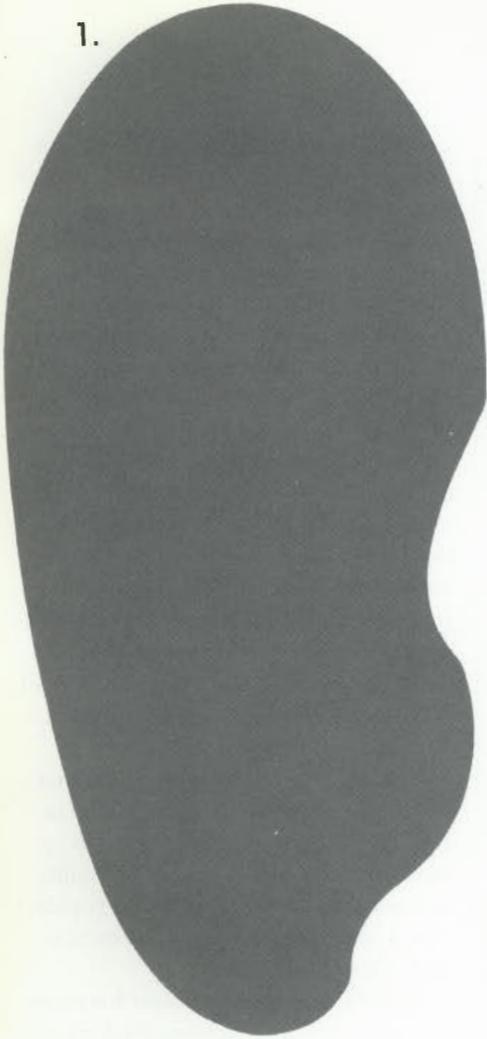
To get more topographic maps of New Jersey, contact the Department of Environmental Protection, Bureau of Revenue, Map and Publication Sales, CN 417, Trenton, New Jersey. There is a charge for these maps.

Directions:

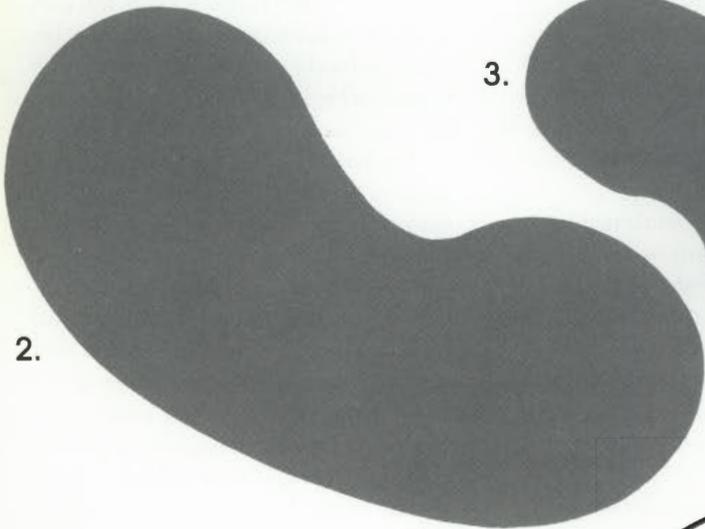
1. Cut out the five shapes on the next page. Trace each shape onto the cardboard, and then cut out the five shapes from the cardboard. Number each of the shapes from 1 to 5 as shown — with 1 being the biggest and 5 being the smallest.
2. Using the diagram on the next page, you can make a mountain out of the cardboard shapes you have just cut. Place shape 2 in the middle of shape 1 and trace it. Next, glue the bottom of shape 2 onto shape 1, arranging it in the traced area.
3. Next, place shape 3 in the middle of shape 2 and trace it. Then glue shape 3 to shape 2, again following the traced area.
4. Next, place shape 4 in the middle of shape 3 and trace it. Then glue shape 4 to shape 3, again following the traced area.
5. Finally, place shape 5 in the middle of shape 4 and trace it. Then glue shape 5 to shape 4, again following the traced area.

You have now completed your cardboard mountain! Pretend you are standing at the top of the mountain. Draw yourself in the map. Now walk down the mountain, drawing your path along the way on the topographic map. If the top of the mountain (shape 5) is at 800 feet above sea level and the bottom of the mountain (shape 1) is 720 feet above sea level, how many feet have you descended as you walk down the hill?

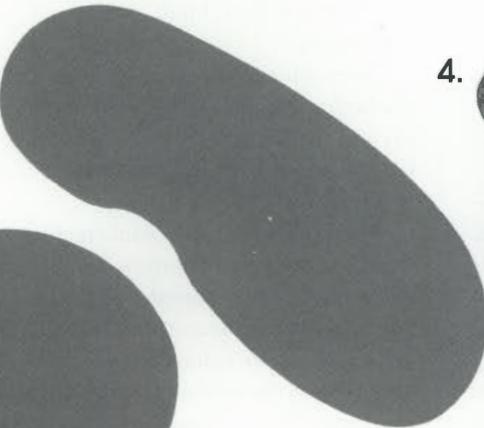
1.



2.



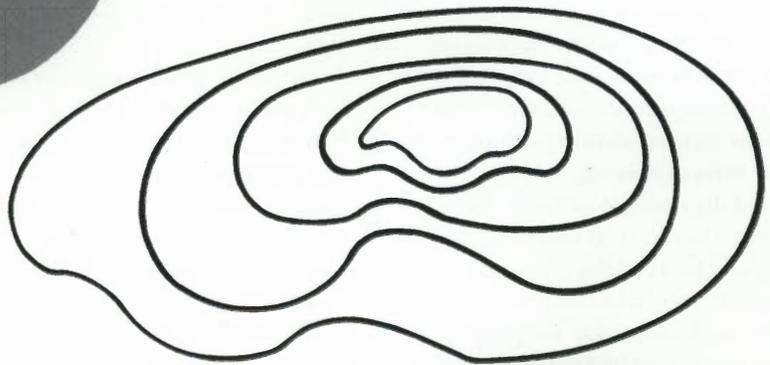
3.



4.



5.



Answers for previous page:

"See New Jersey" Answers: 1-a hiking trail; 2-an undeveloped road; 3-a campsite; 4-D is 1,369; E is 1,200; 5-downhill, 169 feet. Making a Mountain" Answer: 80 feet

Wildlife in New Jersey

The Beaver

A master of construction in the wild-life world, perhaps no other species is as well-known for its hard-working, diligent and industrious nature as the beaver.

The beaver (*Castor canadensis*) is the largest rodent in North America, weighing 30 to 60 pounds and measuring 25 to 40 inches long. The head is blunt in shape, the ears are small, the neck is slight, the legs are short, and the feet are exceptionally dexterous.

The front feet manipulate food and building materials, dig and carry the young. The hind feet, which are webbed, aid in swimming and grooming.

The fur is a rich, dark brown color. A layer of dense, waterproof underfur is sparsely covered by long, coarse guard hairs, which keep dirt and moisture away from the underfur. The thick fur, along with body fat, insulates the animal and allows it to remain in the water for long periods.

Specially adapted for an aquatic lifestyle, a beaver can stay submerged in water up to 15 minutes. Underwater, the heart rate slows, and airtight valves close off the ears and nostrils.

All beavers have two castor, or musk sacs, which produce an oily, scented substance called castoreum which is used to mark territory. In addition, beavers have two anal glands that secrete an oil which, when rubbed upon the fur, keeps it water repellent.

Hump-backed and clumsy on land, the beaver moves like a torpedo in water. Though its eyesight is poor, its senses of smell and hearing are excellent.

The two front teeth or incisors protrude from the mouth. A chestnut-orange color, the teeth are continually growing and must constantly be worn down by gnawing on branches or grinding against lower teeth. A beaver's lips are specially adapted to close behind the incisors, allowing it to chew underwater without choking.

One of the most recognizable characteristics of a beaver is its tail. Flat, hairless and shaped like a paddle, the tail measures from eight to ten inches long and five to six inches wide. Muscular and powerful, it balances the animal on land and propels

and controls movement in the water. It also stores fat in winter.

Beavers can be found in wooded areas where water levels do not fluctuate dramatically, and the current or wave action is not too strong. The many rivers, lakes, ponds, streams, bogs and marshes of New Jersey provide the perfect habitat for these creatures.

The narrowest part of the river or stream is selected for constructing a dam, which is used by the beaver to raise and lower water levels to transport building materials and food as well as create air pockets under the ice in winter. The beaver also builds a system of canals up to 200 feet inland to gather food and building materials and ferry them to the dam or lodge.

A lodge is constructed for shelter and raising young. Built of mud, sticks, bark, leaves and grass, the dome-shaped, six- to eight-foot structure may be built near the bank or atop an elevated portion of the water's floor. Access to the structure is from underwater via one or two tunnels leading from the main chamber.

Food storage areas called caches are also constructed near the lodge for winter use. Here beavers store their food underwater, especially the small twigs and tree bark from aspen, willow, birch, poplar and maple trees.

Even after construction is completed, the beaver is constantly at work maintaining and repairing the existing structures. It is a cooperative effort, and all family members share in this process.

Beavers are shy, nocturnal creatures. Only one colony or family occupies a lodge and includes parents, yearlings and kits or the infant beaver. Adolescents are driven out of the colony at two years of age, prior to the mother giving birth to a new litter. These young beavers usually start colonies of their own within six miles of their birthplace.

Generally, beavers mate for life with both parents sharing in the child-rearing responsibilities. Breeding occurs once a year during winter, and three to five young are born — fully furred and with teeth — about four months later.

Beavers communicate both physically and vocally. Aggression may be shown through staring, tail-quivering, teeth sharpening, lunging, pushing with the

snout and biting. A sharp slap of the tail on water may serve as a warning of danger or an invitation to play. Young beavers often use three basic types of vocalization — a whine, a growl and a hiss. In addition, scent mounds of mud and vegetation mixed with castoreum are constructed on land near the lodge to serve as an identifying marker for other colonies.

After centuries of unregulated trapping for their pelts and the loss of habitat from deforestation and farming, beavers were virtually extinct in the Garden State by the 1920s. The beaver population was re-established as a result of restocking efforts by several states, including New Jersey, as well as stringent protective measures. Today there are 200 colonies statewide in all counties but Essex, Hudson, Middlesex, Somerset and Union.

The effort has been so successful that the trapping season was reintroduced in 1947, although it is strictly regulated by the Division of Fish, Game and Wildlife and assists in maintaining beaver populations compatible with what a particular area can support.

Other than man, the beaver has no significant predators. Occasionally domestic dogs, foxes, coyotes and bobcats will prey upon individuals, and young kits may be taken by hawks and owls. But the biggest threats to beaver populations are automobiles and the loss of habitat.

The restoration of the beaver in New Jersey is a wildlife management success story. It is one of the most intensely managed species for its commercial value and ability to enhance and alter various habitats. While dams can cause flooding, disruption of public water supplies and damage to trees, they also stabilize stream flows, maintain water levels, control soil erosion and create valuable wetlands for many different species of wildlife.

The beaver has proven to be a valuable asset in New Jersey. Its future here will depend on protection of habitat, regulated conservation measures and the tolerance of humans.

by Kathy Previte, a senior public information assistant with the Division of Fish, Game and Wildlife



KATHY JOHNSTON

K. Johnston 1994



Each Christmas, George Washington can be seen crossing the Delaware in a reenactment of this famous Revolutionary War event. Learn more in the winter issue about the critical six weeks of the American Revolution fought right here in the Garden State.

In Next Season's Issue

Pick Your Own Live Christmas Tree

Go Star Gazing in the Winter Sky

Visit the Trash Museum

Explore the Ethics of Photographing Wildlife

Learn About Ice Harvesting at Howell Farm

Take the Tour de Sol — New Jersey Style