

New Jersey

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Outdoors



Sailing New Jersey's
Frozen Waters

Prowling for Owls

Ice Fishing
on the Mullica



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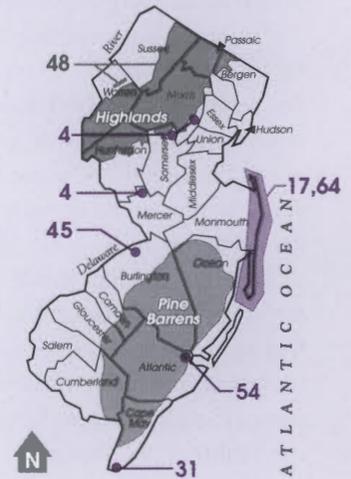
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It's easy to see how the great horned owl got its name. To learn some fascinating facts about New Jersey's eight owl species and how to spot them, read Pat Sutton's **On the Prowl for Owls** on page 32.

© Robert Birdsall

Inside Front Cover

Iceboats on the frozen Navesink River near Red Bank (Monmouth County)

© Owen Kanzler Aerial Photography

Back Cover

Winter on the Raritan River

© Breck P. Kent

Editor's Desk

Welcome to the Winter 1997 issue of *New Jersey Outdoors*. I hope you enjoy the varied articles and gorgeous photos to be found in this — and every — issue. As the new editor, I wanted to take a moment to introduce myself, update you on our activities and give you a glimpse of what's to come.

I've spent just over two-thirds of my work life in the Department of Environmental Protection and, as a taxpayer as well as an employee, I continue to be impressed by the professionalism and dedication of DEP's staff. I've written for *New Jersey Outdoors* and been associated with the magazine, in one capacity or another, for the last several years. During that time, we initiated surveys to find out how *New Jersey Outdoors* could be of even more value and interest to subscribers and how we could make more people aware of the magazine.

Over the summer months, **Stefanie Cardello** and **Julie Whitaker**, Rider University students serving internships under the guidance of marketing professor **Judy Cohen**, volunteered their time to analyze the results of recent surveys. Their analysis indicated that many of the magazine's features — especially articles on wildlife, places to visit, recreational activities and history/culture, the calendar of events and the beautiful photography — were overwhelming favorites. While features such as "Library" (reviews of environmental books and videos) and articles on urban environments and research had their cheering sections, they were less popular, so we're going to be more flexible regarding the topics covered in each issue.

Other findings, supplemented by independent research, led the interns to make recommendations for a variety of other improvements. All of their suggestions, which were based on *your* input, are under consideration and a few are already being implemented. These include a new cover design, which debuts with this issue. Thanks, Professor Cohen, Julie and Stephanie, for sharing your time and talents with *New Jersey Outdoors*.

One of the features we're planning to add to *New Jersey Outdoors* is a section that would let you share interesting accounts of your outdoor adventures with other readers, recognize some of the great folks who do so much for our state's historic and natural resources and spotlight awards and notable achievements. Ocean County's **Old Time Barnegat Bay Decoy and Gunning Show** recently was the recipient of one such honor, when it was selected by the American Bus Association as one of the "Top 100 Events for 1997."

The show, always held on the last full weekend in September, draws more than 40,000 visitors to its three sites in Tuckerton. It celebrates the heritage and traditions of life, work and recreation on Barnegat Bay, and features two solid days of competitions (retrievers, model boats, skeet-shooting, duck and geese calling, decoy carving and more) and exhibits, crafters and artisans, all reflecting a wildlife/hunting/decoy/nature theme.

Congratulations to **Mike Magnum**, show coordinator and chief park naturalist with the Ocean County Department of Parks and Recreation, and to all those who have worked so hard over the years to make the Old Time Barnegat Bay Decoy and Gunning Show such a success.

If you have a contribution for this new section, simply send me the pertinent information — photos are welcome, too — with a contact name and phone number. And, if you have any comments or suggestions, please send them to me at: *New Jersey Outdoors*, NJDEP, CN 402, Trenton, NJ 08625.



New Jersey Outdoors

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New Jersey Outdoors
Winter 1997, Vol. 24, No. 1

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

Sharing the Credit; Righting the Wrongs

Thank you for the article featuring the herb and flower garden at Batsto (NJO, Summer 1996). I'm sure that, as a result of the article, visitors will be encouraged to visit this lovely spot in New Jersey. I'd very much appreciate (your noting) the following in a future issue:

The renovating and updating of the garden, which was established many years ago, is the result of the combined efforts of: Beverly Weaver, principal historic preservation specialist at Batsto; Lorraine Gough, weaver at Batsto, who also did most of the work on the brochure/directory of the garden; David Voll, potter at Batsto, who designed and made the garden markers; and myself.

We made a concerted effort to display herbs and flowers that would be

historically correct to the periods covered by Batsto's existence. Therefore, Florence fennel (not bronze fennel) is in the herb garden, and the herbs grown in pots to be brought indoors in the fall are rose and peppermint scented geraniums.

*Judith Walton, Batsto Volunteer
Ocean City*

Congratulations, George!

I recently submitted a photograph to the Ocean County Soil and Conservation Department for a photo contest. As third place winner, I was awarded a year's subscription to *New Jersey Outdoors*. What a wonderful prize!

*George R. Broome
Toms River*

Fall Photo Essay a Hit

In the Fall 1996 issue, your article titled "Discover Dew" by Clay Myers was really informative and fascinating. The photos were absolutely spectacular. A good reason to get up early and see nature.

Keep up the good work with fine articles like this one.

*Vince Covello
Park Ridge*

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

News & Notes

Contest Deadline Extended

The deadline for the *New Jersey Outdoors* 1996 Photo Contest has been extended. Entries now must be received no later than January 15, 1997. Winners will receive photographic equipment (or the cash equivalent), *New Jersey Outdoors* subscriptions and more. Read the contest rules below, put your camera to good use and enter today!

(See page 62 for details)

Save a Tree (frog)

For two decades, the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program has been working diligently to preserve the state's endangered tree frog population. Now,

renowned sculptor David Turner has captured this symbol of the Pinelands' fragile beauty in a bronze statue — so you can help preserve the real amphibian while investing in a gift to be treasured (whether you give it to a loved one or to yourself).

The state's Endangered and Nongame Wildlife Conservation Fund will receive \$130 for each sculpture sold from the limited edition of 200. Each sculpture includes a certificate of origin, a display card with natural history notes and a letter acknowledging your contribution to the Wildlife Conservation Fund.

Order your tree frog statue by sending a check for \$325, made payable to Turner Sculpture, to Turner Sculpture, Box 128, Onley, VA 23418. For credit card orders, call 804/787-2818.

We Apologize

... to Herb Segars and Dotty Waxman for switching the photo credits on their pictures. Dotty Waxman snapped the shot of the boom (page 13), while Herb Segars captured the oil-covered mallard duck (page 15) in the fall issue's story, "Crude Crusaders: Struggling to Clean Up New Jersey's Oil Spills."

... to Debra L. Rothenberg, staff photographer for the Monmouth County Park System, who took the photos in the fall issue's "The Ironman of the Jersey Shore," for crediting the supplier of the photos, rather than her. ... to our readers, who let us know they found the harvest gold print in the Fall 1996 issue of *New Jersey Outdoors* difficult to read. We won't make that mistake again!

Tapping into New Jersey's "Sweet Water"

by Joe Cavaluzzi

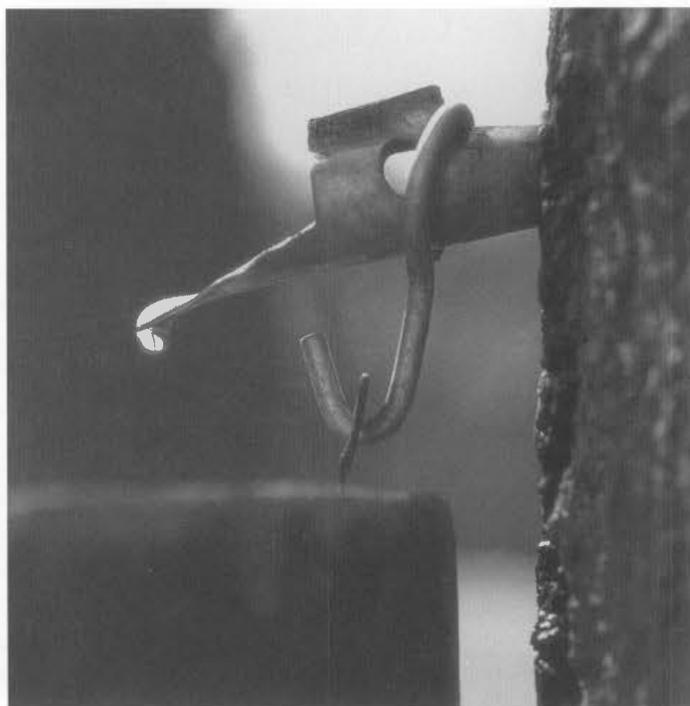
Few images conjure warm thoughts of childhood winters like those of New England farmers retrieving maple sap on horse-drawn sledges.

And, while maple syrup-making is not practiced commercially on a large scale in New Jersey, if you have access to some of the right trees, you, too, can turn what the Indians called the sugar maple's "sweet water" into the thing of which pancake fantasies are made.

You'll need at least 8 to 10 sugar maples of your own (or permission from a private-property owner to tap the trees if you don't have them), a few pieces of very basic equipment and some place other than your kitchen to boil the sap into syrup.

"If you like your wallpaper, you probably wouldn't want to boil it in your kitchen," says Janis Borchert, a Morris County Park Commission naturalist who teaches people how to tap a maple at the Great Swamp Outdoor Education Center in Chatham.

One of the few remaining farm products still obtained from wild plants, maple syrup is the product of a tiny industry, primarily practiced in Vermont, New York and Ohio. Legend has it that maple syrup was discovered by an Indian squaw who used the sweet water dripping off a maple tree to



© MARY O'CONNOR

Sap drips from a spile.

boil moose meat. As early as 1650, the Chippewa and Winnebago Indians were making the sugar they traded with the Northwest Fur Company from maple sap. Before they had metal kettles, the Indians dropped hot rocks into a birch bark bucket to bring sap to a boil. The early European settlers introduced the brace and bit, wooden spiles (or sap spouts) and collecting buckets, and maple sugaring became more efficient and less harmful to the trees than using a stone ax to open them up. Except for the addition of stainless steel evaporators, gas heat for boiling and plastic jugs for collecting, maple-sugaring today is much as it was in the 19th century.

From Bank to Bark

Don Palmer, a retired banker, is New Jersey's largest producer of maple syrup. He makes 30 to 40 gallons, in a good year, from the sugar maples on his property in Schooley's Mountain. Palmer, a director on the Morris County Park Commission, started maple sugaring on weekends after a neighbor, who gave demonstrations of the process, gave him some spiles and taps. After retiring from his position as chief executive officer of the former Horizon Bank in Morristown, Palmer found maple sugaring a good way to

spend more of his new-found free time outdoors. Soon, he had taps in 150 trees and bought an evaporator big enough to handle most of the sap his trees were producing.

"I got kind of carried away. It's not economical. If my time is worth nothing and you don't count the money I spent on equipment, I break even," he says, adding that he sells some of his syrup under the name Hillcrest Maple Syrup at the Schooley's Mountain General Store. For Palmer, the rewards are more spiritual than economic. "At the end of a day you have all this beautiful, crystal-clear sap. At the end of a career of banking you have a bunch of bad loans."

Palmer starts his maple sugaring long before winter's cold nights and sunny days start the sap-flow process. He offers this advice to beginners.

"Know your trees. Go out in the summer when the sugar maples are in full leaf and identify the trees you want to use. Make sure they're healthy, full and that the leaves are green," he says. Palmer marks his trees with a small piece of aluminum.

Sugar maples, *Acer saccharum*, produce the best sap for syrup making because of the relatively high sugar content, from 3 to 8 percent. Norway maples also can be used. But red, silver and black maples are not recommended. Their sugar concentration is less than 1 percent and it takes about 86 gallons of sap to produce a gallon of syrup. You can determine how many gallons of sap you will need for a gallon of syrup by dividing the number 86 by the sugar concentration of the sap. While the sap of some sugar maples has a high enough concentration of sugar to produce a gallon of syrup from 15 to 18 gallons of sap, in New Jersey it usually takes 40 gallons. Naturalist Borchert says the maples the park naturalists tap usually produce 8 to 10 gallons of sap per season.

Tap into Sap

Tapping with a brace and bit does not harm the trees, which will heal on their own when the tap is removed at the end of the season. Drill the seven-sixteenths-inch tap hole three inches deep at about four feet above the ground. (Power drills tend to produce too much friction and heat. They sear the sides of the tap hole and close up the vein, or xylem.) Drive the spile into the hole, taking care not to split the bark, which will cause leakage. Hang a one-gallon milk jug or a metal bucket on it to catch the sap. The metal spiles can be purchased through mail-order catalogues or at the Great Swamp Outdoor Education Center, where a number of books on maple sugaring also are available for reference.

Select trees that are at least 10 inches in diameter at a height of four and one-half feet above the ground. Spray a solution of one part household chlorine bleach and 20 parts water into the hole twice a season to keep it clean.

"It's a very short season," says Patty O'Rourke, a naturalist with the Monmouth County Parks system. As soon as

the weather is cold at night and warms up during the day — usually in late January or early February, it's time to tap the trees. "You have to stop the tap as soon the buds come out because they need the sugar and the sap becomes bitter," says Morris County naturalist Borchert.

While the trees seal themselves, tapping the tree in a different place each season will help it stay healthy. "You usually try to tap it on the south side because that's where the sun is going to warm it the quickest," Borchert says. The warmth of the sun is crucial to the maple tree's sap-producing process, which starts when the tree is in bloom and photosynthesis forms sugars in its leaves. The sugars move down the tree into the trunk and roots, where they are converted to starch. When the cold weather arrives — below-freezing nights followed by warm sunny days — the sap moves back up the trunk and is converted into sucrose. Since the sugar-producing process starts in the leaves of the trees, you will get the best results by choosing trees with large live-tree crowns.

Sap will spoil quickly in warm temperatures, so you will need to refrigerate the sap you collect until you have enough to make syrup.

Maple sugaring demonstrations held at the Morris County Park Commission's Great Swamp Outdoor Education Center offer children a chance to observe the process.



© DOTTY WAXMAN



COURTESY OF CHUCK KATZENBACH

New Jersey sugar maples can produce syrups every bit as good as those of Vermont.

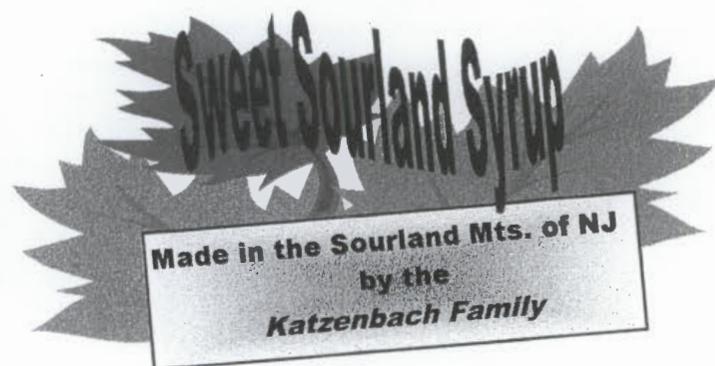
From Sap to Syrup

Boiling the sap is the greatest challenge. It takes a lot of boiling to evaporate enough of the water in the sap to produce syrup with a sweet taste. You can build a fire outside to boil sap or use a barbecue. Palmer, who insists on using buckets to collect sap instead of plastic jugs, also still uses wood to fire his large evaporator. To help prevent boil-over, he puts a little butter in the boiling sap. You'll need a thermometer with a temperature range that goes up to 225 degrees Fahrenheit to determine the boiling temperature of the syrup at the altitude where evaporation will take place. Boiling points vary with changes in atmospheric pressure at altitudes above sea level. Use the thermometer to determine the boiling point of water and add 7 degrees F for the boiling point of sap. A hydrometer, an inexpensive gage that measures sugar content, is a necessary tool, according to Palmer; it will enable you to control the sweetness of your syrup as well as determine when it is done.

When the sap has been boiled to syrup, it must be filtered. You can use a couple of layers of cheesecloth. Palmer uses filter bags made for maple syrup and available from catalogues to filter out the large impurities and then filters it a second time through wool cloth.

The result can sure put a smile on a Sunday morning. And New Jersey sugar maples can produce syrups every bit as good as those of Vermont, Palmer says. "I was in Vermont with some syrup makers from there and we put a bunch of different syrups on the table for a taste test in bottles without labels. And the Schooley's Mountain syrup won."

Joe Cavaluzzi is a freelance writer living in South Belmar.



Chuck Katzenbach's sugar house in action (above), boiling off 110 taps on a wood-fired evaporator. The Katzenbach family, whose farm is in the foothills of the Sourland Mountains in Mercer County, produces up to 20 gallons of "Sweet Sourland Syrup" each year — and exports it to Vermont with a "Jersey Fresh" label (below right)!

See It Firsthand

■ The maple sugaring demonstrations at the Morris County Park Commission's Great Swamp Outdoor Education Center start January 4 and run every Saturday and Sunday at 2 p.m. through February 23. Lessons are also available for school classes and scout groups. For information, call 201/635-6629.

■ Durbrook Park Activity Center, Colts Neck Township, Monmouth County, will hold demonstrations from 10 to 11:30 a.m. and from 1:30 to 3 p.m., Saturday, February 22, and Saturday, March 1. There is a fee and pre-registration is required. Call 908/842-4000 for information and registration.

■ The Somerset County Park Commission Environmental Education Center at Lord Stirling Park, Basking Ridge, offers two-hour demonstrations of tree-tapping and syrup taste-testing for the general public at 10 a.m. and 3 p.m. Saturdays and Sundays in late February and early March and for school groups during the week. No registration is required for the weekend programs, but visitors are requested to check in at the education center for a map to the sugar shack. Call 908/766-2489 for information.

A Century of Volunteerism

by Arline Zatz



PHOTOS COURTESY OF N.J. DIVISION OF FISH, GAME AND WILDLIFE

From the beginning, deputies have been faced with danger.

Weapons qualification is an important part of the deputy conservation officer's training.

Since March 30, 1896, when New Jersey's first deputies were appointed to help game wardens in protecting fish, game and wildlife resources, more than 10,000 people have been involved in the Division of Fish, Game and Wildlife's Deputy Conservation Officer Program. Although the title, training and qualifications have changed over the past century, deputies still devote countless hours to ensure that every citizen can enjoy the state's abundant resources.

In 1871, before deputies arrived on the scene, the state had authorized the appointment of one game warden for each county along the Delaware River, to keep fish stocks from becoming depleted and to uphold existing wildlife laws. When it became clear that more people were needed to enforce the laws, the Legislature created the first program of its kind in the nation: the use of unsalaried deputies, with the same authority as the wardens.

The first deputies were deeply resented by those who thought there was an endless supply of animals and fish. Many had forgotten that market hunting had caused the wild turkey to vanish, and nearly exterminated grouse, woodcock and quail. And, despite numerous deputies on patrol by 1897, there wasn't widespread support of the regulations or, for that matter, the people who enforced them. Newspapers created additional hostility by reporting wardens and their deputies guilty of wrongdoing, with-

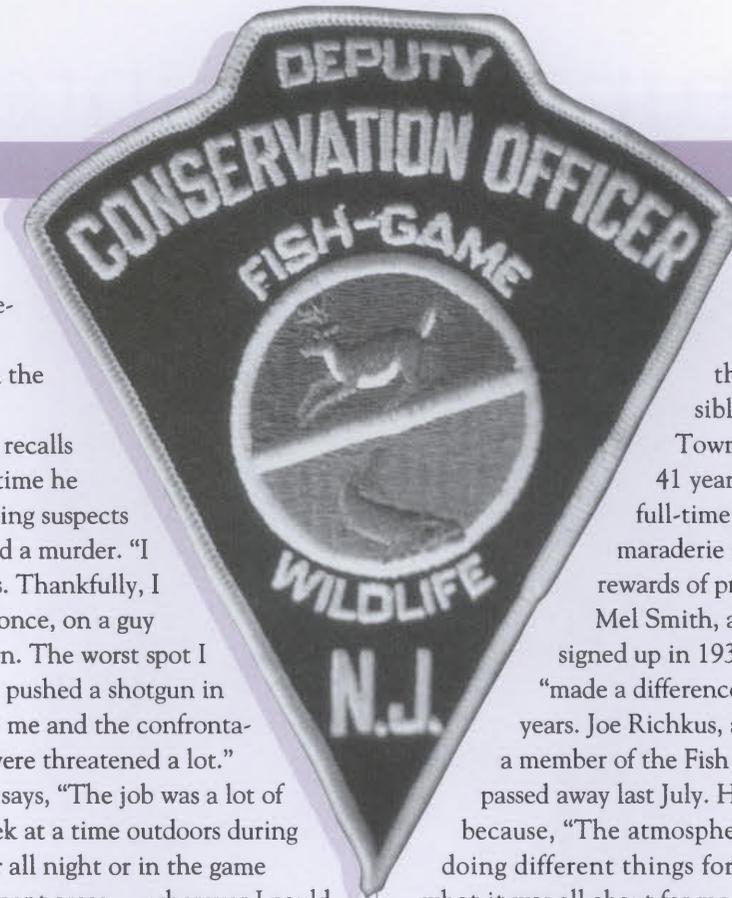
out making corrections when they were found not guilty.

From the beginning, deputies have been faced with danger. In fact, the first two wardens were shot to death in the line of duty. By 1939, however, Governor Harold G. Hoffman, recognizing the deputies' contributions, said, "The men who have done this work for New Jersey have no thought of material reward or applause or glory. They saw before them a task that was after their own hearts and so they did it . . ."

Changing Roles

Deputies enforced regulations, built shelters and feeding stations, cleaned rivers before stocking trout, transported rabbits to open areas and issued vermin permits. Until 1955, they also could arrest violators without assistance, and often turned up amazing things — such as songbirds hidden behind car heaters or in spare tires.

"There wasn't a regulation uniform in these earlier days," according to Rus Reign, a deputy from 1945 to 1990. "We bought what we wanted, which was usually a hunting jacket, or else got hand-me-downs from retired or deceased wardens. Communication was a problem. To get in touch with the warden we were assigned to, it was necessary to travel to his house



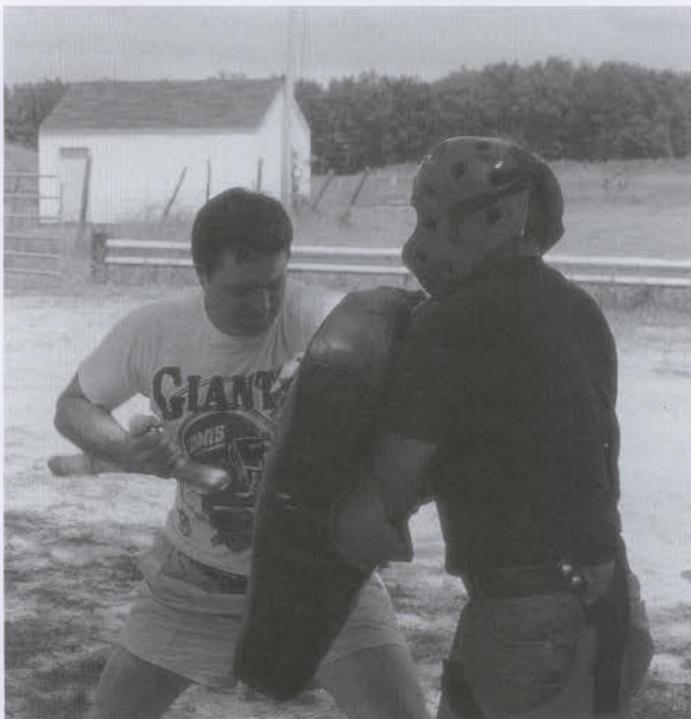
and leave a note. Later, wardens got two-way radios but, because these weighed about 40 pounds, they had to be kept on the back seats of their vehicles.”

Reighn, who lives in Villas, recalls tight situations, including the time he was instrumental in apprehending suspects involved in a gambling ring and a murder. “I found illegal stills in the woods. Thankfully, I only had to draw my handgun once, on a guy who threatened to run me down. The worst spot I was in occurred when a hunter pushed a shotgun in my stomach, but he listened to me and the confrontation quickly ended. Deputies were threatened a lot.”

Despite the danger, Reighn says, “The job was a lot of fun in those days. I spent a week at a time outdoors during deer season, sleeping in the car all night or in the game warden’s house, game management areas — wherever I could find shelter. Other times, I’d stay awake all night with other deputies listening for gun shots. Today’s deputy works under posh circumstances in comparison.”

From the beginning, conservation officers (known as pro-

Another facet of today’s training program for deputy conservation officers is hand-to-hand combat.



tectors in 1896, district game wardens in 1954, and conservation officers from 1958 to the present time) were responsible for training deputies. Howell Township’s Ray Mead, a deputy for 41 years, recalls that the deputies and full-time officers established a strong camaraderie and enjoyed their work and the rewards of protecting the wildlife resources. Mel Smith, a Wildwood Crest resident, signed up in 1938 and — because he knew he “made a difference” — remained a deputy for 50 years. Joe Richkus, also a deputy for 50 years, was a member of the Fish and Game Council until he passed away last July. He said he loved being a deputy because, “The atmosphere, meeting different people, doing different things for the game and birds, that’s what it was all about for me.”

Times have changed for the better, according to retired captain Bruce Young, from Tuckerton. “It was fairly easy to obtain a deputy game warden badge in earlier years because law enforcement wasn’t in its present state of technology,” he said. “Old-timers stood on the running board of the chase vehicle while blowing a whistle to get violators to stop. This was the legal method then because there weren’t any sirens.”

Training, Equipment Aid Efforts

Equipment was constantly upgraded through the years. Radios were installed in patrol vehicles in the early 1950s; by the 1970s, the radio system included base stations, repeaters and communication with other enforcement units. Waterways were patrolled by six boats in the 1950s; with a helicopter and other aircraft by the 1970s. In 1986, a team approach was stressed; deputies were assigned to individual conservation officers, and could start law enforcement action only when radio contact could be made and a conservation officer was available for backup.

Early deputies received on-the-job training, provided by the full-time officers with whom they worked.

Greg Huljack, deputy chief of the Bureau of Law Enforcement, recalls his early days as a deputy: “I got about a half day of training. Today’s deputy receives 200 hours, covering all phases of agency operations, including the development of an extensive fish and game law knowledge base, law enforcement techniques, 48 hours of handgun proficiency, use of the PR 24 baton, domestic violence training, knowledge of chemical agents that are

carried, handcuff training and practical exercises in the detection and apprehension of illegal night hunters.”

What They Do — and Why

In addition to patrolling New Jersey's 7,489 square miles, as well as the Atlantic Ocean to the state's territorial limits, deputies now:

- assist conservation officers in making about 10,000 inspections per year;
- enforce federal wildlife and fish laws and assist federal agencies;
- investigate violations of wildlife commercialization and season/limit regulations;
- help apprehend thousands of violators;
- educate and provide information to the public; and
- oversee the activities of the state's 125,000 licensed hunters and 250,000 anglers.

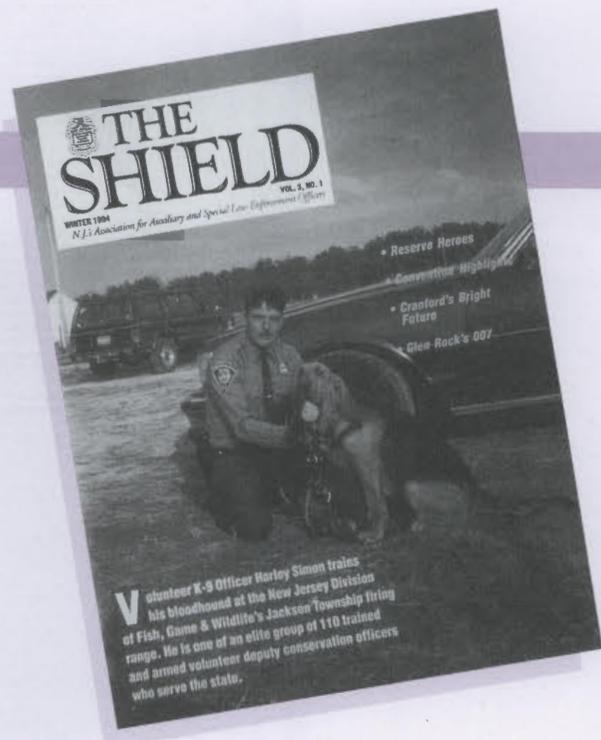
There is no shortage of volunteers. Chuck Meyer, a construction manager from Far Hills, became a deputy because “This is a great way to combine doing something pleasurable with making sure my sons will have the ability to hunt when they're older.”

On her first day out, Aberdeen's Lori Romano went to look for an armed man who had a warrant against him. “It was scary,” she says, “but exciting.” So was going fishing in plain clothes with Jean Mutone, a Toms River resident who also became a deputy in 1995, to check on whether anglers were complying with size regulations.

John Manfredi, a North Brunswick resident who first volunteered in 1977, took on this unpaid job because, “Whether you're a hunter or a person who likes to get out and enjoy nature, it's up to citizens to care for our resources.” In 1995, Manfredi became the initial recipient of the Deputy Conservation Officer of the Year award; in 1996, Richland's James Farinaccio was similarly honored. Farinaccio also was presented the Outstanding Service Award by PBA Local 120 for his 13 years of support and devotion to wildlife law enforcement.

Deputies today are educators as well as law enforcers. Many conduct courses and give talks in schools. Rob Winkel, chief of the Bureau of Law Enforcement, describes the 88 deputies serving today as “bright, enthusiastic, physically fit and willing to donate much of their time to our fish and wildlife resources. They come from a wide range of occupations and backgrounds.”

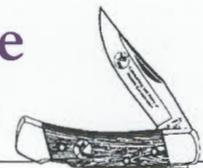
In 1995, deputies volunteered 9,920 hours — a savings in salary of \$153,264. And each, in giving so freely of his/her time, effort and spirit, has helped preserve our state's most precious natural resources for all to enjoy.



Regional Law Enforcement Offices

- Northern Regional Office 201/735-8240
- Central Regional Office 609/259-2120
- Southern Regional Office 609/629-0555
- Marine Enforcement Unit 609/748-2050

Commemorative Knife Available

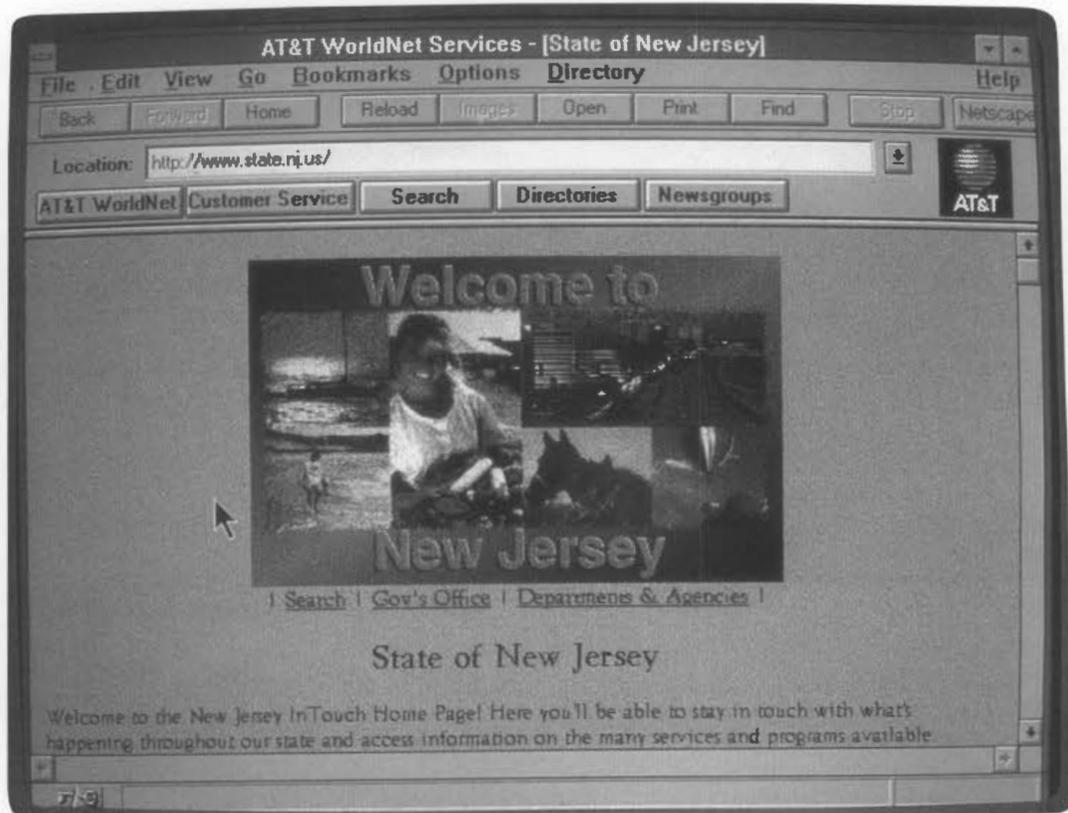


To commemorate the 100th anniversary of the Deputy Conservation Program, a limited edition Schrade pocket knife is being made available at a cost of \$29.99, plus \$5 shipping and handling. This locking clip blade knife, made in the USA, features polished nickel silver bolsters. The wood resin handle and steel blade both are engraved with the division seal. The leather sheath is serialized. The knife, which comes gift-boxed, has a one-year loss guarantee.

To order, please call 1-800-2SCHRAD, ext. 364, and have your Visa or MasterCard ready.

In addition to appearing in *New Jersey Outdoors*, Arline Zatz is the award-winning author of *New Jersey's Special Places* (Countryman Press); *Best Hikes in New Jersey With Children* (The Mountaineers); and *25 Bicycle Tours in New Jersey* (Backcountry Publications).

New Jersey state government's home page opens with a welcome from the governor and provides a plethora of links to interesting and valuable information sites.



© SCREEN SHOTS BY DOTTY WAXMAN

Winter Surfing? Check out the Net

by Jill Barnes

As you watch the temperatures dip and the snowflakes gently fall, your mind drifts back to the fun you had last summer. You visualize a nice beach with the sound of surf pounding and the sea gulls laughing, or maybe you're sitting beside a favorite fishing hole, enjoying the camaraderie of some angling buddies. Perhaps you just ache to be at a baseball game, going over those endless statistics.

Well, get off your duff and head for the computer. The computer, you ask? How is that going to make me feel like it's a hot, sunny day in the dead of winter?

Well, if you can't surf the waters off Seaside, you can surf the Information Highway or, in our case, the Information Parkway. All you need to know is, "What exit?"

Most of the "exits" have long addresses — such as <http://www.whatever.com> — and need to be exact. An easier way to find your Web site may be by typing in a Home Page title or key word(s), using one of the various search engines, such as Yahoo (<http://www.yahoo.com/search.html>), Lycos (<http://www.lycos.com/>) or Web Crawler (<http://www.webcrawler.com/>). In this article, I'll give Home Page names whenever possible.

If you don't like ice fishing and yearn to talk to some fisher-folk, you can easily do it from the warmth of your home office. There are plenty of New Jersey Web sites. Start with the state government's Home Page, called *NJ In Touch* (<http://www.state.nj.us>), or the Department of Environmental Protection's (<http://www.state.nj.us/dep>). On the former, you'll find a hello from our governor and addresses for the different state agencies; the latter begins with the department's mission statement and provides a list of DEP program areas, some of which have Web pages.

On either one, you can move down the list of options and click on the Division of Fish, Game and Wildlife (<http://www.state.nj.us/dep/fgweb/html/welcome.htm>). Whatever your outdoor pleasure, from fishing to hunting, you'll find it here. Learn how to become a budding naturalist or a member of the Wildlife Conservation Corps. Go to the area specific to the divi-

sion and find more info on its history, programs and other stuff. You may also print out copies of forms you might need. Hit the heading "Fishing in New Jersey" for exact places to fish, sizes of state record fish, stocking dates and other fish tales for both freshwater and saltwater angling.

"Hunting in New Jersey" provides a wealth of information on how to get started; locations of public practice ranges; deer management techniques; critter facts; and more. There's also a section, called "On Becoming an Outdoor Woman," where you can learn more about special women's programs on fly-fishing, firearms and related subjects. The dates, places and prices of the courses are given, along with how to sign up.

Online Recreation Guides

Another quick click on either home page will get you to the Pinelands Commission (<http://www.state.nj.us/pinelands>). You can learn more about the Pine Barrens and its inhabitants, including the Jersey Devil — the original one, not the hockey team. There's also a great guide to recreational opportunities in the Pines.

Return to the state's home page by clicking on the IN TOUCH box and scroll down to the "Of Special Interest" list. Click on "Great Places to Go and Things to Do in New Jersey" (<http://www.state.nj.us/travel/index.htm>) for a map and a wealth of information on activities, events and interesting sights grouped by type and/or by region of the state.

There are several fishing exits, other than the Division of Fish, Game and Wildlife's, along the Garden State Cyber Parkway. The Visual Information Technologies (<http://www.vitinc.com/>) page has several New Jersey links. One hot spot is the Fishing Reports page (<http://www.vitinc.com/nn/freport/reports.html>), found by clicking to the Nautical Net. Here, you can extract reports from local anglers on where the fishing is best (or add your own two cents). Cyber anglers also can sign up for a fishing newsletter. The Visual Info Tech page has stuff on the Jersey Coast Anglers, too; find it by looking under the section on clubs. In addition, there are links for tackle shops, weather, maps and real estate.

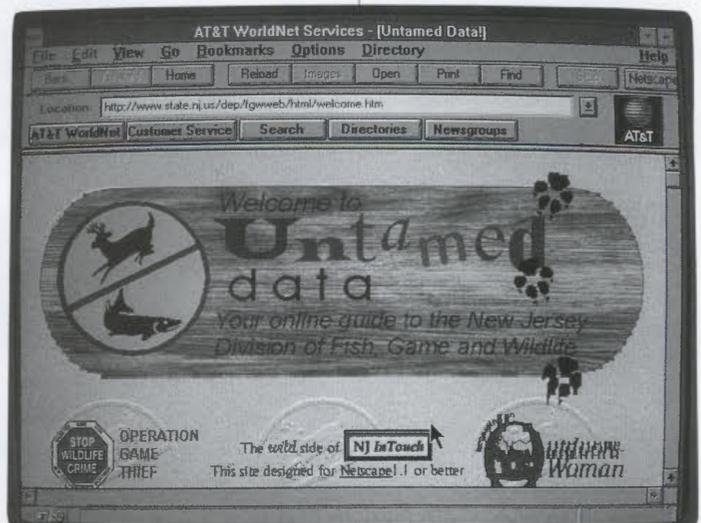
You can get more information on bodies of water in the state by accessing the Gogal Publishing page (<http://www.webcom.com/~gogalpub1/fishing/njhome.html>) — best if called up using Lycos. Gogal is a map company, so you'll find info on area maps along with saltwater fishing news and conditions at beaches and jetties. There's also a place to put your e-mail address and a chat section to get info from other anglers. You also can do a search by typing in NEW JERSEY OUTDOORS. No, you won't get this magazine, but you will get other outdoor related sites.

Sun & Surf; Tan Not Included

If you crave setting your blanket on the beach and basking in the sun, a few sites almost get you there. I had two favorites. The first was listed under Toms River/Jersey Shore (<http://www.tomsriverarea.com>). If your Web browser allows sound, you're greeted with the ocean's roar and the sounds of sea gulls. You can plan your next vacation by calling up the area's activities, recreation, lodging and dining.

My other favorite for a beach fix was the Beachcomber page (<http://www.beachcomber.com/>), which claims to "unlock the treasures." The rainy day area can work just as well on a snowy afternoon. For a bit of whimsy, call up the virtual beach and be careful not to get sand on the keyboard. Go next to the surf and sea gull sound file. Following that is a section that offers the scent of a beach on a hot, sunny day. I knew my computer could do wonderful things, but smells of the salt air? It's a tease, for when you click it, a "Sorry, we're having technical difficulties" sign appears. Oh, well. You can also play the big wheel and see a fortuneteller.

If you
crave
setting
your
blanket on
the beach
and basking
in the
sun, a few
sites
almost get
you there.



Take a walk on the wild side by following the paw prints down "Untamed Data," the home page of the N.J. Division of Fish, Game and Wildlife.



Cape May's home page is just one of many that lure the surfer to the Jersey shore.

the shade of the island's many cedar trees. The town's original moniker, High Point, thus gave way to Harvest Cedars, which evolved into the more euphonic Harvey Cedars.

If you know what town you want to visit, but haven't yet found it on the Information Parkway, go back to the state's home page, click on "County and Municipal Government" (<http://www.state.nj.us/localgov.htm>), under the Government in Action heading, and find it in the alpha listing. (Not all towns have an official home page yet, but this is an easy route to follow to see if the one that interests you is on the Net.)

Another water-related place is the New Jersey Scuba Diving site (<http://www.njscuba.com/>). Get information on local shipwrecks and a reef wreck program and access the divers' directories to get in touch with other divers, as well as stores, service providers, clubs and others related to the sport. There are also links to dive sites around the world. If you're into whale watching, try the Cape May Whale Watch (<http://members.aol.com/cmwwrc/index.html>). Read related stories and then book a trip.

Birds, Bikes and More

Seasick? Try bird-watching with the N.J. Audubon Society (<http://www.nj.com/life/audubon/>). You can join or find out what rare birds have been spotted in recent weeks. There's also a calendar of events, a birders' forum, conservation tips and info on the World Series of Birding.

If the baseball World Series and other types of bird-watching are your pleasure, tap into the N.J. Cardinals Class A minor league baseball page (<http://www.njcards.com/>). Get bios on the players, a schedule of their games in Sussex County or visit the store for home team apparel. The Trenton Thunder, a Double A team, also has a Web site (<http://www.trentonthunder.com/>), as do the pro teams — Giants, Jets, Devils and Nets. Some college teams are online also.

Going nowhere on your stationary bike? Pedal over to the Bike Forum (<http://www.nj.com/bike/>). Find a club in your area and get a list of types of rides, upcoming events, meetings and membership addresses, both regular and e-mail. There are even pictures of club members and their outings.

Campers aren't left out either. Back at the Beachcomber page, you can connect with the N.J. Campground Owners Association (<http://www.beachcomber.com/Nj/campnj.html>). There's lots of stuff on campgrounds by area — Gateway, Skylands, Delaware River, etc. — along with local attractions.

Since it is winter, how about some skiing? New Jersey Online's ski club index site (<http://www.nj.com/winter/clubs/club/index.html>) provides links to clubs throughout the state. Check them all to find out which one's right for you. Vernon Valley/Great Gorge Ski Resort also has a web page (<http://www.vvsg.com/>), as does its summer counterpart, Action Park (<http://www.actionpark.com/>).

A few other fun exits along this New Jersey Parkway include a link to the Civil War and

Address Book

8th NJ Volunteer Infantry	http://www.communityweb.com/8thnjreg/
Action Park	http://www.actionpark.com/
Asbury Park Press	http:// www.app.com
Beachcomber	http://www.beachcomber.com/
Bike Forum	http://www.nj.com/bike/
Cape May Whale Watch	http://members.aol.com/cmwwrc/index.html
County & Municipal Gov't	http://www.state.nj.us/localgov.htm
Dept. of Environmental Protection	http://www.state.nj.us/dep
Div. of Fish, Game and Wildlife	http://www.state.nj.us/dep/fgwweb/html/welcome.htm
Fishing Reports	http://www.vitinc.com/nn/freport/reports.html
Gogal Publishing	http://www.webcom.com/~goglpub1/fishing/njhome.html
Great Places to Go and Things to Do in New Jersey	http://www.state.nj.us/travel/index.htm
Guide to the Jersey Shore	http://www.app.com/summer/beaches
Long Beach Island/Ocean County	http://www.intserv.com/~lbi
Lycos	http://www.lycos.com/
NJ Audubon Society	http://www.nj.com/life/audubon/
NJ Campground Owners Assn.	http://www.beachcomber.com/Nj/campnj.html
NJ Cardinals	http://www.njcards.com/
NJ Cool Web	http://www.njweb.com/coolsite.html
NJ Online's Ski Club Index	http://www.nj.com/winter/clubs/club/index.html
NJ Scuba Diving	http://www.njscuba.com/
NJ State Gov't (<i>NJ In Touch</i>)	http://www.state.nj.us
Pinelands Commission	http://www.state.nj.us/pinelands
Times Beacon	http://www.intserv.com/~web/beacon/
Toms River/Jersey Shore	http://www.tomsriverarea.com
Trenton Thunder	http://www.trentonthunder.com/
Vernon Valley/Great Gorge	http://www.vvvgg.com/
Visual Information Technologies	http://www.vitinc.com/
Web Crawler	http://www.webcrawler.com/
Yahoo	http://www.yahoo.com/search.html

the 8th N.J. Volunteer Infantry (<http://www.communityweb.com/8thnjreg/>). Another favorite is the New Jersey Cool Web site (<http://www.njweb.com/coolsite.html>). New sites pop up all the time and this is a guide to the best ones related to New Jersey. There also are sections for services, news, education and kids' sites, all linked to New Jersey in some way.

Some commercial online services have New Jersey ties. On CompuServe, go to the U.S. Travel Forum and select the bulletin board for NY/NJ/PA. Here you can post questions regarding, for example, lodgings or fun places to visit. You also can go to the Fishing Forum and Skiing Forum for local stuff on New Jersey.

For America On-Line (AOL), go to the Travel area and then to the U.S. Traveler Board. From there, click to the list of topics and find New Jersey. Or, go to the U.S. Tourism Office for addresses for New Jersey and every other state.

So, if the long, cold winter has you down, just download a few New Jersey sites. There are probably lots more than mentioned here. With a quick Yahoo, Lycos or some other search engine, you find the exact exit on the Information Parkway.

(Editor's Note: Just as any other highway, the Information Parkway is — and probably always will be — under construction. Addresses may change and new "exits" are added daily. Those provided above were accurate at press time; our apologies if any of them changed subsequently. We'll bet the fun you'll have discovering new sites will more than make up for any inconvenience resulting from road repairs.)

Jill Barnes is a freelance writer from Fair Lawn. You can e-mail her at ZEDN15B@Prodigy.com or 104047.2575@compuserve.com.



This New Jersey coyote's roaming days are over for now.

The Hunt for the Wily Coyote

by Oliver Shapiro

Many people associate various sights and sounds with the Old West. Miles and miles of prairie, sagebrush, herds of bison, wagon trains . . . and, of course, the moonlight song of *Canis latrans*, the coyote.

Now put yourself right back here at home in the Garden State. You're reading late in the evening, enjoying the peace and quiet, when suddenly the stillness is broken by the unmistakable sound of howling.

Such occurrences are becoming more and more common. Although the coyote has been a state resident here for a relatively short time, it has

made itself right at home.

Long-time readers will recall that it was 20 years ago when this unusual animal first was reported in these pages. And the changes that have occurred since then are nothing short of astounding. Back then, the coyote was reported in 7 of our 21 counties. Today, the cunning canine can be found throughout New Jersey. Specimens have been taken in 18 counties, and sightings have been recorded from every county except Hudson. Robert Lund, a research scientist with the Division of Fish, Game and Wildlife, estimates the current population at about 1,500 animals.

There has been much speculation as to how and why the coyote has established itself in this area, when it historically has been indigenous only to the American West. Virtually all theories agree that this predator's unusual adaptability and resiliency have played a major role in its territorial expansion. Although it shows some habitat preferences, it is able to survive, and even thrive, in an incredible range of environments — woodlands, agricultural regions, suburbs and grasslands. A coyote was sighted two years ago in New York City's Bronx Borough, says Lund, and there even have been reports of these highly versatile creatures living within the sewer system of Los Angeles, according to Patty McConnell, who works with the division as a principal wildlife biologist.

McConnell is the leader of the Upland Wildlife and Furbearer Research Project, and has been working on coyotes since 1980. She describes the animal as unusually resilient, meaning that it bounces back quickly after attempts are made to reduce its numbers. In fact, the whole history of America's battle with this clever survivor has indicated clearly that efforts to exterminate it have been a losing proposition. Populations have held, and even prospered, in the face of hunts, traps, poison and bounties.

They Came, Saw, Stayed

So how did the coyote make it to the highly urban and suburban settings of New Jersey? Most biologists who have studied the issue, according to Lund, believe that migration from the West occurred first in a northerly direction, through Canada and the northern U.S., and then south again through New England and New York. Two factors made this migration possible. The increasingly variegated landscapes, due to human activities, provided greater "edge" habitats in which the coyote does especially well. Second, the elimination of large but less adaptable predators (particularly

wolves and mountain lions) from these areas created an ecological niche that the coyote filled handily.

This northerly route also explains, according to some scientists, why the eastern coyote is so much larger than its western kin. Typical specimens across the Mississippi River run about 20 pounds, with a 25-pound adult considered fairly large. Compare this with the 40-, 50- and even 60- or more pound animals that roam lands closer to the Atlantic. Some authorities have suggested that this variant resulted from some crossbreeding that occurred with some of the few remaining wolves in the more northern parts of the continent. Others, however, disagree. Henry Hilton, a biologist with the Maine Department of Inland Fisheries and Wildlife, has instead suggested that the larger size resulted from a natural evolution occurring in response to colder conditions and larger prey animals (deer).

Another aspect of interbreeding that has received some attention is the possibility of coyote-dog mixes. But, although these were the subject of some interest in the 1950s, it seems unlikely that such mixing occurs with any regularity these days. Coyote-wolf and coyote-dog breeding is much more likely to take place when the coyote has very few of its own kind accessible for breeding. Both Lund and McConnell agree that such interbreeding is fairly rare these days, due to the fact that the species is well-established in most areas.

As far as their eating habits go, coyotes are as opportunistic as they come, and this plays a major role in its exceptional adaptability. Hilton and Lund agree that venison makes up a part of this carnivore's diet, but only under certain conditions. Coyotes will help themselves when deer remains (such as road- or winter-killed specimens) are available or they may occasionally take an adult deer during severe and deep-snow winter conditions. More typically, they will subsist on smaller game like mice, rab-

bits and woodchucks. There also has been some concern about predation on household pets, which Lund admits may be a realistic fear. Vegetation, such as fruits and grass, provides a significant part of their nutrition as well. But almost anything will be consumed — there have been reports of coyotes eating insects, fish, frogs and even undigested seeds picked out of manure piles.

Reproduction in the northeastern coyote occurs during winter and spring. Mating will generally be accomplished during February; the litter — usually around six pups — comes into the world in late April to early May. Den sites can be natural caves, holes underneath tree roots, or made-over fox or woodchuck holes. The family unit will remain in the den area during weaning and as soon as the pups are old enough they begin to accompany the mother in her travels. Their education will continue through the summer and fall, but by early to mid winter, with the approach of a new breeding season, the young are ostracized.

Coyote Hunt Approved

The New Jersey coyote has reached a turning point in its existence here because, until now, it has enjoyed the unusual status of a highly protected animal. New Jersey is one of only four states in the country that do not yet allow coyote hunts, but that will change come February, with the introduction of a permit-only, 14-day hunting season for them. This is in sharp contrast to most other states, some of which have year-long seasons and no limits.

True, it has been legal to trap Garden State coyotes since 1980, but the animal's inherent wariness, and the leghold trap ban in recent years, have served to make this an ineffective method of harvesting coyotes. McConnell reports that fewer than 10 are snared in this state each year.

Why have a season now? The idea is not a new one, having been discussed for some years already, according to McConnell. The population appears to

Many citizens perceive them as a threat to public safety; others are concerned about possibilities of domestic animal (livestock and pets) depredation.

be expanding, and observation of activities in other states with coyote hunting already in place has demonstrated that the animal not only survives hunting pressure, it even seems to thrive despite it. The hunt not only will provide additional sporting opportunity for New Jersey hunters, but also will allow the division to collect additional information on coyotes, since hunters must report all kills. This information will help the division to address issues related to management of the species.

Not surprisingly, this decision has created some outcry — on both sides of the issue. On the one hand, there have been a number of complaints to the Division of Fish, Game and Wildlife regarding coyotes. Many citizens perceive them as a threat to public safety; others are concerned about possibilities of domestic animal (livestock and pets) depredation. The fact remains, however, that neither of these worries has been borne out by actual experience. The division's history of complaint calls regarding the coyote has been limited to expressions of concern (no actual incidents of human/coy-

Regulations and Tips for the Hunt

If you wish to participate in the new coyote hunt, you will need a special permit and, of course, a hunting license. In addition to the normal hunting laws, you should be aware of the following special regulations.

The season will be from February 1 through February 17, 1997, except for Sundays. It is open statewide, and shooting hours are from an hour prior to sunrise to an hour after sunset. Each hunter may take no more than two coyotes each day. Methods are restricted to calling and stand hunting — no still hunting or stalking is

allowed, and a hunter must be in possession of a coyote-calling device. Use of dogs, lights or bait is prohibited, and the wearing of hunter orange is not required.

Bowhunters who would like to test their skill must use a bow with at least 35-pound draw weight. Shotgunners must use a size 12 or larger gauge, with shot sizes from #2 fine to #4 fine, inclusive, allowed. Black powder enthusiasts must use rifles with at least .44 caliber, and smooth-bore muzzleloaders must be single-barreled.

Finally, any animals taken must be reported to a Divi-

sion of Fish, Game and Wildlife regional law enforcement office within 48 hours.

Because few Garden State citizens have expertise in the finer points of coyote hunting, two out-of-state experts agreed to provide some advice. Greg Hutson, of Tennessee, hunts extensively for the coyote in his home state, as well as in Virginia and West Virginia. "One of the most important things anyone could ever tell you about these animals is that they are extremely . . . intelligent. Wear camouflage, and be sure to cover your face, if nothing else. A human face might as well be a signal flare — they'll never get closer than a few hundred yards if your face is uncovered, and they can see you

bat an eyelash at 100 paces."

Arizona resident Robert Hisserich agrees with the total camouflage approach, adding other pointers: "Silence going to your stand is all-important. Keep vehicle noises to a minimum and put brush at your back (sun, too, if possible). Call for at least 15 minutes, better yet, 20. Call into the wind and watch for fast movers. Coyotes can show up quickly — and disappear faster."

Finally, Hutson cautions hunters to be patient and not get discouraged. "Sometimes you'll go for days of calling and never get a response. Sometimes you'll get a challenge howl right off the bat. Just keep at it . . . and sit still."

ote confrontations), and a total of three reports of depredation — all of them against sheep, according to Lund.

Voices Howling in the Wind

On the other side of the fence are those who would not like to see a coyote hunt. This position is represented by Stuart Chaifetz, who serves as the chairman of the anti-hunting committee of the 2,000-member New Jersey Animal Rights Alliance. Chaifetz objects to the hunt.

He questions how the division had estimated the current coyote population at about 1,500, based on recent years' sightings and reported numbers of killed (trapped, road-killed, etc.) animals. McConnell states emphatically that these make up only a part of the equation resulting in an estimate.

"Sightings by themselves are too de-

pendent on other factors to be considered the only basis for an estimate," she asserts. Other parameters come into play as well, not the least of which is assessment of suitable habitat for the animal — which, as we have seen, can include many different areas.

"Actually, the estimate we gave is probably conservative," she adds. Additionally, the division projects that fewer than 50 animals will be killed during the hunt, due to the animal's highly developed sense of caution and wariness. Lund expects even lower numbers, estimating the total take at 20 to 40 animals.

Nevertheless, Chaifetz and his group oppose the hunt. "Our major argument is that they (hunters) will kill animals and cause a lot of pain," he says. "That's what we're against, whether it's one or 1,000. This hunt is unethical and cruel."

Sportsmen, however, don't see it that way. Frank Dara, vice president of the New Jersey State Federation of Sportsmen's Clubs, which represents more than 150,000 hunters and anglers in this state, confirmed that most members are in favor of the hunt. "Sportsmen know that, in general, wildlife management is necessary. Population numbers have to be controlled, which benefits both the animals and the environment."

The coyote itself goes about its business of survival, oblivious to such issues. It apparently has found the New Jersey landscape to his liking, regardless of any feelings that we members of the human population may have. And, if his history has taught us anything, the coyote is undoubtedly here to stay.

Oliver Shapiro is a freelance writer who lives in Passaic.

The Icemen Cometh — *With Attitude*

by J. Wandres

Jacob Buckhout probably would be astonished if he could race one of Dan Clapp's iceboats today. Old Jacob was a boat builder who settled in Poughkeepsie, New York, around the middle of the 19th century. He enjoyed quite a reputation as a builder of iceboats for the wealthy, who raced them along the frozen Hudson River as fast, some said, as the trains that sped along the tracks by the river.

Jacob brought his skills from his native Holland where, since the 1700s, iceboats carried people and cargo on frozen canals, rivers and lakes. A Buckhout iceboat was nothing more than a solid Sitka spruce backbone, approximately 40



feet long, supported crosswise by a long runner plank whose only contact with the ice was a sharpened blade at each end. Gaff-rigged sails flew from the solid spruce mast while a two-man crew lay down on an open platform at the rear of the backbone. One man managed the lines and sails while the other steered a tiller-controlled rear runner blade. Despite being bundled up against the freezing temperature and whipping winds out on the ice, they got mighty cold.

"It's like lying on a cross with a sail, holding on for dear life, and going like the devil on a frozen hell," said one veteran iceboat racer.

Fair Haven's Dan Clapp, on the other hand, usually wears just a sweatshirt, jeans and a safety helmet inside the closed cockpit of the futuristic, hot pink iceboat he designed and built — a boat that looks like a happy marriage of a drag racer and a jet aircraft. Speeds of 100 miles per hour and better are not uncommon for experienced ice pilots like Clapp and scores of other enthusiasts who live for winter days of clean, dark ice, steady winds and temperatures just below freezing.

Enter the DN; Enter the Skeeter

Iceboating has been popular on frozen lakes in New Jersey, New England, Wisconsin, Minnesota and Michigan since before the beginning of the 20th century, but the Great Depression of the 1930s — when nobody could afford to build and fit out an iceboat — nearly killed the sport. However, in 1937, the *Detroit News* sponsored a competition for a fixed-design iceboat so simple and inexpensive that any person with a garage or basement workshop could build one. The so-called "DN" class took off like a shot and, even today, is the most popular and widely-raced iceboat in the world.

About the same time the DN iceboats were setting class speed records, the "Skeeter" class made its appearance on the ice. Classified as an open-design boat, its only restriction was that it carry no more than 75 square feet of sail.

Dan Clapp's grandfather, Richard C. Clapp, was a pioneer Skeeter sailor, as was his son, A. David Clapp. Keeping the family tradition alive, Dave Clapp took his son out in a boat as soon as the boy could walk.



PHOTO COURTESY OF DANIEL CLAPP



On the Navesink River in Red Bank, a DN-class iceboat takes a hike (heels up) as the pilot begins to tack (opposite page).

In his workshop, Dan Clapp works on four Skeeters (above). The hulls are made of plywood and sitka spruce, known for its long, straight grain. The hulls will be covered with resin-impregnated fabric.

Close-up (left) of a hardened, stainless steel runner blade fitted to the runner plank of Dan Clapp's Skeeter. Iceboaters carry several interchangeable sets of runners, ranging from narrow and sharp for hard, clear ice, to almost rounded, for soft, "sticky" ice.

Today, at age 31, Danny Clapp is regarded as a top Skeeter “pilot,” and his innovative designs have turned heads — fast as he cleans up in one Skeeter regatta after another. During the warm months, Clapp operates a business refinishing tennis courts.

“It’s not by accident that I picked a business that’s busy from May to October,” Clapp says, “and leaves the winters free for iceboat racing!”

If not out supervising his crews, he is in his spacious workshop, building a new iceboat. Recently, he was working on four new boats — one for himself, the others for clients. Plenty of iceboaters, he claims, are content to race a DN-class boat, whose design is fixed and costs are comparatively low. But a custom-built, top-of-the-line, open-design Skeeter, he says, can cost up to \$50,000, including materials, fittings, finishing and sails.

The Skeeter community is small; most enthusiasts know each other and share ideas on what works and what doesn’t. A friendly competitor is Tom Nichols of Andover, Sussex County. Like Clapp, Nichols operates his own business, making custom parts for medical imaging devices.

“The accessories I make use composite materials such as carbon fiber and epoxy resins, and I’ve put my experience working with these materials to use in the design and construction of my iceboats,” Nichols says.

Through a number of design evolutions, Nichols and Clapp each moved the open “rumble seat” type cockpit from its traditional place at the stern of the Skeeter to a position forward of the mast. It was Clapp’s idea to enclose the cockpit in a clear bubble.

“This greatly streamlined the hull and reduced wind drag,” he says. “It also makes it a lot more comfortable for the pilot than sitting out in the wind.”

A highly flexible mast and sails made of Dacron or reinforced Mylar make it possible to sail extremely close to the wind. With the pilot forward of the mast, the result is an aerodynamically advanced, highly stable racing platform that sails on three hardened, surgical steel runner blades at breath-taking speeds.

An Iceboat Called *Attitude*

Veteran Skeeter pilots laughed into their mittens when Clapp debuted the canopied front-seater Skeeter, *Attitude*, at the 1991 International Skeeter Association regatta at Lake Geneva, Wisconsin.

“How can you pilot the boat if you’re forward of the mast and can’t see the sail?” they asked, incredulous. “How can you feel the boat when you’re inside a bubble?”

Clapp only smiled. In its first year, *Attitude* won 25 of 28 races — and the admiration of Midwestern iceboaters.

The race course is basically a diamond, with an upwind mark and a downwind mark one mile apart. Pilots draw lots to determine starting position. After pushing the boat to get it moving, the pilot jumps in; this is when Clapp stuffs his parka and heavy gloves behind the seat and sails by the feel of the cables in his hands.

“Midwesterners are used to the wide open spaces,” Clapp says. “They can build up huge speeds as they head for the corner of the diamond, then tack toward the mark.”

Because most East Coast iceboaters are accustomed to sailing on smaller lakes, they tend to sail a tighter course to avoid such things as the shore or weird wind patterns.

“We may not always achieve the speeds the Midwesterners do, but we get to the mark just as quick — or quicker,” he says.

“We try to keep out of each other’s air,” Tom Nichols

Because most East Coast iceboaters are accustomed to sailing on smaller lakes, they tend to sail a tighter course to avoid such things as the shore or weird wind patterns.

At an International Skeeter regatta held on Wisconsin’s Lake Geneva, Peter Harken gets his A-class Skeeter ready for racing.



© BILLY BLACK



In contrast, large and small vessels whisk across the frozen Navesink River (above).

Amphetamine (left), an open-cockpit, "rumble seat" A-class Skeeter, passes the mark and gets ready to hike into a turn. With the pilot seated to the rear of the fuselage, the boom can be lowered just above the hull to cut down on wind loss.

adds. "And for safety we keep more distance between boats than 'soft-water' sailors."

In an ocean race, he explains, if two boats bump, the offender's penalty is to execute a 360-degree turn before continuing. On the ice, if two boats collide, there could be injuries and two expensive boats damaged.

Keeping a Weather Watch

However knowledgeable, crafty or intuitive ice pilots are about the art and science of their sport, they concede there is not a darn thing any one of them can do about the weather.

"Probably the most important thing, when we're traveling to a regatta, is to stay at a motel whose TV gets the Weather Channel," says Nichols. "That, and we keep in regular telephone contact with the race committee for updates on ice conditions."

Although the location for a Skeeter regatta is known in advance, the date is set — tentatively — only one Sunday beforehand, then confirmed by noon on the Wednesday before.

"We keep a travel bag packed and in the truck. If we get the go-ahead by Wednesday noon," says Clapp, "we're on the road by dinner."

With an American DN regatta, the race committee may postpone the event because of the weather. An international DN regatta, on the other hand, is scheduled for a specific weekend. With competitors coming in from all over the world, the race committee may have to scramble to move the location of the regatta to find good ice rather than postpone the event.

One year, a DN world regatta was scheduled for a lake in Wisconsin. "We called ahead every few hours to check on weather conditions," Nichols recalls. "Then, four hours out, we

After two years of volunteer work, the restoration of the Long Branch Iceboat and Yacht Club's *XLNC* is complete. The open-sided platform at the rear of the backbone is a two-person cockpit.



PHOTO COURTESY OF THE L.B.I.Y.C.

"Barnegat is wide open and we can set up a huge course that really lets us build up steam!"

— Tom Nichols

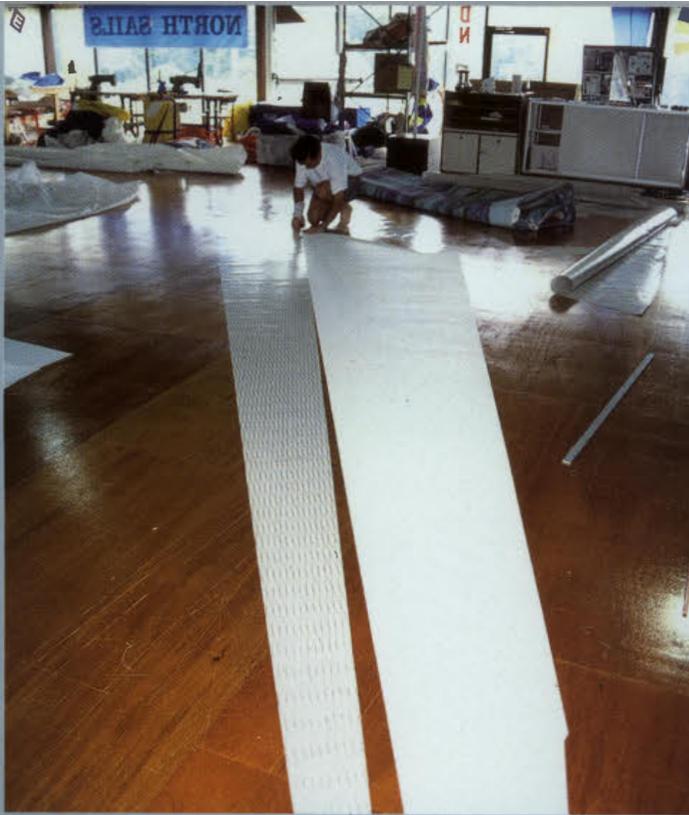
learned that a storm had moved in, covering the ice with snow."

Race teams were directed to head for Lake Champlain, New York. Somewhere in western New York, however, they got the word again: rain and rising temperatures were turning the ice to slush. So, the iceboaters were directed to head for Barnegat Bay, New Jersey. The East Coast iceboaters were thrilled.

"Barnegat Bay is *the* best place in the Garden State to race," says Nichols. "The salt ice is stickier and softer than fresh water ice, but Barnegat is wide open and we can set up a huge course that really lets us build up steam!"

Lake Hopatcong and Round Valley Lake are two other favorite iceboating locations. The Navesink and Shrewsbury rivers, in Monmouth County, are about the smallest ice on which they can sail Skeeters. There is not enough room to build up speed or sail a broad diamond course. Other drawbacks include spectators out on the ice.

"People don't realize we can't stop on a dime," says Clapp. Instead of racing his Skeeter, Clapp and other iceboaters from the Long Branch Ice Boat and Yacht Club will take out their old-style stern-steerers. Clapp likes to sail his grandfather's boat, *Now Then*, built in 1911, which he restored in 1988 to its original condition.



Henry Bossett, a three-time DN Gold Cup winner, assembles an iceboat sail made of Mylar with carbon fibers impregnated for reinforcement.

© J. WANDRES

High-Tech Sail Making

One reason why an iceboat can whiz along at six, seven, eight times the speed of wind is the lack of resistance; there are just three points of metal

skimming over the ice. The sails are another reason for the high speeds. Old-style iceboat sails were made of canvas. High-performance sails on today's DN's and Skeeters are made of Dacron or Mylar reinforced with composite fibers.

At his sail loft in Mana-

squan, Henry Bossett of North Sails, Inc., was cutting and stitching panels together for an iceboat sail made out of Mylar and carbon fibers. Bossett, an accomplished DN sailor who has won the DN Gold Cup three times, explained that composite sail material is very tough and will take a beating even in high winds.

"Its weakness — if you can call it that — is that the panels are sewn together. Although the fabric is reinforced, the strengthening material doesn't follow the stress and load patterns of the sail," he said.

North Sails has developed a process to build a vacuum-formed sail made entirely from composite materials. As Bossett described the process, a giant mold is adjusted to precisely the desired shape of

the sail, which has been designed on a computer. A single sheet of Mylar, cut to shape, is placed over the mold. Then, a gantry hovering over the Mylar moves back and forth, automatically laying a pattern of Kevlar strands according to the stress loads computer-designed into the sail plan.

A second sheet of Mylar is placed over the strands. Vacuum bags are placed over the mold. A vacuum is drawn to hold the materials to the shape of the mold; then, the three-ply sandwich is vulcanized with heat. The result is a sail designed with maximum efficiency, with no panels stitched together and no weak points. While use of the new process, called 3DL, makes these sails more costly than conventional sewn sails, they perform better and last longer, Bossett said.

Clarel II to the Rescue?

The Long Branch Iceboat and Yacht Club was established before the turn of the century and is one of the oldest yacht clubs in the country. For years, members sailed their A-class iceboat, XLNC, to victory after victory. The coveted North American Pennant has resided at the club for more than 30 years.

Lately, challenges have been coming in from other iceboat clubs, and this has Long Branch in a quandary. Members like Stan Nadler and Bill Rudolph, who have sailed the recently restored XLNC, know that — in its day — the iceboat was fast. They also know that, in the last 20 years, other clubs have built so-called "traditional" iceboats using the latest materials and hardware. The pair know that their XLNC wouldn't stand a chance against these new-old iceboats. But they have a plan.

On February 8, 1908, the iceboat *Clarel*, owned by Rumson magnate Walter Content, was timed going 140 miles per hour on the Shrewsbury River, with Captain Elisha W. Price at the tiller. In its class, that speed record has never been broken.

In honor of that feat, Nadler and Rudolph are spearheading a drive to raise at least \$15,000 to build a high-tech version of that boat and send it out on the ice to challenge all comers.

With the support of the Long Branch club, they have established a nonprofit organization that will set up a museum and educational center to showcase the history and development of iceboat racing. Members of the group also will build the boat in their shop at the Long Branch club.

"We'll incorporate the latest design technology and materials," says Nadler, whose company makes electric transformers. "We have enough skills among the guys in the club that we can build a winning boat. We're planning to put *Clarel II* on the ice by the winter of 1998."

Asked what he thinks the outcome of a race between the *Clarel II* and any challenger will be, Nadler pauses, then says, "I think the North American Pennant will stay right where it is."

J. Wandres is a freelance writer who lives in Matawan.

The autumn foliage of Bergen County's Palisades never fails to awe viewers.



The Blockbuster-Sony Performing Arts Center is just one of several recently constructed complexes that are drawing people back to the Camden waterfront (Camden County).

This Is New Jersey

by John T. Cunningham

New Jersey is for me a series of impressions etched in my brain like innumerable cerebral photos — sunrise on the ocean, sunset on Delaware Bay; noon's warm sun on the Bergen County Palisades, twinkling lights on oil refineries near Linden; awesome hardwood forests stretched afar from High Point, "Old Barney" guarding Barnegat Inlet; the valley of light beneath Essex County's Eagle Rock; deep shadows in the Pine Barrens on the brightest of days.

The state came into full focus for me in 1953, when Rutgers University Press published the first edition of my book, *This is New Jersey*. Last year, Rutgers published the fourth edition; the book has never been out of print.

This is New Jersey tells the story county-by-county, alphabetically, possibly the best way to grasp the startling variations in this small state. Atlantic County contrasts sharply with Bergen, as if it were in another nation. Burlington and Cape May counties have little in common. Camden and Cumberland are both "South Jersey" and front on the Delaware River, but beyond that they are totally different. So it goes, through to Warren.

Atlantic County, touted worldwide for its coastal casinos and boardwalk, likely is better typified by many inland small villages and towns such as Mizpah, Dorothy,

Cologne, Smithville and Port Republic (scene of a fierce Revolutionary War battle in October 1780). I savor the county most at twilight in Forsythe National Wildlife Refuge. Suddenly, 20,000 startled fowl will rise swiftly. Ten miles away across the sedges and sounds, brilliantly lit Atlantic City, ready for another frenetic night, is a dramatic background.

No New Jersey scenic audience rivals the hundreds of thousands of viewers who daily see **Bergen County's** Palisades from the George Washington Bridge. Cast up by an ancient volcano, the Palisades awed the region's first explorers and the Dutch settlers as much as it does modern viewers. Scores of well-ordered, commuter-oriented towns west of the rugged Palisades are highlighted by Dutch houses two centuries and more old.

English Quakers founded **Burlington County** (in 1677) and pushed outward to Mount Holly, Bordentown and, by 1704, Tuckerton, fully across the colony near the Atlantic Ocean. Burlington is New Jersey's largest county, has the most Pine Barrens land, contains (in Bordentown and the Town of Burlington) some of the finest old houses in the state, and has New Jersey's oldest courthouse, built in Mount Holly in 1790. Its sprawling Pine Barrens are rich with wild orchids, cedar swamps and intriguing sand roads.



© GREGORY M. McDERMOTT

Closest geographically and historically (both were established by Quakers) are Burlington and **Camden County**. The most esteemed early settler in Camden County was 18-year-old Elizabeth Haddon, who in 1701 founded Haddonfield, one of the few American towns begun by a woman. The city of Camden, a beehive of industry and transportation until the 1950s, experienced a period of sad decline, but now offers the quite new Blockbuster-Sony Performing Arts Center, the Thomas H. Kean State Aquarium, the home of the "Good Gray Poet," Walt Whitman, and views of the long blue Benjamin Franklin Bridge to Philadelphia.

Cape May County — can its merits be condensed? Can a few words do credit to the beachfront, where Ocean City, Sea Isle City, Avalon, Stone Harbor and the Wildwoods sparkle on broad white beaches? Cape May's Victorian loveliness is not fully appreciated without many visits. Rounding out the picture are the ferry to Delaware, the lighthouse at the Point and the handsome county court building dating to 1846 in appropriately named Cape May Court House, the county seat.

The sinuous Maurice (pronounced Morris) and Cohansey Rivers drain **Cumberland County**. Revolutionists burned tea in 1774 at Greenwich on the

Workers harvest cranberries (right), a crop for which Burlington County is well known, in Chatsworth.

Horses in Augusta (Sussex County) gather around for a winter meal (below). The horse is New Jersey's state animal, and several counties are home to extensive farms where horses are bred, raised and trained for shows, races and pleasure riding.

The lock tender's house (opposite page) in Griggstown (Somerset County) reflects its image in the Delaware and Raritan Canal.

© ROBERT BIRDSALL



© DOTTY WAXMAN



Cohansey. Oyster harvesters have sailed for more than two centuries out of Mauricetown on the Maurice, seeking coveted, often threatened, shellfish in Delaware Bay. A Liberty Bell that rang in 1776 can be seen in Bridgeton and the remnants of what was once the nation's greatest "glass triangle" are recalled in Vineland, Millville and Bridgeton. Vineland — the state's largest town in area, at 68.7 square miles — was one of America's first planned cities.

Essex County is not an urban anachronism. Newark, the state's oldest genuine town, has suffered tragic urban blight. But, with its superb airport and

seaport, a huge college-university complex, acclaimed library and museum and the emerging Fine Arts Center, can resurgence be far behind? Essex County parks, oldest in the nation, offer scenic landscapes, as well as recreation. The view from Eagle Rock Park may be the finest in the state. Most assuredly, Branch Brook's cherry blossom show is unparalleled, even in Washington, D.C. Fine suburban towns ring Newark; they're stable, farsighted and, in several cases, wealthy enough to envision bright futures. Essex has great merit — and beauty worthy of anyone's senses.

Gloucester County, as "English" as a

name can be, was started by Swedes and Finns before 1640. "Swedishness" pervaded much of the county deep into the 19th century. The impact of the American Revolution on the Delaware River towns is seen at Fort Mercer at Red Bank where, in late October 1777, American troops successfully repulsed fierce attacks by the invading Hessians. Glassboro's old-time glass prominence is superseded by the importance of Rowan College (re-named from Glassboro State to Rowan State to honor a \$100 million donor).

Hudson and Hunterdon, paired alphabetically, could not be further apart socially, economically, photographically

© MIKE WARREN



or in population density.

Dutch influence began before 1630 and was not completely eliminated until **Hudson County** split from Bergen in 1840. By then, railroads had begun to rule. In 1900, Hudson was said to be home to the busiest railroad complex in the nation. Railroads are nearly gone; the only remaining Hudson County operating terminal is in Hoboken, but the restored former Central Railroad of New Jersey station is the centerpiece of Liberty State Park. The Statue of Liberty and Ellis Island, symbols of immigration, are offshore (in New Jersey waters, let it be emphasized). As a final hit, baseball

began in Hoboken in October 1845.

Hunterdon County enjoyed bucolic simplicity, up to and long after the famed 1930s trial in Flemington, where Bruno Hauptmann was found guilty of kidnaping and murdering the child of Colonel Charles A. Lindbergh. Two centuries before, iron production in High Bridge began a modest industrial era that endured into the 20th century. However, by 1930 the theme was chickens, cows and barns worthy of anyone's camera. Now the county is between rural and exurban, depending on proximity to Interstate Route 78.

The "four Ms" — Mercer, home of

the state capital; Middlesex, crossroads of New Jersey; Monmouth, once "shore" but now geared to year-around living; and Morris, steeped in history — well embrace the New Jersey story.

Mercer County was put together in 1844 from bits sliced from Burlington, Hunterdon, Middlesex and Somerset counties, long after Trenton became the state capital in 1790. The county's historical roots are deep. Here George Washington revived American hopes at Trenton and Princeton in late December 1776 and early January 1777. Staid old Princeton boasted of the College of New Jersey (Princeton University after

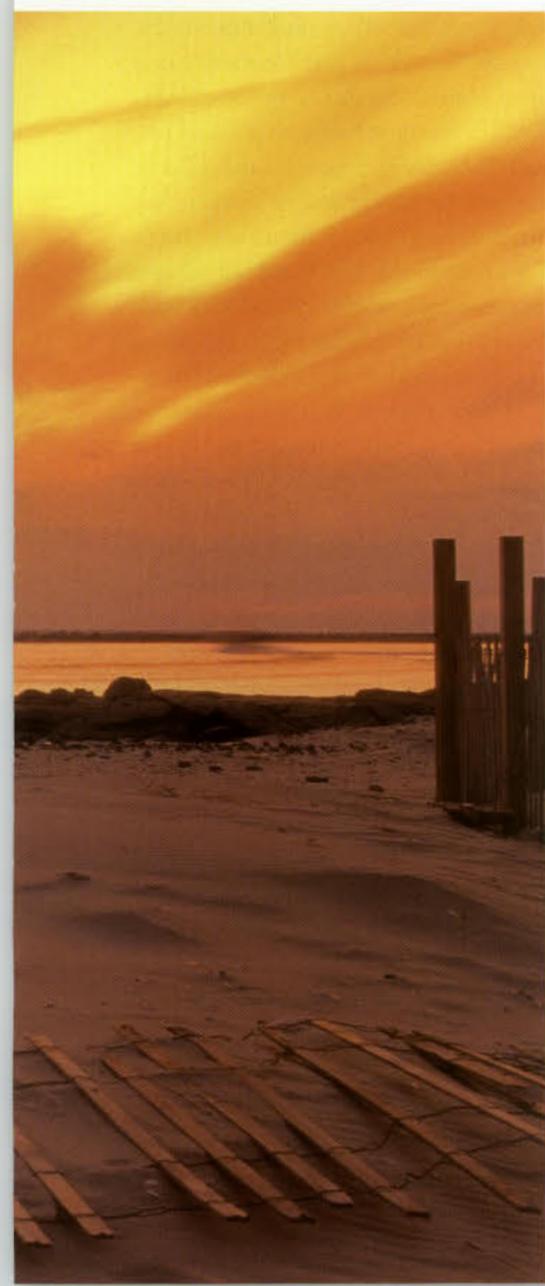




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New structures (left) provide a stark contrast to the lighthouse and older dwellings in Absecon Inlet (Atlantic County).

The setting sun (below, left), seen from Island Beach State Park (Ocean County), provides a spectacular backdrop for the Barnegat lighthouse on neighboring Long Beach Island.



© ROBERT BIRDSALL

1896), founded in Newark and moved to Princeton in 1756. Trenton prided itself on successful 19th and early 20th century rubber, iron and pottery industries. Most of the industry is gone; Trenton now is dominated by impressive state buildings, including a sparkling white state museum and planetarium, which draw students from all the state.

Transportation prominence in **Middlesex County** began in 1686 when John Inian's ferry started running across the Raritan River four years after the county was founded. Queen's College, opened in 1766 to train Dutch Reformed ministers, became Rutgers College in 1825 when Colonel Henry Rutgers of New York donated \$5,000 and a bell. Middlesex became noted for its ceramics, rubber and copper processing in the early 20th century. Now the Garden State Parkway and the New Jersey Turnpike intersect in the county. Middlesex County's destiny is transportation.

The Parkway dramatically changed **Monmouth County's** major role. Until the toll road came in the early 1950s, the county had been mostly "shore," although inland potato farms prospered and large truck farms sold vegetables and fruit to day trippers bound to and from the beaches. The fine beaches are still in place (reinforced by beach re-

plenishment efforts), but Monmouth is replete with year-round homes, where people return each twilight from work in urban areas. The Parkway owes much of its success to those developments — and vice versa.

George Washington's two winters in Morristown, the Morris Canal, the "Age of Millionaires" and the fight for the Great Swamp are elements that vie for attention in **Morris County**. A safe location, numerous iron forges and furnaces to the northwest, and politically sympathetic residents brought the American Army to Morristown twice (in January of 1777 and the winter of 1779-80). In the 1820s, Morristown school teacher George Macculloch conceived the "mountain-climbing" Morris Canal. The 1890s saw the region from Somerset Hills to Morristown become a haven for millionaires; nearly 100 of them lived within three miles of the Morristown green. Finally, in the 1960s, citizens successfully fought a historic battle to keep a jetport out of the prehistoric Great Swamp.

No county name better fits than **Ocean County**, bestowed in 1850 when the new county cut away from Monmouth. Two long narrow islands form its eastern edge — Island Beach, really an elongated, skinny peninsula, and Long Beach Is-



Lucy the Elephant, a beloved and enduring 19th century landmark, draws visitors from around the world to Margate (Atlantic County).

© CORNELIUS HOGENBIRK

land, “four miles at sea” (a publicity man’s exaggeration), a genuine and extremely popular island. Ocean County, however, is more than beachfront. In the 17th and 18th centuries, bog iron furnaces prospered in Brick and Manchester, and Toms River was a fishing and shipping community. Lakehurst was home to the giant dirigibles of the 1920s and 1930s, including the ill-fated *Hindenburg*. Today, Ocean is one of the nation’s best-known retirement regions.

Founded in 1675 by Quakers, **Salem County** has always been Quaker-oriented. That made the British massacre of 30 Americans in the Hancock House on March 21, 1778, especially repulsive. During the Civil War, nearly 2,500 Confederate prisoners who died offshore at Fort Delaware on Pea Patch Island (owned by Delaware) were rowed ashore and buried at Finn’s Point, adjacent to Fort Mott State Park. Salem esteems its ancient oak in the meeting house cemetery. Once totally off the beaten track, today’s Salem knows some of the mixed blessings of the New Jersey Turnpike.

Somerset County also has preserved a mighty, ancient oak. Somerset’s is in Basking Ridge, where it already was well-established when Somerset split from Middlesex in 1688, spurred by Dutch farmers who had come up the

Raritan River to Somerville. Washington spent the winter of 1777-78 at the Wallace House in Somerville. During the 1880s, the northern part of Somerset became a center of the large estates for a landed gentry that is still prominent. The greatest estate (2,250 acres), just south of Somerville, was pulled together by tobacco magnate James Buchanan Duke in the 1890s. Some of his estate, with its magnificent gardens, is open to the public.

Sussex County’s dedicated admirers believe their mountainous county is New Jersey’s scenic best. The state’s highest point — 1,803 feet above sea level — is in Sussex, as are the Kittatinny Mountains. Forty years ago, Sussex boasted that it had “more cows than people.” (True then, but no longer valid.) The county has the most state- or federally-owned parkland in New Jersey, including the huge, as yet undeveloped, national recreation area along the Delaware River. The major threat to rural life is Interstate Route 80, which entices new residents out to former pasturelands and mountain slopes.

In counterpoint, **Union County** always has been busy. When the area seceded from Essex in 1857 to become New Jersey’s 21st and last county, residents chose the name Union despite their secession. The new county cen-

tered on Elizabeth, founded two years before Newark. When Elizabeth lost a new county courthouse to Newark in 1807, a seething began that could be satisfied only by a new county. Union has known a great deal of industry, and the building of the railroad west from Elizabeth in the 1830s created suburban communities oriented to Newark and New York. Now both the Turnpike and the Parkway slice through the county.

Lastly, there is **Warren County**, only slightly less mountainous than Sussex. The Pequest and Paulinskill rivers that tumble rapidly toward the Delaware River led 19th century Belvidere leaders to believe that waterpower — awesomely clear in the Delaware Water Gap, which New Jersey shares with Pennsylvania — might attract industrialists who would make Belvidere a major industrial region. It was not to be; Belvidere was too far off the beaten track. The merging of several railroads in the 1850s made Phillipsburg one of the East’s prime railroad centers. Nearby Washington, at the same time, was a national leader in manufacturing organs.

So, *that* is (and was) New Jersey — contrasting, vigorous, changing and ever-pictorial.

John T. Cunningham, an author of 34 books, lives in Florham Park.

On the Prowl for Owls



© CLAY C. SUTTON

by Patricia T. Sutton

An immature female snowy owl, attracted to habitat resembling the open tundra she has come from, surveys a New Jersey beach.

New Jersey's rich diversity of habitat attracts and supports a terrific assortment of birds, including owls. You'll want to know all you can about these mysterious birds in order to understand them and to find them on your own in the wild.

Eight species of owls occur here and might be readily observed if you know when and where to look. Three of New Jersey's owls — great horned, screech and barred owls — are year-round residents; they do not migrate. Three species migrate south in the fall from Canada and New England and take up residence here, or at points south, through the winter; they are the saw-whet, long-eared and short-eared owls. Saw-whet and long-eared owls breed sparingly in New Jersey, and the short-eared once bred in New Jersey. Yet winter is the time to more easily see the migrant species because they are so much more plentiful then.

Barn owls breed in New Jersey and were not thought to be migratory until the Cape May Owl Project documented the only concentration of migrant barn owls in North America. So they, too, are more plentiful and easier to see some winters. New Jersey's eighth owl, the snowy owl, is not a migrant but an "invasion species," wandering here only in winter when its food supplies run short in the far north.



© CLAY C. SUTTON

Although a few owls are crepuscular (active during the dim hours of dawn and dusk or on overcast days), most owls are nocturnal (active only at night). This is the main reason owls are so hard to see. During the day they perch or roost where they can't be seen, in the deepest, darkest cover. If found, they may be harassed by crows or songbirds, or even fall victim to predators. Favorite daytime roost sites might be in a dense evergreen or honeysuckle tangle, camouflaged against a tree trunk, in a hollow tree, or in a clump of tall marsh grass.

As dusk settles, owls move out from the deep woods or secluded areas where they've spent the day in hiding and fly to an edge overlooking a good feeding site. Since they feed mostly on small mammals and rodents, they are attracted to and hunt in or around fallow fields, meadows, marshes, woods roads, field edges, power lines and railroad lines, cemeteries and dumps — all places where rodents can be plentiful.

The Home Team

Our year-round resident owls (great horned, screech and barred owls) get very vocal and downright noisy at the beginning of their breeding season when they set up nesting territories. Their calls tell other like owls that "this is my territory, don't you dare come near." Since owls are nocturnal, we are dependent on clues like their calls to give their presence away.

The great horned owl is our earliest nesting bird and the most common owl, both here and throughout North America. In New Jersey, they are found from High Point to Cape May. Every forest harbors at least one pair. Great horneds have adapted to man and can be found even in small suburban wood lots. Males begin setting up their nesting territory in late fall by hooting at dusk. The great horned owl's call aptly dubs this bird as the "hoot owl." Since owls do not build their own nest, the great horned owl often chooses a large stick nest in a lone evergreen within a woods, probably built the previous spring by a red-tailed hawk. By late December, the female's briefer answering hoots may be coming from the nest, and by January she has laid her eggs. Three months after the downy young hatch, their flight feathers have grown in and they can fly. By early May, great horneds become very difficult to find — until the following fall when the males begin setting up nesting territories again.

Screech owls also are very common throughout New Jersey; they might be found in rural areas, small towns and city parks. They nest in tree cavities, deserted woodpecker holes and even man-made nest boxes, including those for wood ducks. Many a pond owner has gone to clean out his wood duck boxes in late winter or early spring and found a screech owl inside. I've heard screech owls calling every month of the year, but mainly from February through April. Listen for the male screech owl's territorial call, which is not a screech at all (as its name would imply), but an eerie whinny or wail. These owls are quite likely to fly in if you imitate their call — something you should never do during the breeding season (spring), since you would be luring the parent away from the nest and leaving the nest site vulnerable.

The barred owl is New Jersey's least common year-round resident owl. In fact, it is a threatened species in New Jersey, due to the loss of the specialized habitat it prefers: wet wooded swamps. In the mountainous, northern part of the state, these owls also live in forested hillsides and ravines. Belleplain



© CLAY C. SUTTON

Its name derived from its long ear tufts, the long-eared owl (top) is a rare breeder and a threatened species in New Jersey.

The cacophony of calls uttered by the barred owl (above) aptly labels this bird as the "laughing owl."



© DOTTY WAXMAN



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Want to Learn More?

The New Jersey Audubon Society's Cape May Bird Observatory offers a number of owl activities including "Night Watches" during the migration (September and October), "Owl Watches at Jakes Landing" in winter (January and February) and "All About Owls: Workshop & Walk" courses each winter. The "All About Owls" courses are more in-depth and combine an indoor session (slide program on owls teaching about their habits, habitats and calls, plus a hands-on session viewing owl pellets and feathers) with an outdoor field trip combining searching for owl signs (pellets and whitewash) with time spent scanning for hunting owls at dusk. Contact the observatory (P.O. Box 3, Cape May Point, NJ 08212; 609-884-2736) for program schedule details.

State Forest in Cape May County is a stronghold for barred owls in South Jersey, as is Great Swamp National Wildlife Refuge in North Jersey. In March, listen for the male's territorial calls — a cacophony of calls aptly labeling this bird as the "laughing owl." The "who cooks for you, who cooks for you all" call easily gives their presence away. Barred owls nest in cavities in large trees and may be attracted to large nest boxes placed in a suitable habitat, especially if hollow trees are scarce.

A Great Place to Visit

Migrant owls (barn, saw-whet, long-eared and short-eared owls) reach New Jersey in late October, November or even December and remain until late February or mid- to late March.

Barn owls are birds of open country; they are attracted to farmland, pasture, salt marshes and freshwater marshes. They seldom are found in woodlands except in winter when they may roost communally in dense woods near a good feeding habitat. Barn owls nest primarily in April and May, although they have been found on nests every month of the year. While nesting, their raspy screeching calls to one another can send shivers up your spine. Barn owls prefer to nest in natural sites, like large cavities in trees, sometimes right next to active buildings. They have adapted to living close to man and often nest in barns (hence their name), abandoned buildings, silos and water

Barn owls, (top, left) with their distinctive heart shaped faces, often nest in barns (hence their name), abandoned buildings, silos and water towers.

The male screech owl's (top, right) territorial call sounds more like an eerie whinny or wail.

Unlike most owls, which are nocturnal, short-eareds (above, left) are crepuscular — active during the dim hours of dawn and dusk, and on overcast days.

The great horned owl also is known as a hoot owl, thanks to the sound of its call. Here, a great horned owllet (above, right) perches by its nest; the adult version is shown on the front cover.



© PATRICIA T. SUTTON

Many saw-whet owls winter in New Jersey, often near a bird feeder; these tiny owls, which weigh approximately 4 ounces, have a soft, repetitive, tooting call.

*Patricia Sutton is the teacher-naturalist at New Jersey Audubon Society's Cape May Bird Observatory and coauthor, with her husband Clay, of **How to Spot an Owl** (Chapters Publishing, 1994), a book sharing how and where to look for owls without disturbing them.*

towers. The premier study of breeding barn owls in all of North America is conducted right here in New Jersey, in the wide-open spaces of Salem and Cumberland counties along the Delaware Bayshore where thousands of acres of saltmarsh provide abundant rodents. Paul Hegdal and Bruce Colvin, principals in the Barn Owl Research Foundation, have studied South Jersey's barn owls since 1980. Quite a few barn owls try to winter here, but they run the risk of dying if the winter is too severe — like it was the winter of 1993-94 when ice storms hit, or last winter when snowfall was heavy. Paul Hegdal believes the barn owls that try to remain here through winter do so to be first at the prime nesting sites the following spring.

The same conditions and geography that concentrate migrant hawks at places like Cape May each fall also attract migrant owls. Cold fronts, with winds from the north or northwest, push them to the tip of the Cape May Peninsula. At Cape May Point, the nights of gentle north or northwest winds, which follow a day or two after the passage of a stormy cold front, are the nights you may witness an owl flight. Barn owls are one of the earliest migrants to move;

they are easily observable from mid- to late September until mid-November.

Near the southern limit of their range, the tiny saw-whet owl breeds in the New Jersey Pine Barrens, where white cedar swamps wind through the pines, and in the northwestern part of the state. To hear them on territory, one needs to listen on still nights in the early spring, but listen before spring peepers begin their loud incessant "peeping," or you'll never hear the saw-whet's soft, repetitive, tooting call. Hundreds of saw-whets migrate south through New Jersey each fall. The 1995 fall migration of saw-whet owls was unprecedented at Cape May and elsewhere throughout the East. An unknown number were involved, but 637 were banded at Cape May alone. Many saw-whets spend the winter in New Jersey, migrating no farther. They may winter near a bird feeder, feeding on the rodents attracted each night to the spilled bird seed on the ground, especially if the yard or nearby area has evergreens where the owl can hide by day.

The long-eared owl is an extremely rare breeder in New Jersey, but each fall long-eareds migrate south from Canada and northern states. Many of them fly this far but go no farther, taking up residence in dense evergreens near good feeding habitats (marsh, meadows, dumps, fallow fields). In winter, it may not be uncommon to find a pine or cedar tree with four or more long-eared owls roosting in it during the day; some researchers think that family groups remain together through the winter.

The short-eared owl, a ground nester, once bred in New Jersey salt marshes. Today they are gone as a breeding bird, but each fall migrant short-eareds begin to arrive as early as mid-October. Through winter they populate tidal saltmarshes along the Delaware Bay, and those behind the barrier islands. Roads onto the marsh can offer excellent viewing opportunities to study this crepuscular owl. Manahawkin Wildlife Management Area, the diked roads at Forsythe National Wildlife Refuge, Jakes Landing at Dennis Creek Wildlife Management Area and, in Cumberland County, Hansey Creek Road, Turkey Point Road and Fortescue Road all offer excellent overlooks of the saltmarsh and produce short-eareds winter after winter. Short-eared owls may be found at inland sites (such as at airports and at Alpha in Warren County), where extensive grasslands exist, as well. To find hunting short-eared owls, you'll want to scan low over the marshes and grasslands with your binoculars at dusk, looking for a headless shape that may look like a huge moth flapping about just over the grasses. When they drop down out of sight, often head first, they're actively pouncing on meadow voles.

New Jersey's eighth owl is here only in winter. The first snowy owls show up in late November and are attracted to any habitat resembling the open tundra they've come from; barrier beaches, marshes, airports, dumps and frozen lake shores are all likely spots to seek wintering snowy owls.

How New Jersey's Owls Measure Up

■ General

The elusive, secretive owl's coloring serves as camouflage, its streaked or barred chest allowing it to blend with tree bark. Its flattened facial disc reflects sound to its huge, highly developed, asymmetrical (one is placed higher on the head than the other) ears, allowing it to better pinpoint its prey. The owl sees perfectly well during the day and 10 to 100 times better than humans in dim light. Its large eyes, set on each side of the head, are forward facing, giving two overlapping fields of vision (binocular) and greater depth perception. Although its eyes are immovable in their sockets, its head can rotate up to 270 degrees in either direction. With wide wings and a lightweight body, the owl flies and glides in total silence. The leading edge of each primary wing feather is serrated to muffle sound as the wing passes through the air, and each owl feather has a soft, velvety covering to further muffle sound. Even the legs and feet are feathered on most owls to ensure a silent approach of this night predator.

■ Great Horned Owl

Our largest resident owl, the great horned has very large ear tufts, hence the name. It weighs 3 to 4 pounds, stands 21 inches high and has a wingspan of 45 inches. The great horned owl lives approximately 17 years (25 in captivity), and is a common breeder and year-round resident. Two to five eggs are laid between late January and April 20. Both the male and female incubate the single brood for 28 to 35 days until

the young hatch. Young great horned owls fledge at 3 months of age and disperse in late fall.

■ Screech Owl

Weighing in at only 6 to 8 ounces, the screech has tiny ear tufts and may be either gray or red. It stands 8 inches high and has a wingspan of 21 inches. The life span of the screech owl, a common breeder and year-round resident, is estimated to be approximately 6 years. Three to nine eggs are laid between late March and late April. Both the male and female incubate the eggs for 26 days until the young hatch. Young screech owls fledge when they are only 4 to 5 weeks old.

■ Barred Owl

The barred owl derives its name from its barred back, head, neck and chest. This large owl has no ear tufts, but has solid, dark eyes, where most other owls have a yellow iris. It weighs between 14 and 24 ounces, stands 20 inches high and has a wingspan of 44 inches. A threatened species in New Jersey, this year-round resident is an uncommon breeder and its life span is unknown. Two to four eggs are laid between late March and late April. The female incubates the eggs for 28 to 33 days until the single brood hatches. Young barred owls remain with their parents throughout summer and fledge when they are 12 weeks old.

■ Barn Owl

Barn owls have butterscotch-colored backs with darker delicate tones, and pale cinnamon to white underparts. Due to their nearly pure

white underparts, they often have been misidentified as snowy owls. This medium/large owl has a heart-shaped face and solid dark eyes but no ear tufts. It weighs between 12 and 21 ounces, stands 17 inches high and has a wingspan of 44 inches. Barn owls live from 3 to 4 years, although they can live up to 15 years in captivity. From three to five eggs are laid, usually in April and May, but these common New Jersey breeders frequently have two broods, and eggs and young can be found in March through November. The female incubates the eggs for 30 to 34 days, and the young fledge when they are between 9 and 12 weeks old.

■ Saw-whet Owl

The brown saw-whet owl has no ear tufts but a relatively large head. This 8-inch-high owl is our tiniest, at 3 to 4 ounces in weight with a wingspan of 19 inches. An uncommon breeder in New Jersey, its has an unknown life span. Three to seven eggs are laid in April or May. Both the male and female incubate the eggs for 26 to 28 days until the young hatch. Young saw-whet owls fledge when they are only 5 weeks old.

■ Long-eared Owl

The long-eared owl, a rare breeder and threatened species in New Jersey, is a medium-sized owl with long ear tufts, hence the name. The life span of this owl — which weighs from 8 to 12 ounces, stands 14 inches high and has a wingspan of 39 inches — is unknown. The female lays from four to seven eggs in mid-April to mid-May, incubating them

A short-eared owl in flight.



© CLAY C. SUTTON

for 26 to 28 days. The young fledge when they are 5 to 6 weeks old. The family group remains together throughout summer and fall, and perhaps during winter.

■ Short-eared Owl

Where most other owls are strictly nocturnal (active only at night), this migrant owl is crepuscular (active during dawn and dusk, and on overcast days). Short-eared owls are relatively small, weighing from 10 to 15 ounces. At 15 inches in height, they have a wingspan of 41 inches. An endangered breeding bird in New Jersey, their life span is unknown. The female lays from four to seven eggs between April 24 and mid-June and incubates them for 26 to 28 days. The young fledge when they are eight weeks old, although they stray from the nest at 3 to 4 weeks of age.

■ Snowy Owl

The adult male snowy owl is almost pure white, hence the name, while the adult female is white with dark barring. This huge — 3 to 4 pounds — owl has cat-like yellow irises and no noticeable ear tufts. It stands 24 inches high and has a wingspan of 60 inches. The snowy owl is an "interruptive migrant," seen in New Jersey only in the winter when its food supply in the far north is depleted. Its life span is unknown.

Freeze Frame on Winter

Text and photos © by J. J. Raia

Winter at first light. The collaboration of ice and snow with the first signs of a brightening eastern sky creates a scene of primitive natural forces like no other; a scene whose silence stifles our speech and evokes a feeling that we might be witnessing a dawn similar to the planet's first. It is these basic elements — snow, ice and light — and the same emotional spirit that influence much of my winter photography, in the scenes I seek out and in their composition.

Much of the time, I try to create simple graphic images of the stark environment, including only the sky and either snow or ice similar to the minimalist abstract expressionist paintings of Mark Rothko; therefore I am drawn to large expanses of flat terrain such as frozen reservoirs. In the predawn light, I use the reflection of the sky in the snow or ice to produce a very cold blue that, on occasion, seems to do battle with the warm glow of the approaching sun and reproduces as purple on film.

After the sun rises above the horizon, I try to use the low angle of light to add texture or to incorporate the interplay of sunlit white snow and blue shadows to augment the feeling of cold. In either case, I try to include an element in the foreground to add interest and create the illusion that you can step into the scene with the added depth.

At any time of the year, nothing adds more mystery to the landscape than fog; to include it in a scene with snow really fills the frame with emotion. When there is snow on the ground with warm, moist air generating fog almost all day, I seek locations where I can combine the stark beauty of winter with the mystery of fog.

Invariably, I end up in a forest somewhere, with a backpack and snowshoes strapped on, searching for an area where all the elements of bare trees, snow and fog come together to form a scene of quiet, somber beauty. Sometimes, I try to keep the scene monochromatic by using a stand of white birch trees, while at other times I add a small element of color to the scene — such as a beech tree holding onto a few yellow leaves over the winter, or a boulder sprinkled with bright green lichen.

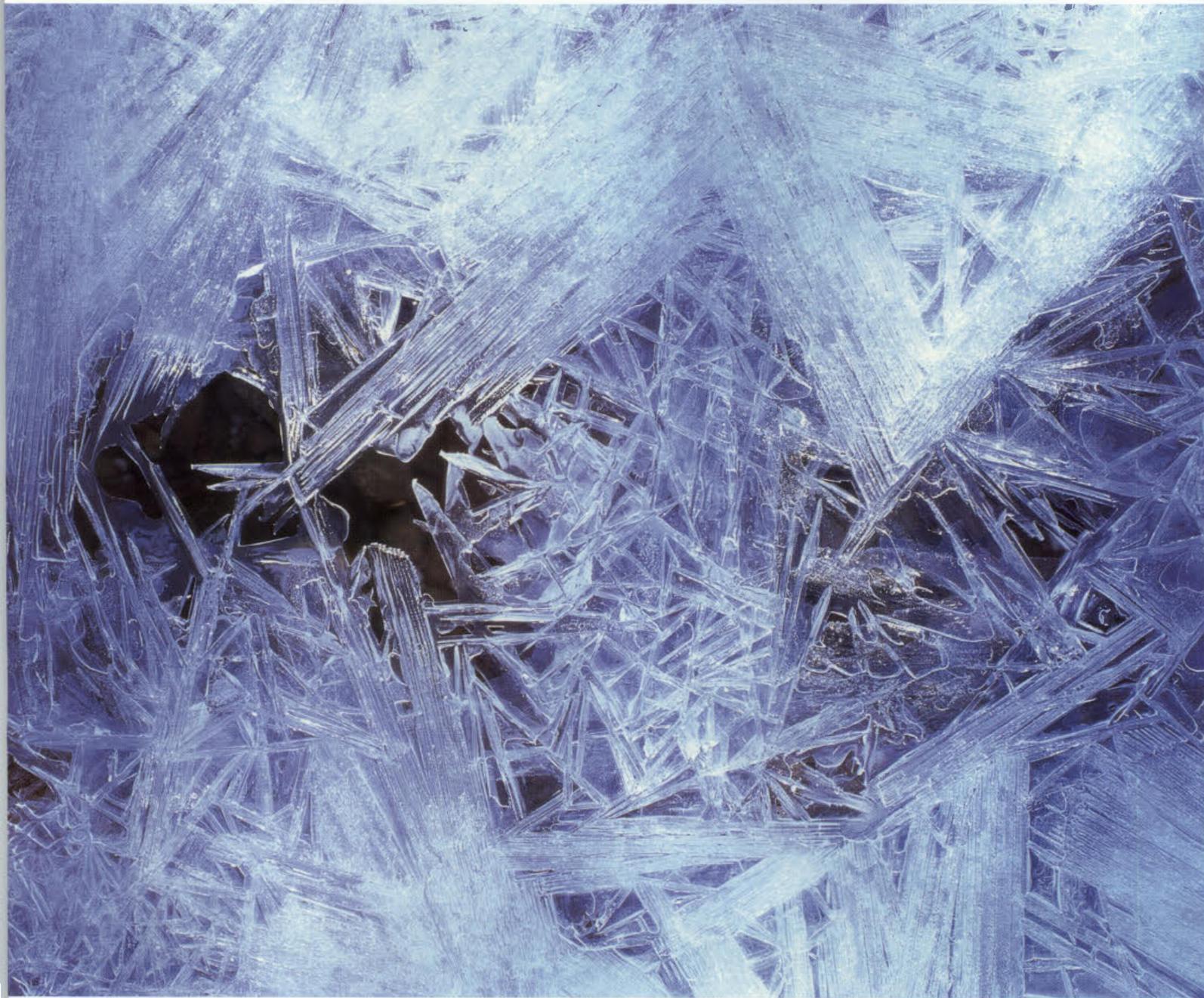
It is images such as these that illustrate the basic fights for survival going on around us that we often overlook. Although many assume that all trees will be reborn each spring, the truth is that, for many, the bitter temperatures of winter are too much to withstand and they silently surrender.

During winter, though the photographic inspirations are many, the difficulties associated with the harsh weather are not easily overcome, and it is not often that I find success during this time of year. Yet, all I can hope for is that someone viewing one of these images of ice, snow and light will have the same emotional response as I did that day, and maybe even feel a cold shiver travel up their spine.



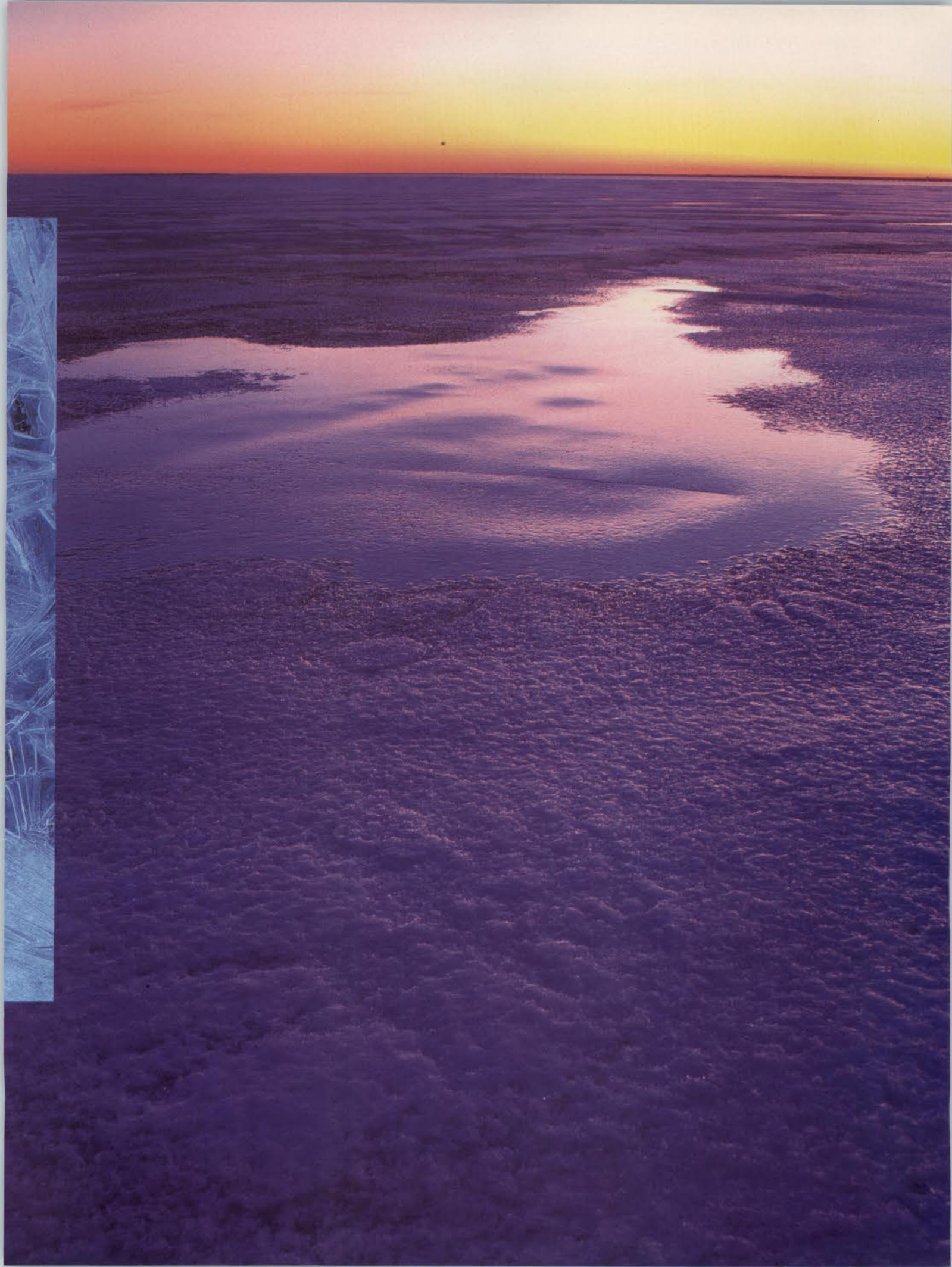


Icy waters run down Tillman Ravine in Stokes State Forest.



Winter etches its delicate designs at South Mountain Reservoir (above).

Ice patterns in the Barnegat Bay off Island Beach State Park (opposite page) invoke visions of an alien landscape.







Fog shrouded trees (left) in Merrill Park soften the icy blue bite of winter.

This solitary tree in High Point State Park (above) characterizes the solitude of winter.



A midwinter's dawn breaks over Black Brook in Spruce Run State Park (above).

Unbent by the icy fingers of winter, reeds stand tall in the fog at Wanaque Reservoir.



Waste Makes . . . Tomatoes?



Story and photos © by Cheryl Baisden

In the midst of the Burlington County Resource Recovery Facility, nestled in the former farmlands of Florence and Mansfield townships, David Specca is growing bushels of plump, fire engine-red tomatoes. They cling in weighty clusters to his carefully tended plants, offering little resistance when gently tugged from the vine and — no matter what time of year they are planted and harvested — they are guaranteed to be as sweet and juicy as ripe Jersey tomatoes in mid-summer.

“The initial reaction everyone has when they hear about us is that we’re out here planting tomatoes on a landfill,” said Specca, a devilish grin sweeping across his face. “They think our plants are rooting into trash and that we’re growing giant vegetables here. It isn’t until we explain what we’re about, or take them on a tour of the place, that people really see past their surprise at our location.”

The truth of the matter is that the Burlington County Research and Demonstration Greenhouse was erected at the Resource Recovery Complex for a very good rea-

son. Specca, employed by Rutgers and serving as director of developmental programs, plans to use the landfill’s methane gas emissions to power the 46,000-square-foot operation. By using an alternative fuel source, state-of-the-art greenhouse technology and a growing technique developed at Rutgers, Specca hopes to prove that greenhouse tomatoes can be profitably grown in New Jersey year round.

Funded by the Burlington County Board of Chosen Freeholders and the New Jersey Economic Development Authority, the greenhouse is a joint venture between the county, which owns and operates the Resource Recovery Complex, and the New Jersey EcoComplex. The EcoComplex is a partnership of Rutgers, Stevens Institute of Technology, Stockton State College and Burlington County College agriculturists, and it is the nation’s first experiment station for environmental research and technology transfer, according to Dr. Harry Janes, director of the EcoComplex.

“We all believe there’s a way to produce Jersey tomatoes throughout the year, and to make use of alternate energy sources at

January through March is the region’s traditional dead time for greenhouse tomatoes.

the same time,” Specca said. “There’s no reason why we can’t be growing tomatoes in greenhouses 12 months out of the year, even from January through March, the region’s traditional dead time for greenhouse tomatoes.”

During the winter months, tomatoes are imported rather than grown locally; unless the Burlington County experiment proves financially successful, well traveled tomatoes likely will continue to be New Jersey’s cold weather staple.

“It’s not that growers haven’t thought about the possibility of growing tomatoes during those months,” Specca explained. “However, greenhouses are heavy energy consumers. Light is the single most limiting factor impacting winter production and heating costs are significant. Greenhouse tomato production is also a labor intensive process. The system is designed to resolve these problems so that we can bite into a Jersey tomato any time we want.”

Bill Haines, a Burlington County freeholder, said county officials were attracted to this project for three reasons. First, the use of methane gas makes economic and environmental sense. Second, the project promotes agricultural

In the beginning . . . seedlings (opposite page) planted in hydroponic rockwool blocks rest on tables that easily can be rolled on an intricate hydraulic track from one section of the greenhouse to another, bringing the plants to the workers for pruning, harvesting and, ultimately, disposal.

The end result . . . plump, juicy tomatoes (left), bursting with “Jersey Fresh” flavor.



opportunity in New Jersey. Third, the highly mechanized system allows employment of handicapped people from the Burlington County Occupational Training Center.

"The greenhouse represents a partnership between academia and government that will benefit Burlington County and agriculture over the near and long term," said Haines. "And, along the way, it will mean rewarding jobs for people with specialized skills."

A Plant for All Seasons

The first wispy tomato plants poked their leafy heads through the greenhouse's hydroponic growing material last January, many weeks after the traditional New Jersey tomato growing season had ended. Ninety days later, Specca's staff of five handicapped workers and a single supervisor were plucking ripe fruit from the vines.

The state-of-the-art greenhouse is nestled in former farmlands.

Although still in the early stages of operation, the greenhouse project already has produced some positive results. Buds open on Burlington County's plants six weeks after the seeds germinate, while in the traditional greenhouse setting the process takes eight weeks, Specca said. The mature fruit, which tends to weigh in at one-third to one-half of a pound in other greenhouses, ranges from one-half to three-quarters of a pound here. Yields per square foot also are slightly higher at the Burlington County facility than in traditional greenhouses.

The downside is that constructing a state-of-the-art facility, equipped with everything in place at the test site, could cost a grower approximately \$25 a square foot, compared to \$15 a square foot for a traditional greenhouse. And, unless the building has a source of low cost electricity, operating costs still might make winter pro-

duction financially prohibitive.

"With all of this in mind, we'll need several years of study to test the concept," Specca admitted.

Methane May Power Costs Down

Specca speaks from experience. Although his greenhouse's heating and lighting costs ultimately will be covered by harnessing a portion of the methane gas released from the nearby landfill, the co-generation unit, which will provide methane-fueled heat and electricity, is not yet up and running.

"The system still may be practical for a grower who doesn't have access to methane gas, but it will take time for us to determine that," said Specca. "The thing is that there is plenty of methane available. Landfills and sewage plants are required by law to have a collection sys-



tem in place to extract the methane gas. Most of them just run it to a big flare and burn it off. Our idea is to make use of it.”

In New Jersey, an estimated 140 methane gas-generating facilities exist, capable of powering many acres of greenhouses, according to Specca.

But methane gas as an alternate energy source isn't the only agricultural innovation the greenhouse operation is utilizing.

Single Cluster; Several Benefits

Unlike traditional tomato growers, who allow their plants to grow on vines and generate multiple clusters of fruit, the Burlington County Greenhouse prunes its plants so that each produces a single cluster. The process has been researched by Rutgers for a decade, and was developed to save space, reduce labor needs and increase the fruit size.

“Traditionally, the biggest problem with growing tomatoes has been that the process is very labor-intensive,” Specca explained. “The vines have to be lowered for picking or the workers have to do some major maneuvering to reach the fruit. None of that is necessary with our system.”

By pinching off the shoots as they sprout from the main stem, a plant can be maintained at a height of less than three feet. More of the plant's energy is then directed toward the production of a single cluster of fruit. Once the cluster has been harvested, the plant is composted and quickly replaced with a new one.

To maintain constant production, three growing stations have been established in the greenhouse. One caters to the special needs of seedlings; a second handles the plants once they have matured for five weeks. Later, they make their way into the main greenhouse to fully mature.

By maintaining smaller plants, the Burlington County Greenhouse also has made it easier to provide the tomatoes with the proper lighting levels in the winter months.

Let There Be Light

Specca lights his plants for 16 hours a day in the winter months, using high-pressure, 430-watt, sodium lamps mounted nine feet overhead. Each lamp lights a 50-square-foot area.

With the guarantee of low cost, methane-powered energy, tomato plants can be heated on summer evenings to control fungus problems. When the sun goes down at the end of a hot, humid day, the humidity in the greenhouse can rise to 100 percent, Specca explained. If heat is pumped into the building to dry out the air, the humidity can be reduced to a desirable level. Without the methane power, growers may have to resort to chemical fungicides. A computer-automated overhead heating and fogging system, and an energy shield of alternating strips of aluminum foil and plastic, help control the greenhouse conditions as well, but the most unusual feature of this facility is the heated floor.

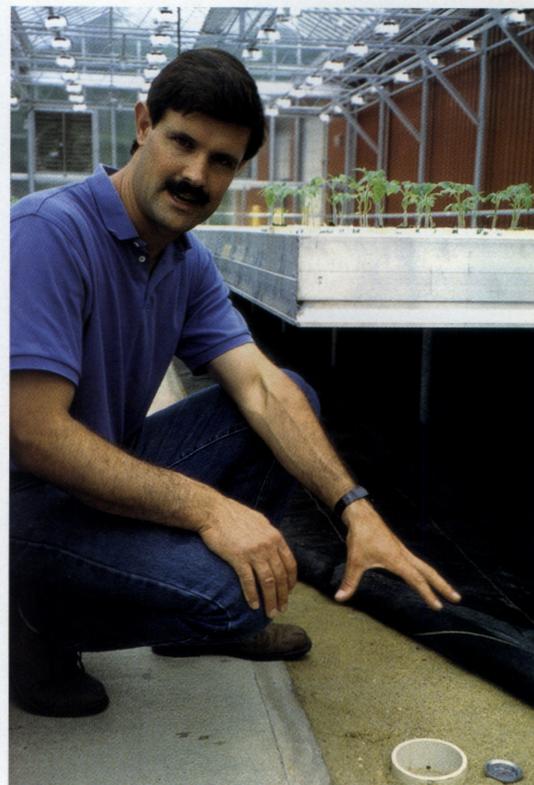
“In our floors we have 12 inches of damp sand on a water-tight liner,” Specca explained. “Buried in the sand are heat pipes that keep the place warm and moist at the same time. It just radiates in here, and it's all regulated by the amount of hot water the computer sends through the pipes.”

Technology Lends a Hand

To help reduce labor costs, the greenhouse uses moveable tables and continually recycled self-watering irrigation systems which minimize the manpower requirements for the one-acre site. Each of the 376 tables, where the plants are grown in hydroponic rockwool blocks, easily can be rolled on an intricate hydraulic track from one section of the greenhouse to another, bringing the plants to the workers for pruning, harvesting and disposal.

Even pollination is taken out of the workers' hands with the use of bumblebees.

“Normally in a greenhouse the grower would have to come in at the right time of day and vibrate the plant to get the pollen to drop,” Specca said. “The bee-



Dave Specca points out the methane gas line that will provide heat and light for the Burlington County Research and Demonstration Greenhouse.

hive technology we're using here is relatively new to the industry, and it works very well.”

Waste Not . . .

The combination of technologies employed by the Burlington County Greenhouse is unique in the world of agriculture, but Specca already has plans to expand the project.

“We have this unused area under the tables, which is about 10 feet wide by 2 feet high by 150 feet long,” he said. “We're looking into developing an aquaculture program to make use of the space, turning the area into tanks using pool liners and raising ornamental fish. We figure if we've got the space, why not use it. That's what this whole thing's about, making the best use out of what we've got.”

Cheryl Baisden is a freelance writer from Collingswood.

Tracking the Elusive Bobcat



A tawny brown bobcat loped out of the early morning haze and paused when he caught the scent of another cat. Cautiously, he approached and sniffed his way around the odor before fading back into the trees.

A few hours later, Mike Valent and Jim Sciascia, Division of Fish, Game and Wildlife biologists, arrived to check the site. The only evidence of the bobcat's visit, meticulously noted by the team, was the trail of paw prints in the soft dirt.

The cat, which is a member of the lynx group, was among 11 bobcats whose paw prints were found around scent posts the division's Endangered and Nongame Species Program (ENSP) had placed in the Highlands of northern New Jersey in October 1995 with the help of volunteers from the N.J. Fur Harvesters and the N.J. Trappers Association. The pilot project was the first step in determining the status, in New Jersey, of these most elusive of cats. Not since the 1970s, when it was believed there were none or, at best, very few in the state, had any attempt been made to document the numbers or whereabouts of the bobcats.

Between 1978 and 1982, 24 bobcats were captured in Massachusetts and Maine and brought to New Jersey for release in Sussex, Passaic and Warren counties. "A few were tracked with radio-collars," Valent said. "By the early 1980s, some had left the state for Pennsylvania and New York, but consistent sightings after the releases confirmed that some of the cats remained in the release areas of North Jersey."

Sciascia said sightings have increased over the last five years and the geographical area of the state where bobcats are being seen has grown. Unfortunate proof of their continued presence in the state also exists in the way of cats being found dead along our highways, including a 1995 recovery from Sparta and a 1996 recovery from Route 80 near Fairfield.

Wild and Independent

Bobcats are handsome creatures. The head, back, sides and outsides of legs are light brown or gray, and the underbelly is as white as snow with irregular blotches of black. The coat is dotted all over with black spots and black bars are noticeable on the front legs. A striking ruff and tufted ears rim its face. The distinctive "bobbed" tail is only 4 to 8 inches long and is tipped in black.

An adult male is about 35 inches long from nose to tail. Approximately 20 inches tall at the shoulder, he weighs in at an average of 22 pounds, although some exceptionally large cats weigh 45 pounds or more.

They utter a variety of sounds from loud purrs to caterwauls. When a bobcat runs, he has an ungainly bounding gait, but he can climb well and leap into the lower boughs of trees.

"As a rule, bobcats are loners," Sciascia said. "They each stake out a home range that becomes their regular beat."

"They're generally active under the cover of night," Valent added. "They are solitary, silent stalkers of their favorite prey, rabbits, but also will take birds and other mammals ranging in size from mice to deer."

Valent said they are usually secretive animals, making it that much more difficult to monitor them. In some cases, they live on settlement edges, with local residents none the wiser. This is quite a feat, considering the thousands of people who hike through the state's open spaces each year.

The stub-tailed bobcat is one of the wildest of wild animals native to North America. Sometimes called wildcats, they free-range over most of the U.S. and southern Canada.

Using Scent to Survey

The 1995 scent post survey conducted by the ENSP was the first step in collecting enough information to determine the bobcat's current status and future prospects in New Jersey. Twenty-six survey routes, each consisting of 10 scent post stations spaced .3 miles apart, were established throughout the northern half of the state where sightings were recorded.

Scent post stations were created by clearing a 3-foot circle of its foliage and covering the

The stub-tailed bobcat is one of the wildest of wild animals native to North America.

This bobcat (opposite page) was tracked quite easily — at the Cape May Zoo!

Winter is the ideal trapping season, since food supplies are at their lowest and the cats are lured more easily.

circle with sand, which was leveled and smoothed. Cotton swabs soaked in urine from caged cats were then set in the middle of the circle.

Bobcats visited nine separate survey routes scattered through the Highlands and the Kittatinnies. The bobcat tracks counted and measured in the scent post circles that fall were determined to be from 11 individual cats. Bobcats were recorded as far north as High Point and as far south as Hunterdon County.

Collaring the Subjects

The next step in the project is to get radio collars on at least four cats and follow their movements for one year. Custom-made traps were to be set on the Kittatinny Ridge early last winter, but a delay in their construction and harsh winter storms postponed attempts to capture the cats.

The traps finally were set in March 1996. Early every morning, division staff or Wildlife Conservation Corps volunteers hiked in to check the traps for their evasive quarry. The traps were successful in capturing raccoons and a gray fox, but no bobcats. The traps were removed in April, when the females start giving birth to kittens.

The biologists predict that, under ideal conditions, it can take as many as 100 trap nights to catch a single cat. Sciascia explained that 10 traps left out for 10 nights equals 100 trap nights. "Although bobcats have been captured in cage traps in other studies, the number of captures using these traps is very low in comparison to the number of nights they are set," Sciascia said. "We suspect our success rate will be better when we trap this winter, when the food supply is low and the cats will be more willing to risk entering the cages for a free meal," he added.

Most breeding occurs in February and March. The males wander over a larger home range at this time, sometimes 10 to 25 miles, emitting nightly yowls in search of females. By April or May, the pregnant female finds a protected den in a hollow log, rock crevice or thicket and constructs a lair of dry moss or leaves.

The female drives off her mate before giving birth; later, when the kittens are weaned, she permits him to help bring them food. Average litters are two to five kittens a year, usually born after a gestation period of 60 days. After several weeks, the mother will leave the litter alone while she hunts, bringing her kills to the den to feed them.

"We don't like to risk catching a mother cat during this time because we don't want to leave the kittens vulnerable by keeping their mother away from them," Sciascia said.

Soon the mother cat brings live rodents or rabbits to the den and the youngsters learn to make their own kills. By fall, the family disperses to stake out their own territories.

The ENSP biologists had intended to wait until winter before putting the cages out again, but a phone call in June changed that plan.

"On the spur of the moment we set several cage traps again the week of June 10, when we received a report from a homeowner who saw a bobcat and her kittens cross the property on several occasions," said Sciascia. The sighting was in Oxford, Warren County.

The cage traps they set actually are two cages back-to-back with a small cage wired between the two containing bait, in this case, a live chicken.

"The intent is to lure the cat into one of the cages where it springs the door to get at the chicken," said Sciascia. He was hopeful about catching this bobcat or one of the juveniles. The radio collars would have allowed the biologists to garner valuable information on habitat use and dispersal movements of the juveniles.

However, after several weeks without a capture, scent posts near the traps revealed the cats were passing by, apparently not hungry enough to risk entering the strange cages. Winter is the ideal trapping season, since food supplies are at their lowest and the cats are lured more easily. This site and others in Warren and Sussex counties will be trapped intensively this winter in an effort to capture and radio-collar bobcats.

"There is recent evidence bobcats still exist in the Pine Barrens and in habitats near the Delaware Bay," Sciascia said. "Our Wildlife Control Unit has confirmed bobcat presence at



Division of Fish, Game and Wildlife biologist Mike Valent checks a scent station for tracks. The foil square hanging from a tree branch directly over the scent station serves as a visual attractor.

Colliers Mill through scent post tracking, and we had very reliable sightings from Atlantic and Cumberland counties.” If the pilot project to capture and radio-collar cats in North Jersey is successful, the ENSP hopes to expand this project to the Pines and Delaware Bay.

Technology to the Rescue

The data gathered will be added to a pool of data the ENSP has been collecting over the past three years as part of its Delaware Bay and Highlands Landscape projects. Information about endangered and threatened wildlife habitat is being combined into a computer data base with other natural resource information to define critical ecosystems. Geographic Information System technology is being used to produce composite maps delineating critical habitats.

“In the past, land management and protection has been handled on a site-by-site basis,” Sciascia said. “To an animal, habitat does not end with property lines. Our Landscape project was created to provide the regional perspective needed to preserve ecosystems that cross many boundaries, management objectives and human uses.”

The information from the Landscape projects will be made available to land planners, zoning boards, environmental commissions, state land managers and regulators. It also will be a valuable asset to developers who will know critical areas before investing time and money in a project.

“If we can provide a clear picture of rare species habitat requirements, land managers, planners, developers and regulators will have the tools they need to keep important habitats intact,” said Sciascia. “Preserving and maintaining suitable habitat is the biggest problem affecting all endangered and threatened species.”

Initiatives like the Landscape project are intended to keep the bobcat from becoming a memory like several others of New Jersey’s great predators. “At one time, we had predators like mountain lions and wolves that balance prey species populations,” said Sciascia. “Now, the top predators are the coyotes and bobcats. It’s like a house of cards; you can remove some, but if you remove the wrong one, or too many, the house collapses. To a lot of us, knowing bobcats still exist in the state is reassuring. Just knowing they’re there means there’s good habitat left in New Jersey.”

Once, it was what we could take from nature that made our lives richer. Now, it is what we give back to nature that will make our land a better place to live.

Christine M. Graef is a freelance writer from Mendham.

Getting Older *and* Better:

NJWEA

by John Laurita

State Street's cobblestones were alive with the sounds of passing Model Ts, Mercers and trolley cars as Clyde Potts made his way to the State House in Trenton for the first meeting of the newly formed New Jersey Sewage Works Association (now known as the New Jersey Water Environment Association). On that day in 1916, he probably never envisioned that the group he helped put together still would be going strong in the 1990s.

Potts, along with Dr. R. B. Fitz-Randolph and Chester Wigley, founded the organization in 1915 and proudly proclaimed it to be "the world's first organized sewage works association." These three men, who were pioneers in the developing water pollution control industry, held responsible positions in New Jersey's public health program. Understanding the relationship between wastewater treatment problems and public health and the environment, they had moved to create a forum for exchanging ideas and knowledge with others experienced in the field. Hence, the association was born.

The association's Adopt-a-School Education Program encourages members to provide treatment facility tours for students. Dr. Donald Dorfman and his Monmouth University ecology class observe the Township of Ocean Sewerage Authority's flow measurement flume during a tour given by Superintendent Tom Meholic.



PHOTOS COURTESY OF TOM MEHOLIC

John Downes — who, in 1915, was one of less than a dozen trained sewage treatment plant operators in the entire county — was elected the first president of the association. He subsequently chaired the publications committee, served for 22 years as the association's secretary and represented New Jersey on a committee established to make recommendations regarding the formation of a national association. Downes also was instrumental in obtaining the state association's recognition of regional groups (sections) and in promoting operator training and research.

In its early years, the organization focused mainly on public health and water pollution control and abatement issues. However, as environmental concerns grew, the group expanded its charter to address new challenges such as managing sewage sludge and treating and handling industrial and hazardous wastes. While undergoing the various changes needed to keep current with newly discovered environmental problems and technological advances, one function has remained constant — the development and maintenance of a strong public education network. Without this network, the association's founders knew many environmental improvements would not be possible — a fact that remains true today.

Today, more than 2,000 members strong, the organization continues to promote the constitution ratified by its 22 charter members on January 16, 1916 — that of "advancing the knowledge of water quality issues and wastewater treatment, and the friendly exchange of information and experience."

Although initially made up primarily of wastewater treatment plant technicians, the association's present membership is much more diverse, including college professors, students, professional engineers, environmental consultants, environmental interest groups, accountants, attorneys, and municipal, county, state and federal government officials and administrators.

NJ's Largest Ongoing Recycling Project

One of the organization's key messages is the need to continually recycle and protect our state's valuable water resources. Although we most often think of recycling in terms of cans, bottles and paper, water also is used and reused many times over.

"Many people don't realize that wastewater treatment represents the largest ongoing recycling project in New Jersey — that of transforming billions of gallons of (used) water per day into a reclaimed product — clean water," says Dr. Richard T. Dewling, a past commissioner of the Department of Environmental Protection and former president of the association. "It's easy to forget about the water that runs down toilet, sink and bathtub drains, but this water is put through a complex treatment process so that

Association members Rob Villee (left) and Tom Meholic (right) demonstrate another form of education and public outreach as they explain the wastewater and biosolids process to attendees of the Monmouth County Girl Scouts Environmental Expo at Brookdale County Community College.



are held in the Rutgers State Training Center and at other locations throughout the state.

■ **Information Seminars** The group hosts numerous conferences and seminars throughout New Jersey every year on technological improvements in the wastewater field and changes in government regulations and programs. These sessions are available to members and interested parties at a very nominal charge.

Leaders at Home and Abroad

Reflecting on the association's history, on the occasion of its 75th anniversary celebration, former president George Bush wrote, "Your organization has long been a dedicated advocate of pollution control, and I encourage you to hold to your high standards of preserving the quality of water in the state of New Jersey. Thanks for giving your hearts and your talent to this extremely important effort."

New Jerseyans are very fortunate to have this group of talented and dedicated volunteers working hard behind the scenes to improve the state's water quality and can take pride in knowing it was the first organization of its kind in the world. The New Jersey Water Environment Association, which now numbers some 2,200 members, was the catalyst for the formation of the 44,000-member international association.

For more information about programs and activities, contact John J. Lagrosa, executive director, at 201/670-5576.

John Laurita, a DEP Division of Water Quality employee who lives in Hamilton, authored this article with contributions from the association's historian, Robert A. Rowe, and public relations chairman, Ron Sackowitz.

it can be safely returned to the environment," he says.

In another area, the group is involved with advancing wastewater treatment and hazardous waste management technology. Annual conferences feature discussions and workshops with government and industry experts covering a wide array of pollution control related topics. Manufacturers and distributors of pollution control equipment are also on hand, showcasing the field's latest products. Over the years, the size of the conference grew so rapidly that 1927 was the last year it could be accommodated in the State House. Similarly, the conference outgrew Trenton's hotels by 1950 and today only a few hotels in Atlantic City are big enough to serve the more than 2,000 attendees, 200 exhibitors and 75 technical speakers (making it one of the largest state environmental conferences in the United States).

Early Partnership Still Going Strong

As expressed in its constitution, the association is chiefly involved in promoting education. But this education is not limited to exchanges taking place at annual meetings; it is directed through many channels. For example, back in 1920, the group formed a partnership with Rutgers University to share information and research data. This helped lead to the formation of Rutgers' Environmental Science Department, which is celebrating its 75th anniversary this year. There, the organization's educational activities include:

■ **Network** In 1990, the association donated its archives and library collection to Rutgers, making it one of the first associations in the United States to set up an endowment of its environmental information and history. This year, an audio/video library was established at Rutgers. This collection covers various environmental topics in formats suitable for students of all ages. It has been made available to more than 350 public libraries across New Jersey.

■ **Adopt a School Program** Aimed at science teachers and schoolchildren in grades five through nine, this program fosters an awareness and understanding of the complex water quality issues facing society today. To share experiences and information on environmental issues, the program matches environmental professionals and organizations wishing to "adopt" a school with elementary and middle schools in every county in New Jersey. To assist in the learning process, the group provides educational videos, teacher guides and student workbooks for in-class exercises. These materials are made available to teachers and school principals through the County Audio Visual Aids Commissions.

■ **Scholar Awards** Each year, the organization provides monetary awards to 10 undergraduate and graduate engineering and environmental science students pursuing careers in the environmental field.

■ **Operator Training** Funds for training courses are awarded to 12 wastewater treatment technicians every year. The courses

Story and photos © by Pete McLain

White perch are sometimes caught two at a time, but here an angler hooks a lone one.



With the near zero temperatures of late December, the fishing in New Jersey reaches a yearly low. However, under a layer of ice on the tidal Mullica River, just west of the Garden State Parkway at mile post 48 near Port Republic, the fishing becomes sizzling hot. What may be the best white perch fishing on the East Coast is a spectacle you must experience to believe; catches of 100 pounds of white perch are not unusual.

One of the best parts of the winter white perch fishing is its easy accessibility from the Port Republic Wildlife Management Area, where a parking area and short trail lead to the ice. Bait, tackle and current fishing information are available at the nearby Chestnut Neck Boat Yard.

Why is the white perch fishing so good in the Mullica River? In the 1950s, when the Garden State Parkway was being constructed, dirt was needed to build the approach to the parkway bridge over the Mullica River. A tremendous hole — 35 feet deep and covering about five acres — was hydraulically dredged in the five feet of water in Collins Cove to supply the fill.

It's reported that a couple of anglers from Philadelphia tried ice fishing in Collins Cove and caught a bushel basket of white perch in a few hours. The local people quickly seized on this off season fishing and, within a week, the town of Port Republic was vacant on weekends — everyone was perch fishing.

What attracts these tremendous schools of white perch to this small area? State fishery biologists report that, as the river water cools in December, it flows over the warmer waters in the dredge hole, trapping the 10- to 15-degree warmer water beneath it. This water attracts small bait fish and other food. The white perch move into the warmer water in the dredge hole to feed. They remain in the hole until the water begins to chill down in early March, when it approximates that of the river's current. At this time, the perch move out of the cove and spread out up and down the river, where they attract anglers in the spring and fall. Here is a case of a manmade habitat disturbance actually resulting in a fishing bonanza in December, January and February.

Ice fishing in the Mullica River at Collins Cove is dependent on the weather. Some years there are three to four inches of walking ice in late December; other years there may not be fishing ice until January. There have been occasional warm winters when there is no walking ice. However, anglers using boats to anchor in Collins Cove can have super white perch fishing.

Tricks of the Trade

Ice fishing for white perch can be as simple or complicated as you care to make it. Most anglers use a short three- to six-foot, light action spinning rod, with four- to eight-pound test monofilament line and number six beaked hooks. A few split shot lead sinkers take your baited hook down. Some of the best baits are live grass shrimp, small saltwater minnows or small bits of bloodworms.

Most anglers chop holes in the ice with axes or hatchets; others use ice augers, and a few have been using gasoline augers to cut through the ice, which at times is more than 5 inches thick.

The real trick to catching the white perch is to present your bait or lure at the depth where the fish are feeding. Some days, the fishing may be 10 to 20 feet deep; other times, the perch may be above or below this depth. One way to find the fish is to allow your bait to sink to the bottom and then slowly fish your way up until you get a bite and catch some fish. Now mark your line and put a bobber or float at that depth to maintain your bait in the fish zone. Some

Ice fishing for white perch can be as simple or complicated as you care to make it.

Remember that loud walking on the ice, chopping holes or any other unnecessary noise will turn the fish off and they may move to a quieter area of the cove.

anglers count the turns of their reel's handle until they get a bite and then use the turns to relocate the school.

Portable electronic depth finders and flashers are excellent for probing the water's depth; watch for a secondary flash on the unit's dial or marks on the paper indicating that the schools of fish have intersected the sensitive beam of the depth finder. This is a sure way to quickly find where the fish are moving.

White perch have a strong strike and usually hook themselves. However, some anglers prefer to wait a few seconds before lifting their rod tip to set the hook. As the fishing season progresses, some anglers drop down to a four-pound test monofilament line to reduce line visibility to the fish. The perch range from a half pound to an occasional two-pound specimen. The average white perch would be a little more than a pound and 15 inches long. They are excellent when eaten fresh from the water.

A New Jersey fishing license is not required for this saltwater fishing hole and there is no size or creel limit on white perch.

Don't Tread on Thin Ice

Above all, anglers who fish for white perch on the Mullica River need to understand saltwater ice and the effects of the five-foot rise and fall of the tide, tidal current and how a bright winter sun might affect the ice.

Saltwater ice is not as hard and stable as freshwater ice. A strong wind or tide can move the ice several feet away from the shoreline, making getting off the ice impossible without a long plank or a small boat. It's a good idea to carry a length of rope in case someone falls through and needs help. Never trust dark-colored ice.

The best advice before going out on the Collins Cove ice is to check with the local tackle shop on the ice conditions. If the report is "unsafe," believe it. People may be fishing on ice that is marginal for safety; don't be one of them.

A day of ice fishing when the thermometer's mercury is in the teens and there is a stiff northwest wind can result in some serious chill factors. Always dress in layers of warm clothing under a windproof jacket. Insulated boots, a hat with ear flaps and the use of a face mask will make life more comfortable while you are out fishing. Some anglers bring portable fishing shanties and others use sheets of plywood as wind breaks; still others may use small tents with catalytic heaters.

When parking at the Port Republic Wildlife Management Area parking lot at Collins Cove, respect the signs and do not try to drive out on the short trail to the ice. The marsh is soft and you may become stuck or mired down behind another vehicle. The state conservation officers will give summonses to those not using the parking lot.

Remember that loud walking on the ice, chopping holes or any other unnecessary noise will turn the fish off and they may move to a quieter area of the cove. At the peak of the perch fishing, several hundred anglers may use Collins Cove; you might have more luck if your ice hole is well removed from the crowd. Weekdays are the best time to fish to avoid the crowds. Some anglers feel the fish bite best on a strong west wind on a cold front. The trick is to go whenever you can (where the ice is safe) and take your chances. The chances are really good you will catch a nice string of white perch in a hole on the Mullica River.



White perch
have a strong
strike and
usually hook
themselves.

A small depth finder, which also serves as a fish finder, works fine in locating the bottom of the hole and the depth of the schools of fish.

To reach Collins Cove, take the Garden State Parkway to Exit 48. Go south on Route 9 for one-quarter mile to Route 575; go right and follow this road for three miles to Clarks Landing Road. Go under the Garden State Parkway Bridge and turn right on the first road at the sign for the Port Republic Wildlife Management Area. Follow this road for about two miles to the parking area.

For the latest information on ice and fishing conditions, call the Chestnut Neck Boat Yards at 609/652-1119.

Pete McLain is a freelance outdoors writer who lives in Toms River.

Events

Ongoing

Family Nature Programs

Every Sunday, Jan. - May and Sept. - Dec.; 2 p.m.; Trailside Nature & Science Center, 425 New Providence Road, Mountainside; 908/789-3670

Planetarium Shows

Every Sunday except Easter (March 30); 2 and 3:30 p.m.; Trailside Nature & Science Center, 425 New Providence Road, Mountainside; ages 6 and up; \$3/person, \$2.55/seniors; 908/789-3670

Nature Classes

Every Wednesday through Sunday, year round; various exciting, fun-filled learning activities centered on farm life and wildlife rehabilitation; 10 a.m. to 4 p.m.; PAWS Farm Nature Center, 1105 Hainesport-Mt. Laurel Road, Mt. Laurel; reservations requested for large groups; admission: \$3/adults, \$2 children; classes: \$3.50; 609/778-8795

Weekend Natural Science

Adventure and Discovery Activities

Every weekend, all year long; half-hour programs include: a naturalist on the observation deck at 10 a.m. and 1:30 p.m., a Cattus Island slide show at 10:30 a.m., a tropical slide show at 11 a.m., turtle/fish feeding and a snake talk at 1 p.m., and a nature walk at 2 p.m.; Cooper Environmental Center, Cattus

Island County Park,
1170 Cattus Island
Blvd., Toms River;
908/270-6960



New Jersey Outdoors

January

1

New Year's Day Hike

Join the 12th annual New Year's Day hike along the Paulinskill Valley Trail in Kittatinny Valley State Park; 10 a.m.; Footbridge Park (turn in at entrance designated by a small white sign with black lettering), Route 94, Blairstown; bring lunch and something to drink; 908/852-0597

Hubble Space Telescope Exhibition

(through Feb. 5) 9 a.m. to 4:45 p.m. on Tue. through Sat., Noon to 5 p.m. on Sun.; NJ State Museum, 205 W. State St., Trenton; 609/292-6464

Nikon's Small World 1996

(through March 2) An exhibition of 20 prize-winning photomicrographs depicting crystal growths, mineral inclusions, tiny animals, liquid droplets and more; 9 a.m. to 4:45 p.m. on Tue. through Sat., Noon to 5 p.m. on Sun.; NJ State Museum, 205 W. State St., Trenton; free; 609/292-6464

1-5

The Grand Christmas

Exhibition at Wheaton Village

10 a.m. to 5 p.m.; Route 55, Millville; \$6.50/adults, \$5.50/seniors, \$3.50/students, free/children under 5; 800-998-4552 or 609/825-6800

4-5

Maple Sugaring

(also every Sat. & Sun. through Feb. 23) Learn how to find a maple tree and how to tap it, then take a walk to collect sap and see the evaporator and, finally, taste test three different kinds of syrup; 2 p.m.; Great Swamp Outdoor Education Center, 247 Southern Blvd., Chatham; 201/635-6629

11-12

Maple Sugaring

(see Jan. 4-5)

18-19

Super Science Weekend

Hands-on activities, demonstrations, exhibits and more; 9 a.m. to 5 p.m. on Sat., 11 a.m. to 5 p.m. on Sun.; NJ State Museum, 205 W. State St., Trenton; free; 609/292-6464

Maple Sugaring

(see Jan. 4-5)

19

Winter Wonderland Walk

Learn how plants and animals cope with cold and snowy weather; 3 p.m.; Whitesbog Village, Mile Post 13, Route 530, Browns Mills; \$4/person, \$9/family; ages 10 and up; light snacks available; 609/893-4646

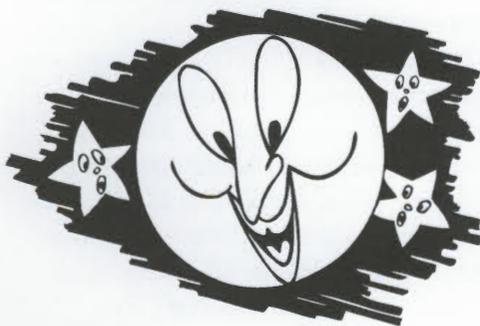
25

Rutgers University Geology Museum Annual Open House

Presentations on geologic topics, mineral sale, rock and mineral identification, exhibits of NJ minerals, fossils, geology and the meteorite from Mars; 9 a.m. to 4 p.m.; corner of George & Somerset Sts., New Brunswick; free; 908/932-7243

Full Moon Hike

(also Feb. 22 and Mar. 22)
A 4- to 6-mile hike led by a botanist; 7 p.m.; Whitesbog Village, Mile Post 13, Route 530, Browns Mills; \$4/person, \$9/family; ages 10 and up; light snacks available (609/893-4646)



25-26

Maple Sugaring

(see Jan. 4-5)

February

1

Great Environmental Magic Show

(also on Feb. 4) A 75-minute show featuring illusions, stage magic, humor and audience participation; 10:30 a.m. and 3:30 p.m. on Sat. and 6:30 p.m. on Tue.; Somerset County Environmental Education Center, Lord Stirling Rd., Basking Ridge; reservations are required; 3:30 p.m. show on Feb. 1 will be ASL interpreted; call in advance to make arrangements for group shows, which will be presented Jan. 28 to Feb. 7; \$3/person; 908/766-2489; TDD number for the hearing and speech impaired is 908/766-2575



1-2

Maple Sugaring

(see Jan. 4-5)

2

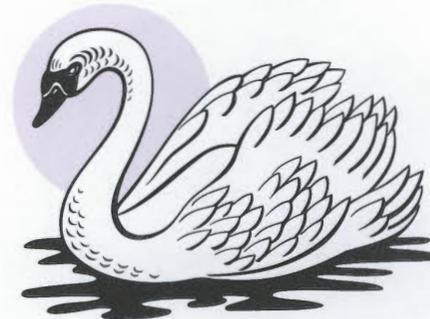
Kaleidoscope Kids Family Day

(also on Mar. 2) Hands-on workshops for children ages 6-12 and their families; Noon to 5 p.m.; NJ State Museum, 205 W. State St., Trenton; \$3/day/child, free/adults; 609/292-6464

4

Great Environmental Magic Show

(see Feb. 1)



8

Whistling Swan Tour

Discover why the winter flocks of whistling swans visit Whitesbog Village; 10 a.m. and Noon; Mile Post 13, Route 530, Browns Mills; \$4/person, \$9/family; ages 10 and up; light snacks available; 609/893-4646

8-9 & 15-16

Maple Sugaring

(see Jan. 4-5)

19

Video Evening

Enjoy *Santa Claus* (biography) at 7 p.m., *The Magic of Gingerbread Houses* at 8 p.m. and *A Christmas in Cape May* at 9 p.m.; Kuser Farm Mansion, Newkirk Ave., Hamilton; reservations required; 609/890-3630

22

New Jersey Nightscapes

(through July 13) An exhibition depicting nocturnal natural phenomena such as owls, constellations and night insects; 9 a.m. to 4:45 p.m. on Tue. through Sat., Noon to 5 p.m. on Sun.; NJ State Museum, 205 W. State St., Trenton; free; 609/292-6464

Full Moon Hike

(see Jan. 25)

22-23

Maple Sugaring

(see Jan. 4-5)

Events



25-26

Victorian Christmas Decoration Making

7 p.m.; Kuser Farm Mansion, Newkirk Ave., Hamilton; reservations required; 609/890-3630

March

1

Native American Exhibit and Lecture

2 p.m.; Great Swamp Outdoor Education Center, 247 Southern Blvd., Chatham; 201/635-6629

Afternoon Trail Hike

Along the Paulinskill Valley Trail in Kittatinny Valley State Park; 4 p.m.; Footbridge Park (turn in at entrance designated by a small white sign with black lettering), Route 94, Blairstown; 908/852-0597

1-16

Super Science Discovery Days

Saturday sessions at 9:30 and 11 a.m. and 1 and 2:30 p.m., Sunday sessions at 1:15, 2:30 and 3:45 p.m., and weekday sessions at 10 a.m. and 1:30 and 3:30 p.m.; Trailside Nature & Science Center, 425 New Providence Road, Mountainside; children ages 4-6 must be accompanied by an adult; preregistration is required; \$4/person; 908/789-3670

2-29

Classic Creations Craft Boutique

10 a.m. to 9 p.m. (Mon. & Thu.), 10 a.m. to 5:50 p.m. (Tue., Wed., Fri. & Sat.), 1 to 5:30 p.m. on Sun.; The Hermitage, 335 N. Franklin Tpk., Ho-Ho-Kus; \$5; 201/445-8311

8

1830s St. Patrick's Day Parade

Ringwood's annual tribute to Ireland's patron saint features pipe bands, community group floats, and antique cars; Noon; Skyline Drive, Ringwood; free; 201/962-7703

9

Elizabeth C. White: A Woman in History

Celebrate Women in History month by learning about Ms. White's significant contributions; 3 p.m.; Whitesbog Village, Mile Post 13, Route 530, Browns Mills; \$4/person, \$9/family; ages 10 and up; light snacks available; 609/893-4646

16

1830s St. Patrick's Day Celebration

Recreation of the holiday celebration in an ironworks company town; 1 to 3 p.m.; Historic Allaire Village, Allaire State Park, Route 524, Wall Township; free; 908/938-2253



16

St. Patty's Signs of

Spring: A Green Walk

Wear green and look for the green signs of spring; 3 p.m.; Whitesbog Village, Mile Post 13, Route 530, Browns Mills; \$4/person, \$9/family; ages 5 and up; light snacks available; 609/893-4646



19

Video Evening:

Gardens of the World

Enjoy, at 30-minute intervals beginning at 7 p.m., *Roses and Rose Gardens*, *Flower Gardens*, *Formal Gardens*, *Public Gardens and Trees* and *Country Gardens*, respectively; Kuser Farm Mansion, 390 Newkirk Avenue, Hamilton (Mercer County); free, but advance reservations required; 609/890-3630

22

Full Moon Hike

(see Jan. 25)

24

Wildlife Art Preview

(through May 7) 15 to 20 artists display works in unmanned preview exhibit which serves as a prelude to the 17th annual Carving and Wildlife Art Show and Sale (scheduled for May 10 and 11), where more than 50 artists' renditions of native flora and fauna will be exhibited; 9 a.m. to 4:30 p.m.; Somerset County Environmental Education Center, 190 Lord Stirling Rd., Basking Ridge; free; 908/766-2489; TDD number for the hearing and speech impaired is 908/766-2575

25

Tilton Point and Cattus Island Park Walk

Exploration of ecology of coastal areas; 9 a.m. to 3 p.m.; sponsored by the Rancocas Nature Center; preregistration required; free; 609/261-2495

30

Easter Sunrise Service

At the 160-year-old Christ Church chapel; 6 a.m.; Historic Allaire Village, Allaire State Park, Route 524, Wall Township; free, but donations accepted; 908/938-2253

April

5

Trail Maintenance

First Saturday of every month, beginning in April, from 9:30 a.m. to 12:30 p.m.; volunteers bring lunch and help maintain and repair hiking trails; Trailside Nature & Science Center, 425 New Providence Road, Mountainside; preregistration by phone required; 908/789-3670

6

Wildlife Sunday

Displays, demos, talks, kids' crafts, birdhouse contest, bird banding and more; 1 to 5 p.m.; Trailside Nature & Science Center, 425 New Providence Road, Mountainside; \$1 donation; 908/789-3670



19

Hawk Watch at Sandy Hook

Hawk migration and identification; 9 a.m. to 3 p.m.; sponsored by the Rancocas Nature Center; preregistration required; \$6/members, \$8/non-members; 609/261-2495

19th Century Village Market Day

Play 19th century games and shop for bargains at a recreated auction and from the outdoor booths of the "villagers;" 10 a.m. to 4 p.m.; Historic Allaire Village, Allaire State Park, Route 524, Wall Township; free; 908/938-2253

23

Beach Nesting Birds Walk

The decline of these birds initiated the Audubon Movement — see how they're doing a century later; 9 a.m. to 3 p.m.; sponsored by the Rancocas Nature Center; preregistration required; \$6/members, \$8/non-members; 609/261-2495

Video Evening

Miss Manners on Weddings at 6 p.m., *Do Your Own Wedding* at 7 p.m. and *How to Plan the Perfect Wedding* at 8 p.m.; Kuser Farm Mansion, 390 Newkirk Avenue, Hamilton (Mercer County); free, but advance reservations required; 609/890-3630

26

Earth Day: Habitats of New Jersey

Walk through a deciduous and pine forest, climb over mountains and swim along the coast — all in the Great Swamp Outdoor Education Center's auditorium; play games and create crafts to learn about New Jersey's diverse habitats; 11 a.m. to 4 p.m.; 247 Southern Boulevard, Chatham; free; 201/635-6629

27

Earth Week Multi-Media Stage Celebrations

Using a theme that complements National Wildlife Week, skits and interactive games help the audience learn how to save the earth; 10:30 a.m. and 3 p.m.; Environmental Education Center, 190 Lord Stirling Road, Basking Ridge; \$3/person; 908/766-2489

30

Video Evening

Pillows (sew by video) at 7 p.m. and *The Art of Ribbon Craft* at 8:30 p.m.; Kuser Farm Mansion, 390 Newkirk Avenue, Hamilton (Mercer County); free, but advance reservations required; 609/890-3630



No Entry Form Needed

Enter as Often as You Like!

Deadline Extended . . .

All Entries Must be Received by January 15, 1997



New Jersey Outdoors 1996 Photo Contest

Calling All Shutterbugs



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

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

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

■ **When:** Only photos which were taken between September 1, 1995, and November 30, 1996, will be eligible. We must receive all entries by January 15, 1997.

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

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



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

***In Any Season,
for Any Reason,
A Subscription to
New Jersey Outdoors
Makes a Great Gift!***



From the Governor



Christine Todd Whitman,
Governor

For more than 100 years, deputy conservation officers have protected New Jersey's wildlife resources and citizens with little more reward than the personal satisfaction that comes with helping to make a positive difference. These volunteer law enforcers often find themselves in dangerous situations, work odd hours and make great personal sacrifices, all in the name of environmental protection and public safety.

The Deputy Conservation Officer Program exemplifies what volunteerism is all about. And while, over the years, deputy conservation officers have been known by various titles — and their level of training has changed significantly — they have prevailed as one of the greatest volunteer success stories in the entire country.

Deputy conservation officers provide a level of assistance to hunters, anglers and other outdoor enthusiasts that our full-time conservation officers would be unable to provide alone. Their presence has made pursuing outdoor activities in New Jersey safer and has ensured the wise use of wildlife resources. Today, many wildlife populations are flourishing in New Jersey, thanks in great part to the hard work of deputy conservation officers and other volunteer wildlife workers at the Department of Environmental Protection.

I hope that you enjoyed the article celebrating the 100th anniversary of the Deputy Conservation Officer Program. The program's history is a rich, interesting and exciting one that shows how far we've come in protecting wildlife and how technology has changed conservation law enforcement. But above all, it illustrates the selfless dedication and commitment of these volunteers who proudly protect the great New Jersey outdoors.

From the Commissioner



Robert C. Shinn, Jr.,
Commissioner

Imagine biting into a sweet, red Jersey tomato in the dead of winter. Sound like an impossible dream? Thanks to an innovative Burlington County greenhouse project, it has become a welcome reality.

As detailed in this issue of *New Jersey Outdoors*, Burlington County's new Research and Demonstration Greenhouse plans to use methane gas emissions from an inactive landfill to power a generator that will supply the heat and light that thriving tomatoes require. The growing process was researched and developed by Rutgers University over the course of a decade.

As Burlington County's former manager of research and special projects, I helped to develop this project and have been pleased to follow its progress. This experimental project not only explores ways to enhance agricultural opportunities, but capitalizes on the beneficial use of a landfill by-product.

Recognizing the importance of supporting these and other types of cutting-edge efforts, I recently established an Office of Innovative Technology and Market Development within the Department of Environmental Protection. This office will assist in promoting the use of innovative technologies that not only will help us better address our environmental challenges, but position New Jersey more favorably in the global environmental technology marketplace.

Innovative efforts, like the one under way in Burlington County, can only ripen New Jersey's opportunities for both environmental and economic success.

Winter Flounder

by Paul G. Scarlett

Winter flounder (*Pleuronectes americanus*), also called flounder, black-back flounder and lemon sole, live in estuarine and coastal waters from Labrador to Georgia. They are most common between Nova Scotia and New Jersey.

In New Jersey, adult winter flounder usually inhabit nearshore coastal and estuarine waters from October through May. During the summer, they migrate just off the beach to several miles offshore. In the fall, most winter flounder return to the same estuary.

Winter flounder are called right-eyed flounder because both eyes are on the right side of the body. The left side of the body is white and is called the blind side. These fish have oval shaped, thick bodies with small mouths. Coloration varies, depending mostly on the color of the water's bottom. Adults can range from reddish brown to olive green to almost black, with smaller fish generally paler than larger fish.

In New Jersey, winter flounder spawn in estuaries from February to April at temperatures of 1°C to 10°C and salinities ranging from 10 to 35 parts per thousand. When hatched, winter flounder larvae are about one-tenth of an inch long.

Larvae are structurally similar to those of other fish species, with one eye on each side of the head. By the time the larvae reach a size of about one-half inch, the left eye has migrated to the right side of the body and the fish assume a true flatfish, bottom-associated existence.

Almost all winter flounder are sexually mature by 3 years of age. Females can release as many as three million eggs, with egg numbers directly related to fish size.

Winter flounder are most abundant in northern and central New Jersey estuaries, especially the Navesink, Shark and Manasquan rivers, Sandy Hook Bay and parts of the Barnegat Bay estuarine system. They can grow to sizes of more than 25 inches and weigh more than 8 pounds. The New Jersey sport fish state record was landed in 1992 and weighed 5 pounds, 11 ounces. Females grow faster

than males, and juvenile winter flounder can reach a length of about 6 inches during their first year. Twelve-inch winter flounder are generally 3 years old and may weigh slightly more than a pound.

Natural predators of winter flounder include sharks, oyster toadfish, summer flounder, striped bass, monkfish and spiny dogfish. The species has developed a method of feeding that allows partial concealment from predators. When feeding, a winter flounder will lie motionless, partly concealed on the bottom, with its head raised off the bottom, braced by the dorsal fin. When prey is sighted, the fish remains motionless, pointing toward the prey, then lunges forward and downward to capture it. This semi-hidden feeding behavior enables the fish to effectively capture prey; it also provides a hiding mechanism to protect the winter flounder from its predators.

Winter flounder are sight feeders and feed during daylight. Throughout their range, winter flounder eat polychaete worms, amphipod and isopod crustaceans, and plant material. They are omnivorous and opportunistic, eating whatever is available. The most important category of food in the diet of winter flounder depends on the type of bottom the fish inhabits. The diet of fish living on predominately rocky bottom is more variable than that of fish living in a mud or mud-sand bottom.

Estuaries and nearshore oceanic water habitats are critically important to the life cycle of winter flounder. These areas are used as wintering and spawning grounds by adults and as nursery areas by juveniles. Winter flounder prefer sand or mud-sand mixture bottoms, but can be found in creeks and sea grass beds with muddy or silty substrate.

Winter flounder are a highly prized food fish sought by both commercial and recreational anglers. The majority of landings from the commercial fisheries are taken by otter trawl in the spring and fall. Commercial fishers usually land between 200,000 and 300,000 pounds of

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winter flounder per year. Commercial landings are controlled by seasons, size limits, net mesh sizes and area closures.

These fish are also a mainstay of the fall, winter and spring sport fishery along the Atlantic coast. Although many anglers may associate prime winter flounder fishing with our neighbors to the north, New Jersey can boast of a viable and well-managed winter flounder resource. Our fish may not be as large as some of the jumbo flatties taken in New England waters, but the number of winter flounder available in certain areas of the state should be enough to satisfy any angler willing to brave a brisk fall or spring day on the water.

Although not as strong a fighter per pound as some other sport fish, winter flounder provide lively action, especially on light tackle. The recreational harvest in New Jersey is controlled by a size limit and a season. The legal size limit is 10 inches and the season is March 1 through May 31 and September 15 through December 31. There is no bag limit.

The next time cabin fever strikes during some of the colder months of the open season, try your hand at winter flounder fishing in some of the areas mentioned; you might be pleasantly surprised.

Anyone intending to fish for winter flounder should be aware that these regulations are subject to change. The latest edition of the *Marine Fish and Wildlife Digest* should be consulted for current regulations.

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