

New Jersey

Winter/Spring 2002 • \$4.25

Outdoors



From the Ancient Past:
Precambrian Era Fossil Discovered

In the Present:
Places to Go and Things to Do

For the Future:
Habitat Mapping to Guide
Development

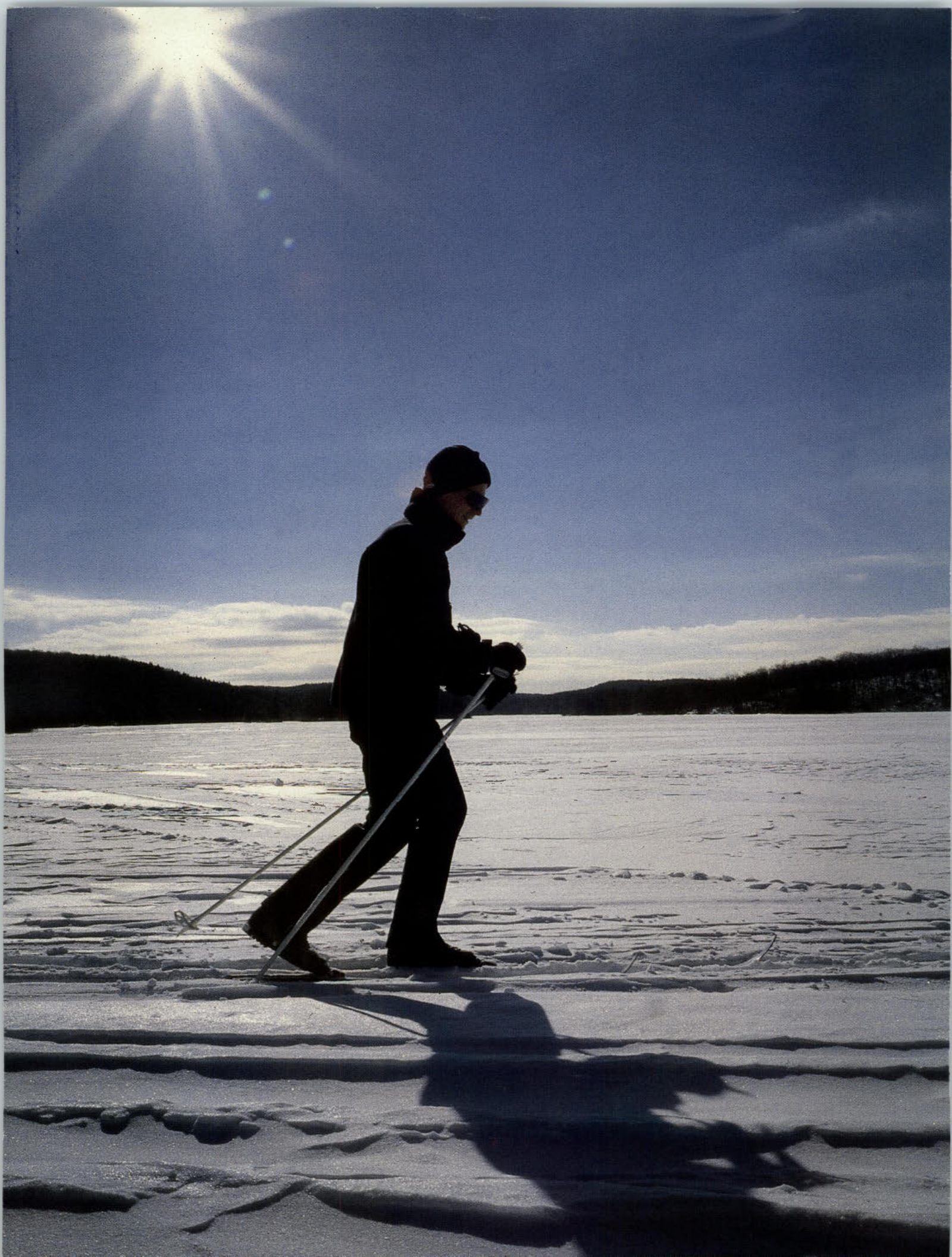


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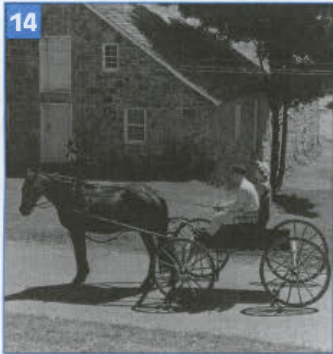
by Lawrence Niles, Ph.D.

Population increases mean more development, but for our own quality of life, we must also protect our land and the species that inhabit it. Learn how this innovative habitat mapping project will help us know where development should and should not occur.

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Arbor Day hit the road in New Jersey just two years ago, to the delight of residents of host towns New Brunswick and Manalapan. This year the celebration moves to the coast, as 100 trees will be planted in the park at Silver Lake to kick off the party in Belmar. Find out what's being planted and why.

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by Ray Passacantando

Nope; it's not a typo. What we're talkin' here is about those people who think that, because they've invested thousands of dollars in gear and they're willing to imperil their physical—not to mention mental—health, they're going to reel in some big flies fish. Read on for one man's view of the popular sport.

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Mandatory restrictions on certain water uses were instituted on March 11, but there are many ways to save water beyond those mandated. Find out about some of them, and let us know of other ways you save water.

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Van Saun Brook (Paramus, Bergen County)
© Dotty Waxman

Inside Front Cover

Ski instructor Doug Hill takes advantage of the back-country snowpack in Wawayanda State Park. To find out what's hot in skiing, see page 22. © Michael Zeugin

Inside Back Cover

The red knot is the subject of the *Wildlife in New Jersey* profile on page 64. © 2002 Kathi Fertig

Back Cover

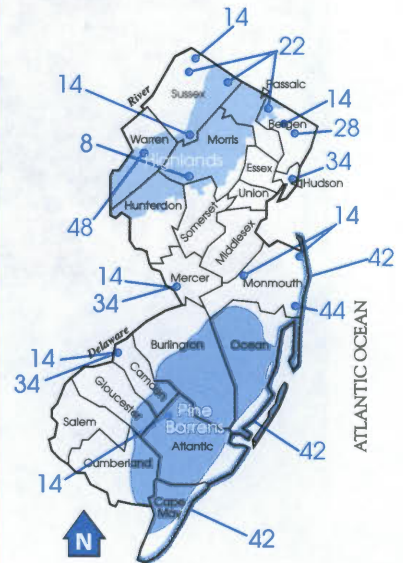
Fly-fisherman Jim Huber shows off his catch. For a humorous look at the sport (and those who practice it), see page 50.
Courtesy of Sandy Huber

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From Governor James E. McGreevey



James E. McGreevey
Governor

Thank you for your commitment to the preservation and protection of our environment in the State of New Jersey. The need to ensure a clean and healthy environment is one of our top priorities.

With the support of Environmental Commissioner Bradley Campbell, we are working to preserve precious farm and wetlands; create green space in urban areas; redevelop abandoned properties; reduce toxins and restore the health of our streams, lakes, and rivers. New Jersey's ecosystems are the most complex and diverse in the nation. From the Highlands Region in the north, to the gentle ridges and fertile soil of the Piedmont Region, to the Inner and Outer Coastal Plain Regions, plant and animal life must be protected and preserved.

However, government cannot succeed alone. We need to work in partnership with the environmental community, businesses, and the general public. We must all share the responsibility to preserve and protect our environment.

As we look toward the future, your cooperation and guidance will be essential to our ability to protect and preserve the environment—for ourselves and for our future generations.

Once again, thank you. We look forward to working with you on the environment and other issues in our efforts to improve and enhance the quality of life within our state.

A handwritten signature in black ink that reads "James E. McGreevey". The signature is stylized with a large, looping initial "J" and a long horizontal stroke at the end.

From Commissioner Bradley M. Campbell



Bradley M. Campbell
Commissioner

New Jersey's rich natural resources include high quality surface and ground water supplies that are essential to the ecological and economic health of this state. It is important that we continue to maintain these water supplies to support growing communities, living resources, and the recreation, sporting, and tourism that our water resources attract.

One of my most important challenges as the new commissioner of the Department of Environmental Protection is a severe statewide drought condition. The six months prior to March 2002 constituted the driest six-month period the state has experienced since 1895. This record-setting lack of rain has not only depleted our reservoirs but also reinforced the need for long-term planning and, more importantly, long-term commitment to protect and invest in New Jersey's water supply resources.

Strong leadership and guidance from your state government is essential, but we cannot do it alone. As directed by Governor McGreevey, I have established the state's first external task force to gather valuable information and guidance from the public on the drought and long-term water management issues. I am confident that through a collaborative and open process we can strengthen protection of our surface and ground waters, reclaim polluted waters, enhance our watershed protection measures, and conserve and minimize waste of our limited water resources.

It is important that we all—residents, state and local government, business, and grassroots organizations—work together to ensure New Jersey has plentiful and safe water resources in the future.

A handwritten signature in black ink that reads "Bradley M. Campbell". The signature is written in a cursive style with a large, prominent "B" and "M".

From the Editor's Desk

I'd like to offer a few words of explanation for this combined Winter/Spring 2002 issue. The delayed publication of the Fall 2001 issue had a domino effect on the production of subsequent issues. This combined issue of *New Jersey Outdoors* will allow us to get back on schedule effective with our pre-season publication of the summer issue.

Combining the winter and spring issues will not affect the number of issues remaining in your subscription. If your subscription covered, for example, the four 2002 issues (Winter, Spring, Summer, and Fall), you'll now receive Winter/Spring, Summer, and Fall 2002, plus Winter 2003.

The tardiness of the past couple of issues was as frustrating for us as it likely was for both our family of subscribers and our contributors. I'd like to thank you all, readers and contributors alike, for your patience and understanding.

Denise Damiano Mikics

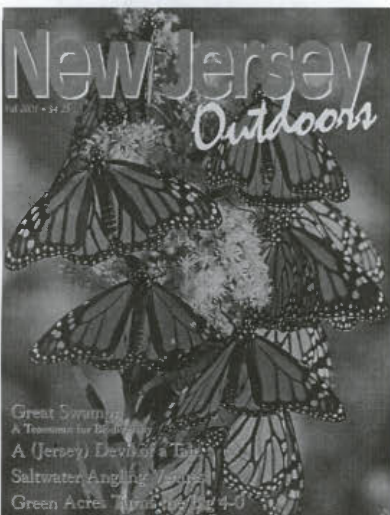
Mail Box

Fall's *The Shattered Buck* Is a Hit

What a beautifully written and inspiring story!

*Ron Soussa
Montville*

Oops



Sincere apologies are extended to the talented photographer whose work graced the cover of NJO's Fall 2001 issue—and to all who were misled as to his identity by the new surname he was given in the credit box. Joe Costanza (not Joe Carpenter) was responsible for that gorgeous image of monarch butterflies.

State of New Jersey
James E. McGreevey
Governor



Department of Environmental Protection

Bradley M. Campbell
Commissioner

Mary Helen Cervantes
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Communications and Legislative Affairs

Sandy Huber
Administrator, Office of Publications

New Jersey *Outdoors*

Winter/Spring 2002, Vol. 29, No. 1/2

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

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NJO News & Notes

Neither Cold nor Wind . . .

More than 1,200 anglers braved the cold and wind to vie for the Governor's Cup at the 10th annual Governor's Surf Fishing Tournament held on October 7 at Island Beach State Park.

"I would like to thank the many prize sponsors, volunteers and participants who have helped make the surf tournament a success for the past ten years," said Bob McDowell, director of the Division of Fish and Wildlife. "Their cumulative efforts have helped raise nearly \$60,000 for a variety of conservation projects such as the construction of a beach access ramp, two mobile fishing education carts, marine education programs, and specialized wheelchairs for the disabled and elderly."

The event was sponsored by DEP's divisions of Fish and Wildlife and Parks and Forestry, the New Jersey Federation of Sportsmen's Clubs, Jersey Coast

Anglers Association, and the New Jersey Beach Buggy Association. Staff and volunteers from this public/private partnership work together all year long and on the weekend of the event to produce a quality tournament for the surf-angling public.

Albacore, striped bass, blackfish, bluefish, red drum, kingfish, and weakfish were eligible for entry; of these, striped bass, blackfish, bluefish, and kingfish were submitted. A total of 41 fish were measured and entered with 26 of these receiving awards.

Overall length determined the grand prize winner as well as place winners for each of the species categories. Where fish of identical length were caught, the place winners were determined by time of the catch.

There were children, teen, and adult angler categories, including sub-categories for male and female anglers. In

addition, there were categories for fly-fishing and Becoming an Outdoors-Woman students (female and male novice anglers who attended the surf fishing workshop held the day before). The inclusion of first, second, and third place winners was dependent upon the number of entries submitted in each species category.

The Grand Prize and Governor's Cup award went to David Hilgar of Fallsington, Pennsylvania, for a 35 1/8" striped bass. Hilgar received a plaque and a Penn rod and reel combo, and his name will be engraved on the Governor's Cup, which is on permanent display at Island Beach State Park.

Twenty-six surf rod and reel outfits, including six donated by Penn Reels, were awarded as prizes. Participants also were eligible for special drawings for 50 additional prizes.

Winners of the Governor's 10th Annual Surf Fishing Tournament

Blackfish Category

- Child, Male 1st Place (14 1/2")—**Asa Cameron** (Glenside, PA)
Teen, Male 1st Place (17 1/4")—**Jonathan Berrien** (Mercerville)
2nd Place (17")—**Joe Rosetti** (Bloomfield)
3rd Place (15")—**Josiah Cameron** (Glenside, PA)
Adult, Female 1st Place (17 7/8")—**Arlene Parrino** (Middletown)
Adult, Male 1st Place (18 5/8")—**Alex Kotenko** (Bridgewater)
2nd Place (18 1/4" @ 10:00 a.m.)—**Richard Chamberlain, Sr.** (New Egypt)
3rd Place (18 1/4" @ 10:15 a.m.)—**John Yaccarino** (New Egypt)

Bluefish Category

- Child, Female 1st Place (15 1/2")—**Jaime Jonach** (Toms River)
Child, Male 1st Place (20 3/4")—**Joshua Sniadach** (Trenton)
2nd Place (15 3/4")—**Vincent Altimari** (Tabernacle)
Teen, Male 1st Place (16 3/4")—**Ben Bajkowski** (South Amboy)
2nd Place (16")—**John J. Heintz** (Mercerville)
3rd Place (13")—**Fred Piell III** (Morrisville, PA)
Adult, Female 1st Place (15")—**Sue Finch** (Ironia)
2nd Place (12 1/4")—**Michelle Freas** (Dorothy)
3rd Place (12")—**Peggy Peterson** (Toms River)
Adult, Male 1st Place (20")—**Ralph Pacella** (Stony Point, NY)
2nd Place (19", 6:50 a.m.)—**Bill Marcus** (Berkeley Heights)
3rd Place (19", 9:40 a.m.)—**Mike Nightingale** (Medford)

Kingfish Category

- Adult, Male 1st Place (17 1/8")—**Ed Fisher** (Somerdale)
2nd Place (16 1/4")—**Charles Smith** (Bayonne)
3rd Place (11 3/8")—**Maynard Stratton** (Hamilton)

Striped Bass Category

- Adult, Male 1st Place (35 1/8") and 2001 Governor's Cup Winner—**David Hilgar** (Fallsington, PA)
2nd Place (31 1/4")—**Martin Mosen** (West Collingswood)
3rd Place (31")—**Zoltan Egyed** (Trenton)



Tree Advocates Honored

Despite Kermit the Frog's claims, it is easy being green. And New Jersey's towns and cities are becoming greener all the time, thanks to the efforts of individuals and municipalities working through community forestry programs.

To acknowledge and encourage these efforts, DEP's Forest Service, in conjunction with the New Jersey Community Forestry Council and the New Jersey Tree Foundation, recently presented Green Community Achievement Awards to:

- **Mark Chisholm** (Jackson Township)—Chisholm works at Aspen Tree Experts, his family's business in Jackson. He is the reigning International Society of Arboriculture (ISA) World Champion Tree Climber (for the second time), and has held the New Jersey title for the last ten years. Chisholm conducts demonstrations and seminars both across New Jersey and around the world that have raised industry standards. He was chosen for the award because of his competitive spirit, exemplary sportsmanship, and tireless efforts on behalf of arborists throughout the country, as well as for the exceptional merit of his contributions to improving the safety and instruction of those in the profession. Chisholm is also a New Jersey Certified Tree Expert (CTE).
- **Cliff Pfleider** (Moorestown Township)—Pfleider, who works for the Moorestown Department of Public Works, was selected for the initiative and perseverance he exhibited in raising awareness of Bacterial Leaf Scorch as a serious threat to the health of our forests. A New Jersey CTE, he played a leadership role in convening a national Bacterial Leaf Scorch Symposium at Rutgers. Pfleider serves on the New Jersey Community Forestry Council and has used his creativity and public relations talent to bring Community Forestry statewide media attention on the radio and in newspapers, and through personal appearances on cable TV.
- **Manalapan Shade Tree Committee** (Manalapan)—The committee, chaired by Louise Lang, received the award for exemplary leadership and unprecedented foresight in community forestry. Through their efforts involving innovative educational programs and bold outreach projects, the character of their community forest and hundreds of acres of trees were protected during Manalapan's development. In addition to having hired a CTE consulting forester, maintaining their Tree City USA status for 10 years, and having an approved Community Forest Management Plan, Manalapan hosted the 2001 New Jersey Arbor Day Celebration with more than 300 guests as the inaugural event at their new Municipal Arboretum.
- **New Jersey Youth Corps** (Phillipsburg)—George Paffendorf, director of the New Jersey Youth Corps (NJYC), accepted the Youth Project Category award on behalf of the NJYC of Phillipsburg. The group received this award for maintaining 2,500 trees on a 12-acre tree farm and securing a DEP Recreational Trails Grant to establish an accessible, 3/4-mile interpretive trail at the tree farm while forming the Riparian Rescue Team. The Rescue Team moves native species trees from land targeted for development to the tree farm for use in future streamside restoration and reforestation projects.

Editor's Note: See related story on page 44.

Free E-News Offered

You can now receive periodic e-mail messages related to New Jersey's wildlife and natural resources by subscribing to the list/s of your choice. The mailing lists are:

- *New Jersey's Wildlife*
- *Endangered Species*
- *Freshwater Fishing*
- *Natural Resource Education*
- *Salt Water Fishing*
- *Becoming an Outdoors-Woman*
- *Hunting*
- *Shellfish*

To subscribe, simply visit www.njfishandwildlife.com and click on the link for Mailing Lists.



Easier Banded Bird Reporting

You can now report banded birds online through the national Bird Banding Laboratory website (www.pwrc.usgs.gov/bbl/homepage/call800.htm). Information on reporting band numbers by telephone can also be found there. General information on the North American Bird Banding Program can be found at www.pwrc.usgs.gov/bbl/. Your cooperation in reporting banded waterfowl and other birds is crucial to population research and management efforts.

Volunteer for Pool Duty

Surveying vernal pools, that is. Volunteers are urgently needed to help the Endangered and Nongame Species Program in this important undertaking. Learn about vernal pools and the important role you can play in protecting these critical forest habitats at www.njfishandwildlife.com/vpoolart.htm.

Black Sea Bass Size Limit and Season Change

Rules for the recreational harvest of black sea bass in New Jersey waters were recently changed in an effort to keep the state in compliance with the Atlantic States Marine Fisheries Commission's management plan for the species. The recreational size limit for black sea bass has increased from 11" to 11 1/2" with the possession limit remaining at 25 fish. In addition, the previous fishing season for the species (May 10 through February 29) has been eliminated; fishing is now allowed year-round.

NJO News & Notes

New License Feature

New Jersey's 2002 Firearm, Bow and Arrow, and All-Around Sportsman hunting licenses have been revised to include new antlered buck stubs. The new format provides stubs for the maximum number of bucks that can be harvested during the state's six deer seasons.

Eagles on the Rise

More than 100 volunteers counted 159 bald eagles and two golden eagles during the annual statewide Mid-Winter Eagle Survey, which took place on January 12 & 13. The tally exceeded last year's count of 140 eagles and continues the

rising trend in eagle numbers that began in the early 1980s.

The survey, part of a nationwide effort to assess the number of eagles wintering in the lower 48 states, is just one of many projects funded by contributions to the state's *Conserve Wildlife*

Income Tax Check-Off. The survey takes place the same time each year and focuses on known eagle wintering areas throughout the Garden State.

New Jersey residents who have helped conserve wildlife via the state income tax form can take pride in knowing they have helped to restore the bald eagle population in the Garden State. Since 1982, these funds have helped to pay for the acquisition and release of more than 60 Canadian bald eagles in South Jersey. Revenues from this source, though, have fallen sharply in recent years. If the trend continues, the ability of the Endangered and Nongame Species Program (ENSP) to protect and manage eagles and many other rare species will be threatened. Plan ahead to help save New Jersey's wildlife next year by checking off a generous contribution when you file your New Jersey income tax return.

Finally, a State Record Tilefish . . . and a Whopper of a Lobster, Too!

A state record gray tilefish was taken off the Sea Girt Artificial Reef on December 5. Jim Zigarelli of Brick caught a 10-pound, 9-ouncer—the first in this brand new record category. Zigarelli was bottom fishing from his boat in 60 to 65 feet of water when he hooked the fish on 12-pound test with a fiddler crab. The fish measured 28.5 inches in length with an 18.75-inch girth. Bruce Freeman, a research scientist with the NJ Division of Fish and Wildlife, identified the fish for verification purposes.

The gray tilefish (*Caulolatilus microps*) is typically found in depths of 200 to more than 1,400 feet. Usually found south of Cape Hatteras, North Carolina, they live in burrows and sometimes congregate in small groups. Originally, the division honored just one general category for tilefish, which until now remained vacant with a minimum weight of 8 pounds. However, with the recent extraordinary catch, it was determined that two separate categories for tilefish would be established: one for gray and one for golden. The latter remains vacant with a minimum weight of 8 pounds.

September 8 was the date that a new state record American lobster was taken. Jeff Scudder of Tuckerton was diving from his boat off the Double East Wreck when he grabbed an 8-pound, 2-ouncer. The previous record lobster, taken from the Garden State North Reef in 1996, weighed in at 7 pounds, 4 ounces. Scudder's catch had a 6-inch carapace (the protective upper shell covering) and an 11-inch girth. Fish and Wildlife's Bruce Freeman verified this catch also.

American lobsters are found in cool waters from Canada to North Carolina. Territorial and solitary in nature, they live on the ocean floor and prefer rocky crevices. New Jersey's many artificial reefs provide the perfect habitat for this species. The average American lobster is about 10 inches long and tips the scales at between 2 and 5 pounds.

The Record Fish Program honors the largest species of fish (as well as blue crab and American lobster) caught in the state. It revolves around a specific list of eligible freshwater and saltwater species, and is based on weight alone (there are no line classes). Scale certification documentation and a weighmaster's signature are necessary. Other rules apply. For more information or to request an application, call 609-633-7768. Visit the division's website at www.njfishandwildlife.com for a complete list of state records.

B.O.W. Workshops Scheduled

Becoming an Outdoors-Woman (B.O.W.) and *Beyond B.O.W.* workshops are sponsored by the New Jersey Division of Fish and Wildlife. They are designed primarily to provide women with a welcoming environment in which to learn outdoor skills, but anyone over 18 years of age is welcome to participate.

The weekend-long *Becoming an Outdoors-Woman* workshop is typically offered in both the northern and southern sections of the state, with sessions focusing on regional pursuits. The site of the northern workshop, which was held May 3 to 5, was Fairview Lake YMCA Camp in Stillwater. Participants choose four sessions from a list of courses including backpacking, fishing, kayaking, birdwatching, rock climbing, hunting, shooting, archery, mountain biking, and more.

The southern, or coastal, B.O.W. workshop will be held at the Wetlands Institute in Stone Harbor from September 6 to 8. This workshop focuses on marine-based recreation such as crabbing, clamming, small motor boat handling, bay kayaking, deep sea fishing, coastal ecology, waterfowl hunting, and more. The fee for this program is \$300.

Participants in the July 13 *Sedge Island Sampler*, which begins at the Sedge Island House, Island Beach State Park (Seaside Park), will spend the day exploring a sedge island and the waters of beautiful Barnegat Bay while kayaking, crabbing, seining, fishing, clamming, snorkeling and hiking. The fee for this program will be \$40.

The October 5 *Surf Fishing Clinic* will cover equipment basics such as how to choose and use rods, reels, bait, and lures; fish identification; fundamentals of casting; reading the surf; and knowing the tides. Held at Island Beach State Park in Seaside Park, this \$40 workshop offers the perfect preparation for participation in the next day's Governor's Surf Fishing Tournament.

The small game hunting workshop, *Pheasant Hunt for Women*, will be held in Harmony on October 12. Participants will experience a one-on-one situation with a hunting guide and dog. A current hunting license will be required. The fee for this program will be \$40.

Still to be scheduled for September is *Pursuit of Whitetails*, a hunting workshop slated to take place at the Division of Fish and Wildlife's Northern Regional Office in Clinton. The fee for this program will be \$40.

Finally, education programs related to fishing, birding, and other outdoor pursuits are frequently offered at the Pequest Trout Hatchery and Natural Resource Education Center near Oxford (Warren County). For a listing of courses, visit www.njfishandwildlife.com/budding.htm.

Bears and Bog Turtles on the Web

Visitors to the Division of Fish and Wildlife's Web site can now see two slide shows, *Black Bears in New Jersey and Bog Turtle Habitat Management and Restoration*, by going to www.njfishandwildlife.com/slideshows/slideshows.htm. The black bear show also can be accessed from the Bear Facts page, www.njfishandwildlife.com/bearinfo.htm. More slide shows are being developed and will be posted in the near future.

New Field Guide and CD Available

The NJ Division of Fish and Wildlife's Endangered and Nongame Species Program has produced and is offering a **Field Guide to Reptiles and Amphibians of New Jersey** and a related CD, **Calls of New Jersey Frogs and Toads**. Written by David M. Golden, an ENSP assistant biologist, and author Vicki Schwartz, the field guide contains 72 detailed descriptions of reptiles and amphibians that occur in the state. With more than 100 full-color pictures and 72 distribution maps, this spiral-bound, 89-page guide will be useful for amateurs and experts alike.

The CD has 38 tracks—both training tracks and tracks on which you can test your skill—of 16 different species. Including shipping and handling, the field guide is available for \$10 and the CD is available for \$10. Or save money by buying both for \$18.

To order, send your request and a check for the appropriate amount payable to the Conserve Wildlife Foundation to:

Conserve Wildlife Foundation
Reptiles and Amphibians Field Guide/CD
PO Box 400
Trenton, NJ 08625-0400

Go South, Wild Turkey

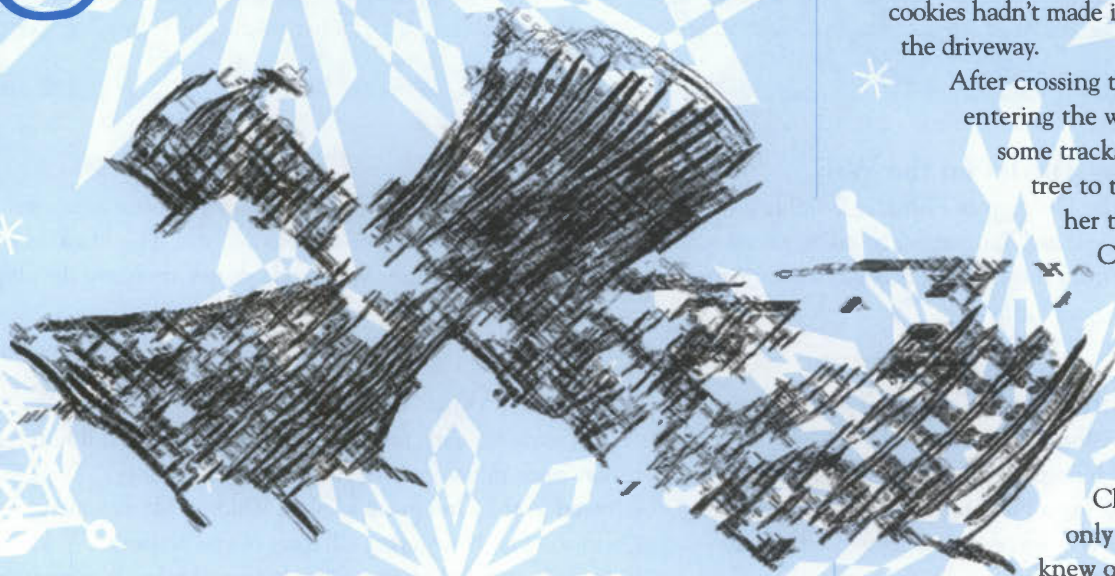
In early January, the Division of Fish and Wildlife trapped 11 wild turkey hens in Fredon Township (Sussex County). The birds were later released in the Greenwood Forest Wildlife Management Area (Ocean County). The New Jersey Chapter of the National Wild Turkey Federation assisted by providing funding and volunteer help for the division's Turkey Transfer Program. Thanks to these cooperative efforts, wild turkeys can be found in all but one New Jersey county.

The program helps build wild turkey populations in Pinelands habitat, where controlled burns and special plantings have made the area a prime location for the species. Controlled burns help clear away thick understory vegetation so wild turkeys can see predators and move more easily, while plantings of various grasses, clover, and sunflowers provide good food and brood habitat. Several additional releases are planned over the next few months for Ocean and Cape May counties.

Fish and Wildlife's Turkey Restoration Project is one of New Jersey's greatest wildlife management success stories. Habitat changes and over-exploitation had extirpated the state's turkey population by the mid 1800s. The restoration effort began in 1977, when biologists released turkeys captured in other states. Then, as the population grew, they began to live-trap and relocate the birds. To date, more than 1,500 wild turkeys have been relocated, resulting in a stable population of wild turkeys throughout most of the state.

For more information on turkeys and turkey hunting in the Garden State, visit www.njfishandwildlife.com.

Angel in a Snowbank



by David P. Grady

It was a cold and cloudy day, a typical winter day on a farm near Chester, New Jersey. My daughter and her husband were taking my grandson to his first arts and crafts display for parents, which left me home alone with my granddaughter. I was comfortable in a chair in front of the fireplace, watching a football game. Cindy was rolling around on the floor in front of the fire.

"Can we go out and have an adventure?" she suddenly asked. "Please, Grampa, can we?"

Heavily involved in the game and hoping to dissuade the six-year-old, I snapped, "No. You find something to do."

But even as the words came out of

my mouth, I couldn't believe I was saying them. I immediately felt like a heel. Warm in the house, my first thought about venturing outside had been *there's six feet of snow on the ground*.

But Cindy was already packing.

I turned off the game, resigning myself to taking my granddaughter for a walk. I'd have to atone for my earlier outburst, regardless of the snow.

So we bundled up and headed outside. Hand in hand, we crossed a road and found a hard-packed snowmobile trail leading through a field and into some woods. I felt lucky; it was easy walking.

Cindy had packed all the essentials for an adventure and even a few extra items in case we got lost and had to sur-

vive on our own until rescued. In her pack was a box of raisins, a pint carton of milk, a camera to record our expedition, the book *Animal Tracks*, a pen, some paper, and a few dog biscuits for Mike, her little brown terrier-type dog of questionable ancestry. We'd had a handful of Oreo cookies as well, but the cookies hadn't made it to the end of the driveway.

After crossing the field and entering the woods, we found some tracks leading from tree to tree. Pulling out her track book,

Cindy confirmed my declaration that they had been made by a squirrel—probably Chatterbox, the only squirrel she knew of that lived in the area.

A few minutes later, Cindy and I came to a pair of juvenile pine trees that were bent almost completely over from the enormous pack of snow on top. Cindy dashed off the trail and waded through the powder snow. She saved the trees from breaking by carefully shaking the snow off their limbs. Cindy seemed to be taking pride in her task and even said a few loving words to the hunched-up trees. Then she massaged their boughs, improving their posture.

We were quite a ways into the woods before I started plopping through the trail, sinking up to my knees. I thought maybe a diet and snowshoes would improve this hike. Eventually we ran out of hard-packed trail as it fanned

out into several trails, all of them much softer than the one we had been on. I was nearly wading now, plunging through the trail every other footstep.

Mike the dog, though, was full of purpose. He dove into the deep snow and began frantically digging straight down. He covered himself and me with powder snow before emerging with a stick in his mouth. Cindy laughed hard and fell backward into a snowbank, seemingly unable to stop laughing. Seeing my little granddaughter laughing, I started laughing, too, and flopped backward into the snow beside her.

Cindy then showed me how to make a snow angel and I followed her instructions to the letter. We stood up and admired our work. "Not bad, huh?" we nodded at each other's artistry. Before long, we had a whole chorus line of snow angels lining the trail.

We had been out in the cold for a couple of hours now, and it seemed to me to be a good time to stop for a snack. We made easy chairs in a snowbank, shared the box of raisins, and drank the milk. I wished we had saved some of the cookies.

It was a stunning afternoon. The sky had opened up just above us, and the most spectacular colors were mixing for sunset. A few stray rays were beaming down on the distant hills, and I was amazed by the depth of lavender and pink reflections over the trees. It occurred to me that it didn't take much to have an adventure, even at my age.

On our way back to the house, we kept stopping to make little angels. When we reached the front yard, we made a big one. Standing there admiring our effort, I thought I saw the angel's wing flutter. No way, I decided; it must have been the wind, a gust of blowing snow.

Later that evening, as I was fixing supper, I thought about our adventure. Someday, I thought, perhaps in ten or twelve years, I'd be looking at photos from our expedition and remember the sunset and the angels. I'd think back to my day with Cindy, who by then would be on her way to college. I'd think of our time together, our adventure into the woods where she had been able to play and be alone with her grampa in the great outdoors.

And lucky me, I thought, I had gotten to be alone with her, too.

Although David Grady could easily have made snow angels at home in Palmer, Alaska, we're glad his expedition with his granddaughter took place in New Jersey—and that he shared his experience with us.



A Landscape Project for New Jersey's Future

by Lawrence Niles, Ph.D.

For the citizens of New Jersey, sprawl is rapidly becoming a major issue. Sprawl is unwise development, without concern for quality of life or the survival of wildlife. It's inefficient development; it's development without a plan.

So sprawl is development, but development is not sprawl. Development includes the creation of schools, homes, businesses, and the infrastructure that we need to conduct healthy and productive lives. With population densities equaling or exceeding those of most European countries, can we develop without sprawl? That is the critical question facing the citizens of New Jersey.

To have any chance of success, we need a good idea of what lands should be saved. In the lingo of the New Jersey State Plan, we not only need to know *town centers*, or where development should take place; we also need to know *land centers* where development should not take place. And perhaps even more importantly, we need to know where we should blend the two—where can we develop and not hurt the land or its wildlife?

These are tough questions that we must answer now as the landscape of New Jersey changes dramatically. Stalling or ignoring these questions will keep us on our current path and its ultimate outcome—the complete suburbanization of our state. The Garden State will be reduced to the Garden Party State.

Wildlife can help us answer these questions. Our wildlife are the pulse of the land's ecological health. Degrade or destroy land and its wildlife either will die, leave, or be replaced with the wildlife of suburbia. For example, just the presence of a barred owl in a patch of woods indicates that it is one of the state's few large and relatively pristine

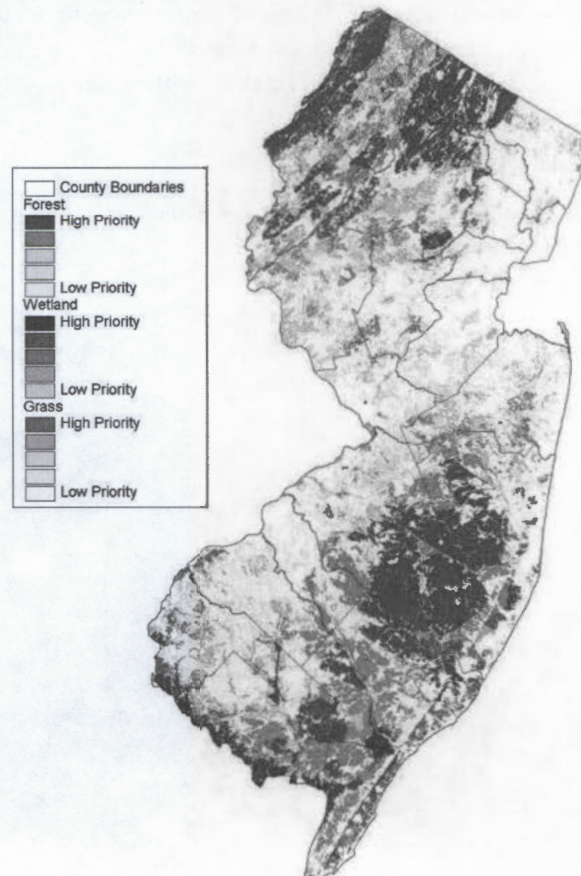
woodlands. Chop up that woodland into home lots—even forested woodlots as large as 10 acres—and barred owls will disappear. With them a whole community of wildlife, from bobcats to wood thrushes, will vanish.

Ironically, despite all the sprawl of the last 30 years, many beautiful patches of woods, fields, or wetlands remain scattered all throughout the state. These are our land centers. These are the places we want to protect if we want to enjoy a garden state and pass it on to our children. Identifying these ecological gems is one of the most important goals of the Landscape Project, created by the Division of Fish and Wildlife's Endangered and Nongame Species Program.

The Landscape Project

The Landscape Project uses wildlife to map all of our state's important habitat patches. The principle is simple. First we outlined every significant patch of field, woodland, and wetland in the state. Then we used the presence of wildlife as an indicator of a habitat's value, creating five categories depicting:

- lands important to species listed as federally endangered and threatened;
- lands important to state endangered species;
- lands important to state threatened species;
- lands important to species of special concern; and, finally,
- suitable habitats without recent sightings of rare wildlife.








It's the combination of precision and practicality that makes these maps unique. The Landscape Project protocols for outlining and ranking significant habitat patches were forged from rigorous scientific scrutiny and years of painstaking field inventory. All of our work has undergone repeated reviews by our professional and academic peers. After years of collaboration with the NJDEP Bureau of Geographic Information and Analysis with its state-of-the-art Geographic Information System, the Rutgers University Center for Remote Sensing and Spatial Analysis with its satellite imagery classification and land cover change research techniques, and the Natural Heritage Program with its comprehensive biodiversity database, the lines on our maps are both accurate and defensible.

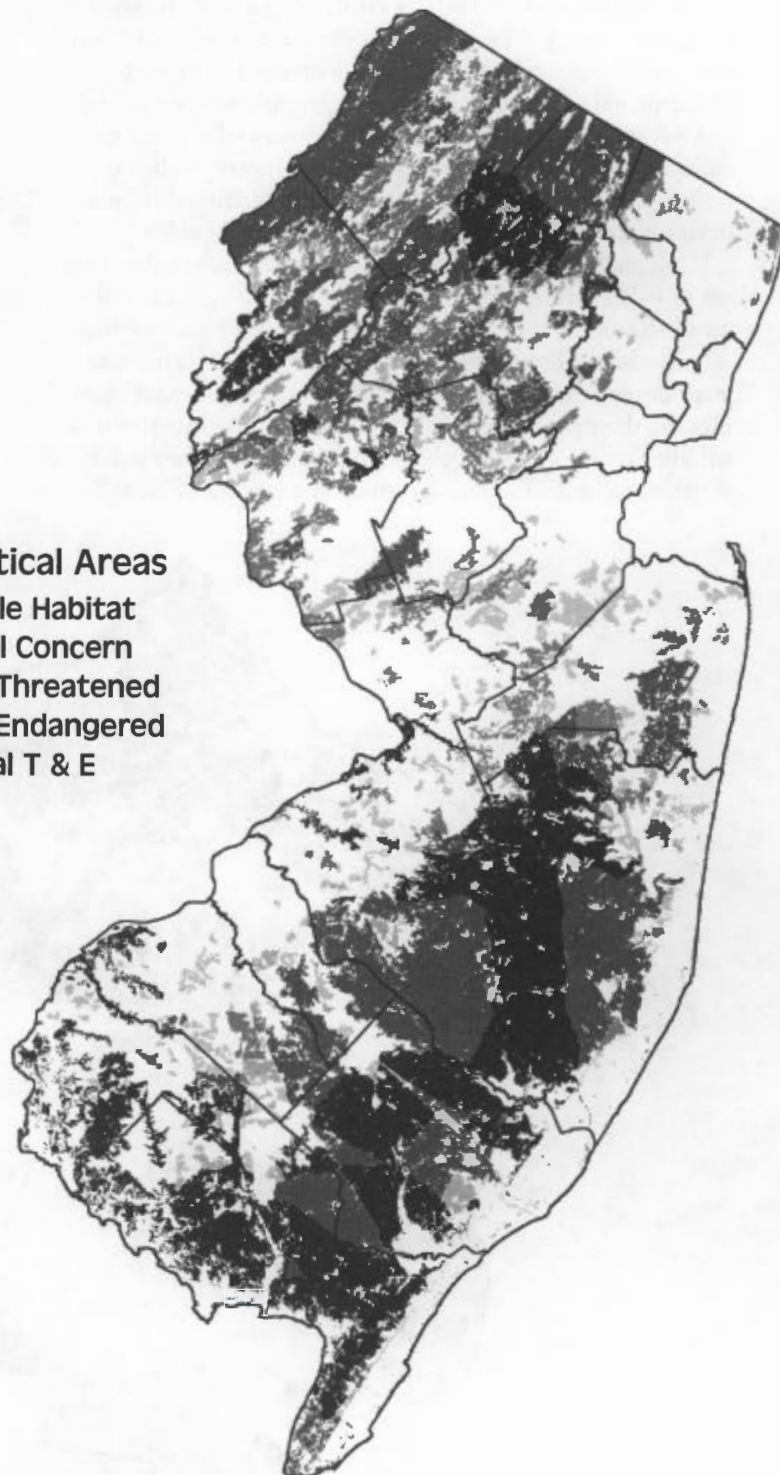
To satisfy users, we embedded versatility into our maps. By creating maps that indicate relative importance to wildlife, it becomes easier to decide what lands to protect, what to develop, and where we can accommodate both activities. Now, for the first time, everyone can see where endangered species do and do not occur. For developers it creates the possibility of avoiding conflict; for citizens, the chance to see the true cost of development. Our maps are already serving land managers, land planners, environmental commissioners, land development consultants, environmental groups, land acquisition programs, and many other lay and professional people whose decisions affect the land.

New Use Solves Old Problems

This year the department proposes to give Landscape Project maps a larger role. State regulators are proposing to use the *Landscape Maps of Habitat for Endangered, Threatened and Other Priority Wildlife* as the basis for deciding which lands provide habitat for endangered and threatened wildlife species and need to be protected. Amendments to the state's rules on Coastal Zone

Forest Critical Areas

-  Suitable Habitat
-  Special Concern
-  State Threatened
-  State Endangered
-  Federal T & E



Critical forest habitat in New Jersey

Management (CAFRA rules) and Freshwater Wetlands propose using the Landscape maps. These rules currently protect habitats important to endangered and threatened species but the basis is simply the immediate areas surrounding animal sightings.

The sightings-based system creates two major problems. First, we cannot publish sightings because they represent nest sites, roost sites, and dens that we are charged to protect. Unfortunately, there are unscrupulous people who would use this information to either collect or destroy endangered animals. But the information blackout also prevents well-intentioned people from avoiding development of critical habitats or disturbance of endangered and threatened animals.

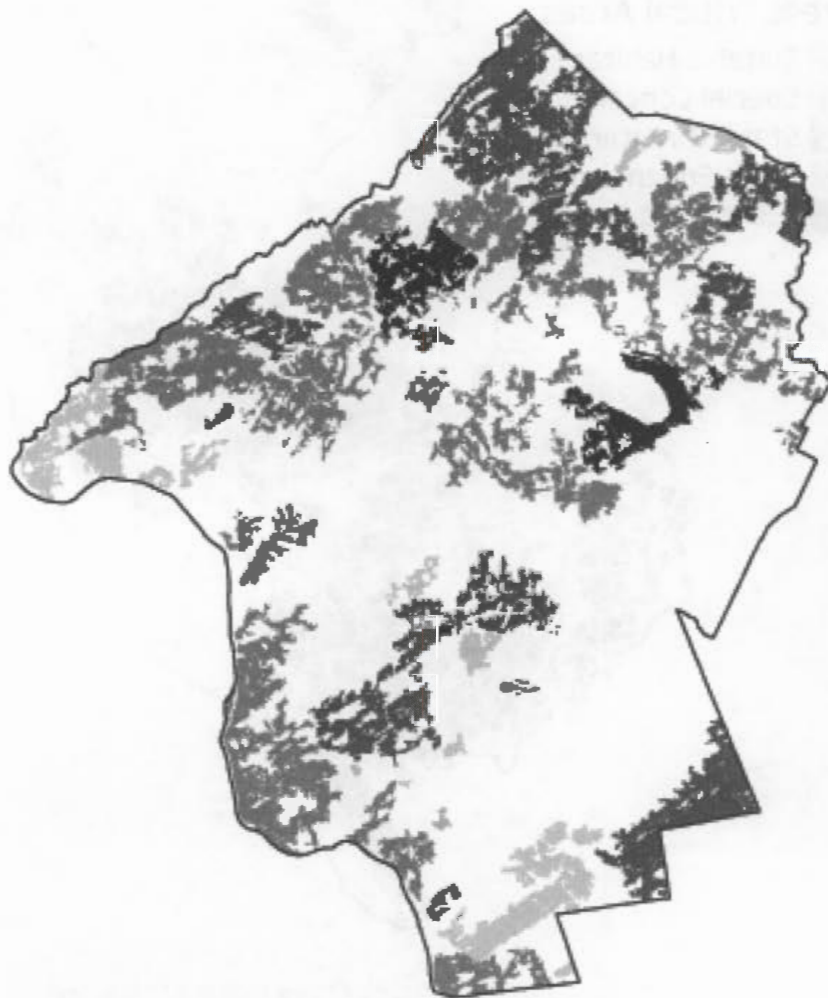
Secondly, animals move. Some animals, such as the bobcat or bald eagle, can move miles in a day. So sightings only mean so much. Protecting sightings does not protect wildlife.

Landscape Project maps help solve these problems. Our maps display the habitat patches animals use, not exact sightings. So the maps more accurately represent the true needs of wildlife and yet can be freely distributed because they don't pinpoint an animal's exact location. The citizens of New






Jersey will, for the first time, have ready access to information previously only available to state regulators and biologists.

Our office has released a number of useful products: a CD ROM for use by both professional and lay users; a map book that covers the entire state; Web access to all the maps; and a detailed booklet about the project. Armed with this information, communities and citizens can plan more effective development by using existing regulations for the protection of wildlife habitat. Better planning means less conflict and more efficient development, which is the first line of defense against sprawl.

Lawrence Niles is chief of the Endangered and Nongame Species Program in NJDEP's Division of Fish and Wildlife.



Forest Critical Areas in Hunterdon County

-  Suitable Habitat
-  Special Concern
-  State Threatened
-  State Endangered
-  Federal T & E

Developed Land in NJ

1972

1995



Developed areas of NJ in 1972 and 1995. Based on satellite imagery classified by Rutgers University CRSSA.

A Buffet for Buffs— *History, That Is...*

by Sandra Magee

Not unlike a buffet in one of New Jersey's finest restaurants, with its presentation of many different foods of glorious colors, textures, and aromas, New Jersey offers a buffet-like array of wonderful historical sites. From Colonial America, through the Revolutionary and Civil wars, through the Industrial Revolution to the present time, these sites chronicle New Jersey's development. Each site is unique in what it comprises and what it offers, from tours to special events. And each offers a fascinating glimpse of New Jersey in another time.

Henry Chapman Mercer was a great collector of historical objects in the early 20th century. He knew that history was more than portraits on a wall and documents signed by the upper class. Men and machinery were advancing rapidly and Mercer used his collection to show how everyday people lived and worked.

A tremendous murmur comes out of these things, that completely drowns the Declaration of Independence, the Battle of Bunker Hill, and the Revolutionary War. It is the Voice of Humanity, of Ages on Ages, from all parts of the world . . ."

Henry Chapman Mercer, 1925



Period transport at Waterloo
Courtesy of State of New Jersey

Allow me to acquaint you with some of New Jersey's many "must see" historic sites. It is my hope that, after reading these brief descriptions, you will tour some of these period-decorated houses, walk battlefields, climb monuments, and view our state's natural beauty. For it is in visiting these sites and enjoying their interesting programs that you will gain a glimpse of how former New Jerseyans lived, worked, and made our state and country so great.

Waterloo Village

Waterloo Village is a restoration of an 18th to 19th century canal port town that also hosts performing arts, historic reenactments, and tours. Located in Allamuchy Mountain State Park, it is a

national registered historic site.

Situated on edge of the Musconetcong River, the area was the home of the Lenape Indians for more than 12,000 years. After the Lenapes migrated west, William Allen, Chief Justice of Pennsylvania, and his partner, Joseph Turner, purchased great amounts of this iron ore enriched land. Thus began the Andover Iron Works. Since these two enterprising men remained British loyalists, their fortunes faded (not surprisingly) when their iron works were confiscated during the American Revolution. The iron works then helped to arm the Continental Army with much needed weapons.

In the late 1700s, a patriot by the name of John Smith took an interest in the area's agriculture and iron industries.

His youngest son Peter, a banker and state senator, opened a general store here when the village, which was renamed Waterloo, became an inland port on the Morris Canal in 1831. The canal brought trade via cargo boats. Grand homes, a gristmill, sawmill, stagecoach inn, and general store made the village complete.

Between the Civil War and the turn of the century, Waterloo dwindled in size and prosperity. In 1964, life was breathed into the renewed Waterloo Village when it was opened to the public as a living history village. Today's visitors will see a restored village featuring buildings erected from the latter half of the 18th century through the latter half of the 19th century, including church, homestead, canal house, general store, gristmill, sawmill, and more. The Towpath Tavern, below Smith's General Store, serves light lunches, beer, and wine on weekends during the season. There's also a café and a museum store, a barn featuring a display of antique horse-drawn vehicles, and buildings in which the crafts of yesterday, such as weaving, gunsmithing, and broom making, are demonstrated. Among the many events held at Waterloo Village are reenactments featuring Red Coats and Colonials.

Also at Waterloo, bark wigwams, a native garden, and a grove full of symbols from a local Lenape petroglyph lead visitors along a natural trail to Winakung (*place of sassafras*), a recreation of a Minisink Indian Village as it would have looked in 1625. The Minisink were part of the Lenape, or Delaware, nation, and Winakung depicts the natives' way of life at a time when European traders bartered tools, glass beads and clothing for their furs and animal skins.

A visit to Waterloo Village is always enjoyable, and it becomes even more so when you participate in one of the many special events that take place there.

Waterloo Village

525 Waterloo Road
 Stanhope, NJ 07874
 973.347.0900
www.waterloovillage.org/

Take Interstate 80 to Exit 25, then follow the signs for Waterloo Village.

Waterloo Village is open from April 17 through mid November; call for hours.

Admission fee: Adults, \$9; Seniors, \$8; Children (6-15 yrs), \$7.

2002 Events

May 18 & 19	Spring Antiques Fair
May 25 & 26	Spring Wine Festival
July 7	New Jersey Storytelling Festival
July 13	Auto Jamboree
August 17 & 18	Garden State Re-Enactors
September 1	Scandinavian Festival
September 8	Irish Feis
September 14 & 15	Fall Wine Festival
September 19 - 22	Geraldine R. Dodge Poetry Festival
September 21 & 22	Fall Antiques Fair
October 19 & 20	Fall Harvest Festival



Old Barracks Museum

Courtesy State of New Jersey

Old Barracks Museum

Now preserved and functioning as the Old Barracks Museum, the barracks is the only one remaining of the five built by the British to house soldiers serving in the Colonial wars. The big building housed approximately 300 British and Irish soldiers in 1758. At the time of Washington's surprise attack in Trenton on December 26, 1776, the barracks housed Hessian troops (mercenaries). A fine example of the architecture of the period, the Old Barracks Museum is owned by the state but administered by the Old Barracks Association.

Dave Emerson, dressed in period costume, conducted a recent tour through the Barracks and officers' quarters. He explained how the soldiers lived, fought, dealt with a myriad of diseases, and stayed occupied during the long winters when the fighting ceased. When the soldiers weren't fighting, they drilled for up to six hours per day. Emerson also explained medical practices in a recreated hospital room. He demonstrated how various operations, even brain surgery, were performed. Surgery, always exploratory in those pre-X-ray days, was always dangerous since there were no antibiotics, antiseptics, or anesthetics.

The building is made of stone and dark red woodwork. Red was the most economical paint and was plentifully used. Cobalt blue was imported and quite expensive; it was used only in the areas where officers entertained, to impress their visitors. Twelve soldiers slept in each of 20 small rooms, which also were used for storing their clothes, weapons, and rations, as well as cooking or heating food (although there was a kitchen in the cellar).

Today's visitors will enjoy both the gallery, which features rotating exhibits, and the Barracks' gift shop. On my tour, I saw a wonderful display of Hessian portraits and rifles, took a look at their everyday lives, and learned a lot of interesting information. For example, although people think the Hessians were "hired guns," they really were ordered to fight under an agreement between England's King George III and his cousin, Frederick II, Prince of Hesse-Cassel, because the British simply did not have enough of their own soldiers. The Hessians did not receive any more money than the stipend paid to the British or Continental soldiers. The Hessian exhibit will be on view until June.

Visiting the Old Barracks Museum's new Web site is almost as illuminating as

seeing the Barracks itself. Among its features are things to do (including interactive games and puzzles), fictional first-person life stories, and other fascinating historical information. The site also lists the various tours and programs, offered—including tours, outreach programs, and a summer day camp—and has a teaching guide and materials for teachers and students preparing to visit the Barracks.

Whether you tour the Barracks via its Web site or visit it in person, you're sure to have an entertaining, informative experience.

Old Barracks Museum

Willow Street
Trenton, NJ 08625
609.396.1776
www.barracks.org

Call for current driving directions and parking information.

Open May through October, 10 a.m. to 5 p.m. daily and 1 to 5 p.m. Sunday; November through April, 10 a.m. to 4:40 daily and 1 to 4 p.m. Sunday

Admission fee

Historic Batsto Village

In 1766, a Burlington iron master by the name of Charles Reed built the Batsto Ironworks on the Batsto River. (Batsto or *batstu* is the Swedish word for bathing). The ironworks changed ownership several times during the following decade. The owners became suppliers of cannons, munitions, and other supplies for the Continental Army during the Revolutionary War.

In 1784, William Richards bought the Batsto Ironworks. It was owned by the Richards family, who built most of the current village, for the next 92 years. In 1876, by which time the iron industry was defunct and its subsequent window glass manufacture over, Batsto was sold to a Philadelphia industrialist, Joseph Wharton, for \$14,000. Ultimately, Wharton's vast New Jersey land holdings were purchased by the state and became the core of Wharton State Forest.

Today, visitors can tour the general

store, gristmill, sawmill, and workmen's houses. Another tour, that of the 36-room mansion with a central tower that served as a lookout, is popular with visitors. In all, the village boasts of more than 40 attractions, making a visit to Batsto a wonderful day trip or a worthwhile stop on the way to the shore.

Historic Batsto Village

Wharton State Forest
Batsto, Route 9
Hammonton, NJ 08037
609.561.7310

Take Route 206 south to Route 613, then turn left. Make another left on Route 693, and another left onto Route 542. Look for the sign for Wharton State Park.

Grounds open from dawn to dusk; visitor center open from 9 a.m. to 4:30 p.m.; Batsto hours are 10 a.m. to 4 p.m.

Events

June 9	Batsto Arts Celebration
June 29	Batsto Post Office 150th Anniversary*
October 6	Antique Glass and Bottle Show
October 20	Country Living Fair

*11am—Special cancellation for collectors

Batsto from the air

Courtesy of State of New Jersey



High Point Monument

The High Point Monument is located in High Point State Park in the northwest corner of New Jersey, along the Kittatinny Mountains in Sussex County.

The park's benefactors, Colonel Anthony Kuser and his wife, Susie, donated more than 10,600 acres in 1923. The 221-foot-high monument marks the highest point in New Jersey—1,803 feet above sea level. Completed in 1930, it was dedicated in honor of New Jersey's war heroes. Visitors can view the Pocono Mountains, the Catskill Mountains, and the Wallkill River Valley from the base of the monument. Renovation of the monument is underway, and should be completed soon.

High Point always has exciting things in store for its visitors; call the park to find out what's happening when you plan to visit.

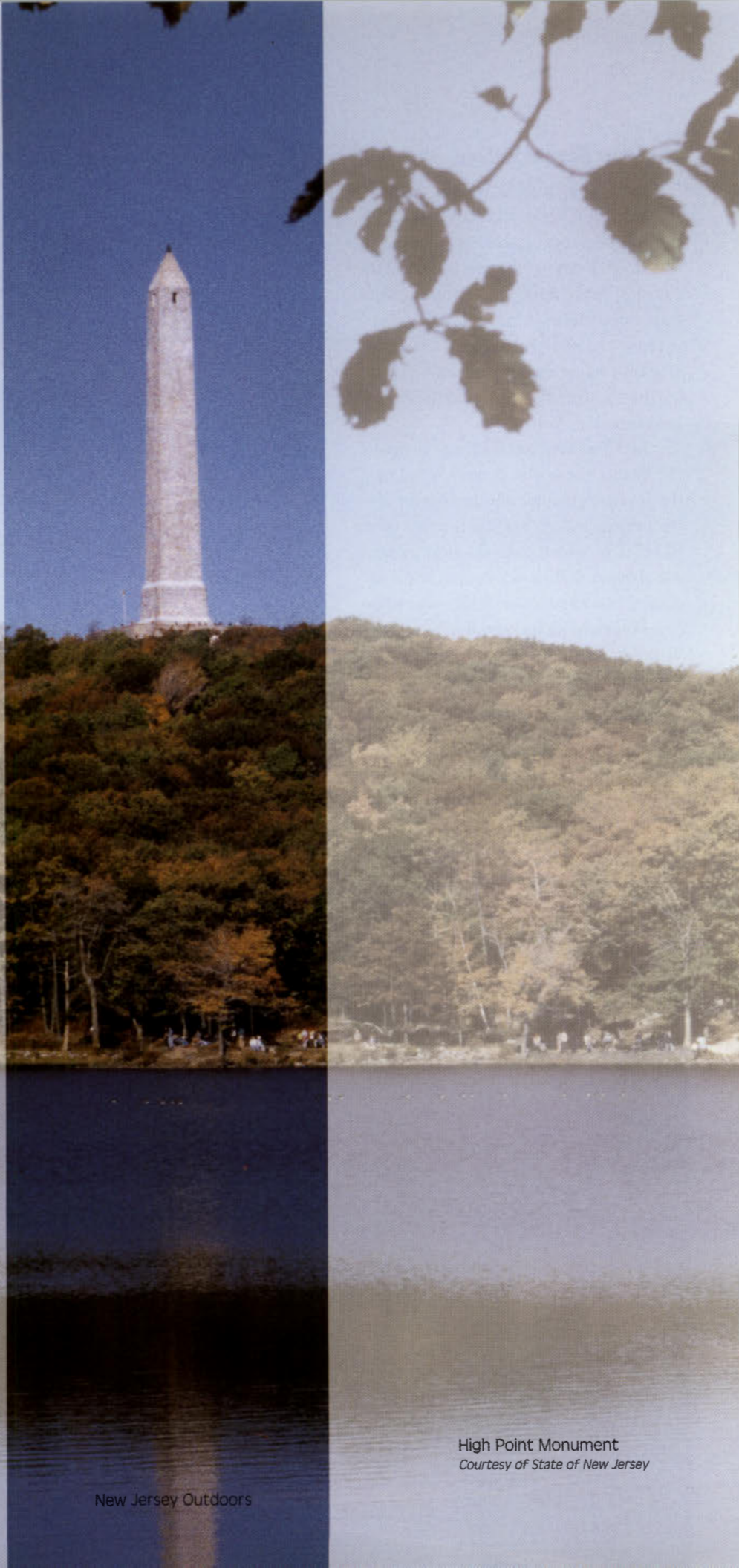
High Point Monument

High Point State Park
1480 Route 23
Sussex, NJ 07461
973.875.4800

Take Route 23 approximately seven miles north of the town of Sussex.

The park is open daily from dawn to dusk; visitor center hours are from 9 a.m. to 4 p.m.

Lake Marcia, a spring-fed 20-acre natural lake, can be used for swimming from Memorial Day to Labor Day. The beach is protected by life-guards. Hiking and camping also are very popular. There are 50 family campsites around the lake and two family cabins.



High Point Monument
Courtesy of State of New Jersey

Twin Lights Historic Site

The historically rich Twin Lights, constructed in 1828, stands more than 200 feet above sea level atop Navesink Highlands. The lighthouse, as its name suggests, comprises two separate towers that are linked by keepers' quarters and storage rooms. The towers, originally unconnected, are not really twins; the south tower is square and the north is octagonal, and one held a revolving light while the light in the other was stationary.

Superior lenses, developed by Augustine Fresnel, were installed in 1841, making the two towers the first lighthouses in the country to be so equipped. Then the best coastal light in America, they served as the primary sea-coast light for New York Harbor. About 20 years later, storage areas and living space for the keeper were built to connect the towers. Twin Lights led the way in other areas too, becoming (among other things) the country's first electrically powered primary lighthouse.

Another historical coup occurred in 1899, when a young man named Guglielmo Marconi used Twin Lights to

demonstrate his wireless telegraph. A plaque in the tower states:

Here, in 1899, Guglielmo Marconi erected the antenna mast of the first wireless telegraph installation in the United States capable of sending and receiving messages on a regular commercial basis.

It was first used on September 30, 1899, to receive reports from the steamship Ponce on the progress of the naval review saluting the triumphant return from the Philippines of commodore George Dewey, the victor of Manila Bay on October 3, 1899. The same wireless apparatus was used to receive reports on the America's Cup races between the Shamrock and the Columbia.

With modifications, a Marconi wireless station remained at this location for communications with ships at sea until 1907, when it was dismantled and replaced by a new station at Seagate, New York.

Twin Lights was decommissioned in 1949, and opened by the state as a historic site in 1962. There are tours and an exhibit gallery. There are also many other attractions surrounding the lighthouse. The view of the Atlantic Highlands and Sandy Hook from the

Twin Lights is spectacular, and a visit to the Sandy Hook Gateway National Recreation Area makes a nice addition to your outing.

Twin Lights Historic Site

Lighthouse Road
Highlands, NJ 07732
732.872.1814

Take the Garden State Parkway south to Exit 117; exit onto route 36, then on through Atlantic Highlands and into the Highlands. On the right, just before you reach the bridge that crosses the Shrewsbury River to Sandy Hook and Sea Bright, you'll see a Twin Lights signpost. Turn right there, then immediately bear right again on the street to Twin Lights, following the signs.

The lighthouse tower, museum, gift shop, and other buildings are open daily from 10 a.m. to 5 p.m., from September through May.



Twin Lights
Courtesy of State of New Jersey

The Hermitage

This national landmark home is an exquisite 1847 Gothic Revival house. Its genesis was a brownstone house, built in the mid 18th century, that had hosted such familiar historical personages as the Marquis de Lafayette, Alexander Hamilton, and James Monroe. George Washington and his officers were entertained at the site for four days in July 1778 and, four years later, Aaron Burr married the owner's widow.

The house changed hands several times prior to 1807, when the Rosegrant (later known as Rosencrantz) family began its 153-year occupation of it. Forty years after his father purchased the house, Elijah Jr. had a romantic Victorian residence constructed, incorporating the historic stone house in its design.

The resulting structure, with its gable roofs, diamond-paned windows, and Tudor arches, remains almost unchanged. Bequeathed to the State of New Jersey in 1970, this beautiful treasure is interpreted to the 1890s to reflect its Victorian past.

Today, it is open to the public to hear guest speakers, attend a Victorian lecture series, and view clothing and textile exhibits. Also offered are school enrichment programs, Victorian craft workshops, an annual family festival, and historic research programs, as well as parlor theater productions, garden parties, and fairs.



Hermitage House

Courtesy of Friends of the Hermitage

The Hermitage

335 North Franklin Turnpike
Ho-Ho-Kus, NJ 07410
201.445.8311
www.thehermitage.org/

Open Wednesday through Sunday, from 1 to 4 p.m. The last tour begins at 3:15 p.m. Fee for tours and some other activities.

Events

- April 27 *A Victorian Adventure* Go back in time. Experience the era of the Gilded Age, the Spanish American War, immigration and inventions. We invite you to join us for an array of special activities designed to transport you to a day in the 1890s. Fee.
- June 1 *Antique Show* Call for information.
- July 13 *Revolutionary War: Reenactment* Call for information
- July 20 *Antique Show* Call for information.

Walt Whitman House

328 Mickle Boulevard
Camden, NJ 08103
856.964.5383

From the New Jersey Turnpike take Exit 4 onto Route 73 North. Take I-295 South to I-676 toward Camden. The house is two blocks from the Camden Waterfront.

Open Wednesday through Sunday; calls to schedule visits are encouraged.

Walt Whitman House

"Camden was originally an accident, but I shall never be sorry I was left over in Camden. It has brought me blessed returns."
—Walt Whitman

Whitman bought this house, the only one he ever owned, from proceeds of his book, *Leaves of Grass*. His belongings, which include personal letters, his bed, and even his death notice, have all been preserved and are on display in his home, which is a National Historic Landmark. Restoration work, including the recreation of period wallpapers and carpets, was completed on the site in 1998, and was recognized nationally last year with the Victorian Society in America's Preservation Award.

This great American poet, born so long ago (1819), still affects people in all parts of the world with his unique style of poetry and his vision for our country, as evidenced by the following letter, written on September 13, 2001:

Dear Friends across the sea,

I would like to express my deep sadness and grief at the tragic events in New York and Washington that have caused so much suffering and loss to the people of your country . . . your grief is shared by people on this side of the Atlantic and know that our thoughts are with you.

I felt that it seemed appropriate, somehow, to send this message to the home of your own poet of democracy, Walt Whitman, believing that the vision he held for America and its people will prevail, even in this dark hour of her history.

*With love and deepest sympathy,
From Mariam Asher
England*

Leo Blake, curator of the Whitman House, enjoys teaching young people about Whitman. "Students learn of a courageous individual," he says, "who dared to speak his mind and to serve those who suffered unspeakable pain and sorrow in times of war and bitter conflict."

Monmouth Battlefield/Craig House

On June 28, 1778, one of the largest battles of the American Revolution took place at the site now designated as Monmouth Battlefield State Park. On a sweltering summer day, General George Washington turned a loss into a win for the Continental Army after many hours of fighting and near retreats. It was not a one-sided victory, but Washington's troops were the last men standing. It is said that this victory helped turn the tide of the war and gave Washington and the Continental Army much needed stature.

The battlefield, a 1,813-acre park, preserves a splendid rural landscape of field and orchard, woods and marsh. It has a visitor center, the Craig House, 25 miles of hiking trails, and two picnic areas. The Craig House has been restored and is only open on weekends. Please telephone for hours.

A very special event is scheduled for June 28 and 29, 2003. The park will host one of the largest reenactments of the 225th anniversary of the American Revolution. More than 1,000 men-at-arms will take the field; their supporters and camp followers will help provide a fascinating glimpse into the various facets of the waging of war more than two centuries ago.

Sandra Magee is the assistant editor of New Jersey Outdoors magazine.

Reenactors at Monmouth Battlefield
Courtesy of NJ Dept. of Environmental Protection



Monmouth Battlefield/Craig House

347 Freehold-Englishtown Road
Manalapan, NJ 07726
732.462.9616

Take New Jersey Turnpike North to Hightstown exit. Take Rt. 33 East about 10 miles to park entrance on left.

Interpretive center, visitor center, picnic tables, playground, food concession.



Left: Walt Whitman House
Courtesy of NJ Div. of Parks & Forestry

Below: A restored room in the Walt Whitman House
Courtesy of NJ Div. of Parks & Forestry



Telemark: The New Old Way to Ski



by Michael Zeugin

If Sondre Nordheim were born today, he'd probably have the savvy to make sure he got credit for the skiing maneuver he invented. Then he could capitalize on his creativity with a new line of equipment, clothing, and some accessories to match. Such was not the case in 1868 when Nordheim laid the groundwork for modern skiing. His flexed-knee, free-heel turn was named after the town of his origin, Telemark, in Norway. Nordheim also is credited with the parallel turn used by alpine skiers.

But the father of telemark skiing would be smiling now, were he still making turns. Modern technology and ski subcultures have conspired to create a telemarking rebirth. Improvements in equipment are making telemarking more versatile and attractive to winter sports lovers. Better gear opens the door to improvements in ski technique and versatility. As alpine skiing and snowboarding become passé, the old way of skiing is taking hold. Suddenly the old way is the new way.

Telemark Is Cool

There's something about the look of it. Unlike the parallel turn, which uses a stiffer looking, slightly squatted posture that can also be done on free-heel equipment, the telemark turn relies on a distinctive flexed knee, genuflecting movement. To some it looks muscular; others think it graceful, ballet-like.

Either way, when done with skill the telemark turn seems to enthrall spectators and other skiers alike. Alpine (fixed heel) skiers, on seeing telemarking for the first time, can often be heard expressing their incredulity. More than one telemark skier has heard, "What the #@&* is that?" screamed down from the lifts above. And it isn't just the Norwegian sweaters with the reindeer designs that some telemarkers wear. Even casual, recreational skiers realize that the form looks cool—it's something different.

Cool has been cooking for a while. In the US, telemarking got restarted in the '70s when the hippie (baby boom) generation took to the woods. Backpacking, hiking, camping, and (eventually) mountaineering thrived as part of their back-to-nature credo. Cross-country skiing became the winter sport of choice, extending participation in outdoor activities to year-round.

But to survive downhill runs in the backwoods, skiing through trees, the parallel, wedge, and stem turns familiar to many skiers don't always make the grade. What's needed is the telemark turn. For years this turn was the holy grail of skiing for some—a

Opposite page: The author takes on Hidden Valley's Hell 'n' Back trail Telemark-style.
Photo © Margaret Conroy

dream attempted but rarely achieved, and even then by only a few.

Once mastered, the telemark's natural feel and extended platform create stability and maneuverability for skiing with a pack on rough terrain or in untracked snow. But learning it was once not so easy.

In the early days, most telemarkers were self-taught. And the equipment seemed more suited to skiing in the 1890s than 1970s. Leather lace-up boots, cable bindings, flimsy poles that were not adaptable, and skis not suited to the task, conspired to make the club of telemarkers an exclusive band of snow masochists. To alpine skiers back then, telemarkers looked like tortured albatrosses on barrel staves, to be viewed mostly with amusement and certainly never envy.

New Gear Helps

Telemark aficionados, who knew it should be easier, began to push for improved gear. Better bindings, plastic-leather hybrid boots, wider floaty skis, and adjustable ski poles were an outgrowth of demand and the ingenuity of a few dedicated small manufacturers who were all telemarkers and mountaineers themselves.

Some alpine skiers joke that telemarkers are trying to re-invent alpine skiing, since they've only adopted all-plastic boots and releasable bindings in the last 7 to 10 years. But the new equipment has opened doors to more powerful telemark skiing moves and attracted a younger generation of tele-skiers, as they refer to themselves.

This new crop of tele-joiners comes from the fringes of alpine skiing and snowboarding. Ex-high school and college ski-racers, bored and wanting new challenges, have opted to lose the heel-pieces. These generation X and Y skiers have joined their aging happy-hippie forebears and adopted the tele slogan:

"Free your heels, free your mind." Something of a war cry, this was originally the retort to alpine skiers who often poked fun at the leather-booted pioneers of telemark skiing.

Some snowboarders, tired of using snowshoes for difficult access to backcountry chutes and trails (i.e., non-lift-served, climb-it-yourself venues), also began to convert to telemark skiing. This trend prompted one telemark binding manufacturer, Voilé, to introduce a convertible snowboard called the Split Decision; it breaks in half to become Nordic-style skis for the climb and is then reassembled into a snowboard for the descent.

But tele-skiing was also gaining a reputation as renegade. Backcountry access has long allowed telemark skiers the ability to ski where others can't. This out-on-the-fringe-of-civilization image registers with teenagers looking for the cutting edge. Some of them see snowboarding as passé, so telemarking is cool to kids, too.

Kid-cool doesn't preclude parents from joining in, though. A noticeable contingent of baby-boomers, having skied for years, has taken up telemarking in a quest for new challenges. Others, skiing with their young children, decide they too will learn something new. So while their kids take on alpine skiing, the parents join the learning curve on tele-boards. Later, when the kids master alpine moves, they often also switch to telemark skiing.

Originally popular only in far-flung

Below: Zeugin demonstrates the advantages of modern gear with cutting edge telemark skiing technique on Hidden Valley's Highland Swing Trail.
Photo © Margaret Conroy



destinations such as Vermont, Colorado, or the Canadian Bugaboo range, telemark skiing has slipped into New Jersey. On any given weekend, a sharp eye at some of the local ski mountains of northern New Jersey will spot the occasional telemarker. No, it's not taking over the slopes, but when one weekend yields a squadron of six tele-skiers slashing up the slopes at Hidden Valley in Vernon, it seems a veritable movement. Just five years ago, one telemarker was an anomaly. Even as it takes hold, telemarking still has an exclusive cachet that appeals to those who adopt it.

A Real Growth Sport

Telemarkers are a friendly bunch. I was reminded of this recently after sending a student, whom I coached from beginner to expert status in one season, off on his own. He came back from a trip to Vermont and said, "There is one thing you didn't teach me about telemark skiing."



I was concerned thinking I'd failed in my coaching duties, perhaps having left some crucial detail out of my lessons. "What did I forget?" I asked. His face broke into a joyful grin as he enthused, "You didn't tell me I'd have instant friends wherever I skied."

This merry-band-of-telemarkers feeling knows no bounds. I ski with a 10-year-old telemark protégé who is greeted with whoops and hollers from the lifts above or the lodge deck below, no matter where she goes. Here in New Jersey, telemark skiing is now anchored firmly by established telemark trained instructors found at each of the state's ski-resorts.

Campgaw ski area, part of the Bergen County Parks in Mahwah, plays host to a NATO (North American Telemark Organization) telemark skiing clinic every year on the last weekend in February. Along with others, it is staffed by Gene Lugo, who is a Level I PSIA

(Professional Ski Instructors of America—a national organization that trains and examines ski instructors for certification) telemark ski instructor for Campgaw.

Lugo was taught telemark skiing by a fellow Campgaw instructor just as this skiing subset was beginning to catch on. Five years ago, Lugo was the only telemark instructor at Campgaw. "I was entering this just as the rapid evolution of telemark skiing began," Lugo recalls. Now Campgaw has seven telemark instructors on staff, including ski school director Mike Mandell, who is a PSIA Level 3 certified telemark coach.

At Hidden Valley in Vernon, Doug Hill is the only certified telemark

instructor. Along with his wife Donna, Doug helps run the kids snow sports program at Hidden Valley. When Hill, also an alpine and cross-country certified instructor, finds free time, he telemarks for pure enjoyment. Hill claims "It feels different, more natural than alpine skiing, and it looks awesome."

It was the look of telemarking that lured Doug to the sport at first. Having dabbled in telemark skiing, he was still heavily involved in alpine ski instructor training and teaching. At a yearly national instructor education event in Utah he had his epiphany: "I remember being at the PSIA National Academy at Snowbird, seeing the Nordic

Demonstration Team stepping through the moguls telemark style and thinking, I want to do that.” Hill went on to become Level 2 certified for telemark ski instruction with PSIA.

New Jersey’s largest ski resort, Mountain Creek in Vernon, also has PSIA-certified telemarkers on staff. Snow sports school supervisor, Chuck Wallace, is a Level 3 certified telemark instructor. Whenever he gets a chance he hits the snow in tele-mode. “For me the attraction to telemarking is versatility—being able to ski anywhere,” Wallace says.

Chuck skied the backwoods on his own for years, teaching alpine skiing at Craigmear before it closed to skiing. There he began to telemark on the slopes too and got requests for teaching from interested alpine skiers. “They saw it as something different and new—although of course it’s really old—and yet familiar, compared with the jump to snowboarding,” Wallace says. As he rose through the ski school to become director at Craigmear, Wallace also attended PSIA telemark training clinics and exams. He says this helped him become a better teacher and skier.

Aside from teaching and supervising at Mountain Creek, Wallace now mentors a handful of telemark instructors at his mountain, often coaching them and accompanying them to PSIA events and exams as support. Mountain Creek offers some of the more challenging telemark terrain in New Jersey with steep trails that are allowed to bump up from skier traffic, growing moguls. It is these steep-moguled trails that offer the ultimate challenge to all skiers, but even more so to free-heelled telemarkers.

NJ & Telemark—Perfect Together

Just a few years back, finding a telemark instructor on the New Jersey slopes was not possible. New equipment and



visibility for the sport attracted these ski professionals the same way other skiers are seduced by this variation on the sport. This is augmented by the suitability of New Jersey’s ski terrain to learning telemark technique.

The lack of a heelpiece means the skier needs to build confidence in perfecting his telemark stance and turn. Jersey ski areas have abundant intermediate terrain to help accomplish this. Once telemarkers master the basics, they can move to the greater challenge of steeper terrain and moguls.

Many telemark skiers also take their skills into the woods for unfettered tree skiing. In New Jersey this possibility is determined by natural snowfall. In good snow years a three- to five-foot base is not uncommon, opening wide areas of



the forested Skylands region to backwoods tree skiing. A partner (for safety), a topographic map, and some summer scouting of terrain near hiking trails all help in achieving telemark tree-skiing nirvana. High Point, Stokes, and Wawayanda state parks all have suitable wilderness skiing terrain. Some is easily accessible via snowmobile trails. Other

Opposite page: Long and low — The author telemarks a backcountry treed bowl at the south end of Wawayanda’s Laurel Pond.

Photo courtesy of Michael Zeugin

Left and below: Kids can tele too. Tele-protogé Lisa Forst shows off her telemark skills in the trees.

Photos © Michael Zeugin



Free the Heel, Free the Mind - Telemarking's unlocked heel allows a more flexible stance than Alpine gear. Long low platform (left). Tight high stance (below)

Photos © Margaret Conroy



areas require track-breaking skills.

Without ski lifts, backwoods telemark skiing requires a melding of cross-country skiing's skills with specialized equipment. Some manufacturers are just beginning to address this hybrid form of winter sport. Cross-country skis have traditionally focused on propulsion—climbing or sliding forward. Modern telemark skis focus on downhill advantages. This prompted many backcountry telemarkers to climb on cross-country or touring skis, then switch to telemark skis (strapped to their packs) for the downhill runs. A nuisance in alpine terrain, where long climbs and descents are the norm, this method is almost useless in the more rolling, treed terrain found in New Jersey, among other places. An alternative to this two-pair method is to use skins—directional mohair or plastic sheaths that cover the ski bottoms and facilitate climbing without slipping backwards.

New specialized hybrid skis that target this backcountry type of skiing have begun to hit the market. These boards make performance woods-skiing a reality. A good example is a model from the Fischer brand called the OuttaBounds. This ski is wider than a typical cross-country ski. Although it looks like an alpine ski, it has a patterned bottom

(directional teeth that grip the snow for climbing but don't hinder downhill sliding) and a double camber (the arch in the middle of the ski that reduces the impact of your weight on the snow; alpine skis have single camber) that facilitates the “kick and glide” propulsion that cross-country skiers use to get around on trails and in the forest. It lends itself to use with either leather or plastic boots, further widening the telemarker's options. Leather boots are suited to easier terrain or touring around the forest, where plastic boots are used for steeper, more technical (rocks, trees, cliffs) terrain that requires the transmission of more powerful turning moves to the skis.

The right combination of skis, boots, and poles on the feet and hands of a practiced skier allow snow travel and descent in almost any conditions or terrain. To many snow sports enthusiasts, the ultimate goal of telemark skiing is to combine the flexibility of the traditional telemark style with new techniques and equipment to break out of the confines inherent in alpine and cross-country ski-

ing. With thousands of acres of forested parklands, New Jersey skiing converts soon find that telemark is a new old way to have fun.

*With credentials from PSIA in Nordic Downhill (Level 3), Nordic Track and Skate (Level 2), and Alpine (Level 2); the American Association of Snowboard Instructors (Level 1); and the United States Ski & Snowboard Association (Club Coach), Michael Zeugin is a quintuple certified snow sports instructor. He teaches snow sports at Whiteface Mountain in Wilmington (New York), leads telemark workshops for NATO (North American Telemark Organization) at mountains throughout the Northeast, and coaches and guides on a freelance basis at select locales. When not helping people find adrenaline rushes on the snow, he teaches English at Rutgers University in Newark. Zeugin's work on the outdoor subjects has been published in *New Jersey Outdoors*, *New England Windsurfing Journal*, *Appalachian Mountain Club Outdoors* and *Straus Newspapers*.*

GEARING UP TO TELEMARX

Finding great telemark gear is always harder than finding alpine ski equipment. A little guidance can cut your search time and increase your skiing time, which is always a good thing. The type of telemark equipment found at the shops listed below can vary from light duty backcountry (beefed up cross-country gear) to pure ski-lift-oriented Nordic downhill tele-gear.

Campmor Inc. (www.campmor.com)

810 Route 17 North
Paramus, NJ 07652
201/445-5000

Campmor may be New Jersey's best-stocked telemark shop, with a full range of telemark gear and exotic accessories such as climbing skins. They even stock high performance women's telemark boots (hard to find in these parts).



Heino's

65 State Highway 23
Pequannock, NJ 07440
973/696-3044

Heino's offers a selection of backcountry skiing gear and will special order telemark gear to customer needs.

Neal's Sports Emporium

121 State Rt. 23, Rear
Sussex, NJ 07461
973/875-7912

With a focus on cross-country skiing equipment, Neal's also specializes in the new hybrid telemarking equipment (gear suited to both backcountry skiing and lift-served area skiing).



Nestor's (www.nestors.com)

99 North West End Blvd
Quakertown, PA 18951
215/529-0100
(toll-free: 800/439-2858)

2510 MacArthur Rd
Whitehall, PA 18052
610/433-6051

(toll-free: 800/898-1133)

Located just over the New Jersey border, Nestor's is one of the only area shops that offers rental of telemark skis. They also stock a variety of performance oriented telemark gear.



Rock & Snow (www.rocksnow.com)

44 Main St
New Paltz, NY 12561
(845/255-1311
(toll-free: 888/255-1311)

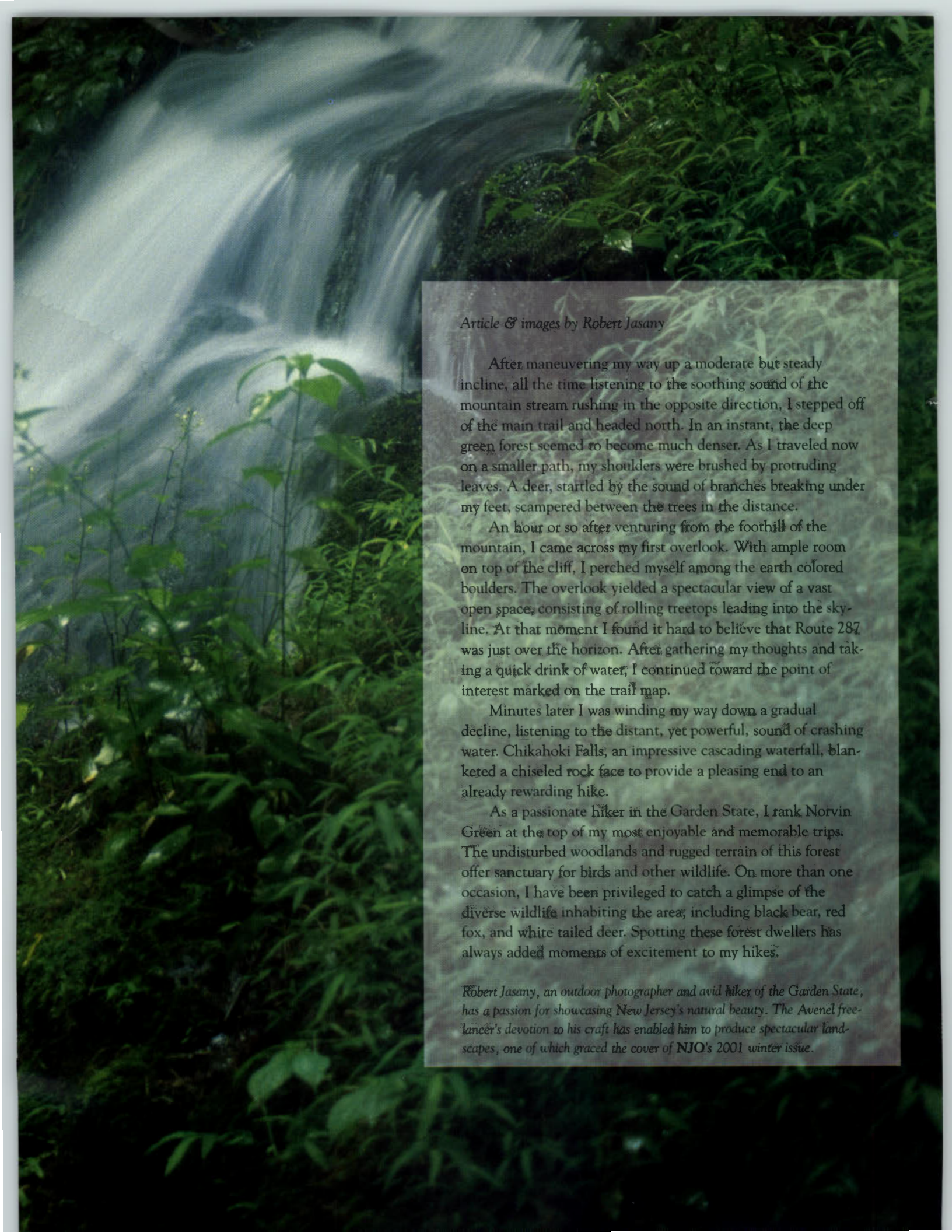
A bit north the New Jersey border, Rock and Snow sells mostly cross-country touring skis but will special order telemark gear on an individual basis.



—Michael Zeugin

*Seeing the Forest
through the Trees*





Article & images by Robert Jasany

After maneuvering my way up a moderate but steady incline, all the time listening to the soothing sound of the mountain stream rushing in the opposite direction, I stepped off of the main trail and headed north. In an instant, the deep green forest seemed to become much denser. As I traveled now on a smaller path, my shoulders were brushed by protruding leaves. A deer, startled by the sound of branches breaking under my feet, scampered between the trees in the distance.

An hour or so after venturing from the foothill of the mountain, I came across my first overlook. With ample room on top of the cliff, I perched myself among the earth colored boulders. The overlook yielded a spectacular view of a vast open space, consisting of rolling treetops leading into the skyline. At that moment I found it hard to believe that Route 287 was just over the horizon. After gathering my thoughts and taking a quick drink of water, I continued toward the point of interest marked on the trail map.

Minutes later I was winding my way down a gradual decline, listening to the distant, yet powerful, sound of crashing water. Chikahoki Falls, an impressive cascading waterfall, blanketed a chiseled rock face to provide a pleasing end to an already rewarding hike.

As a passionate hiker in the Garden State, I rank Norvin Green at the top of my most enjoyable and memorable trips. The undisturbed woodlands and rugged terrain of this forest offer sanctuary for birds and other wildlife. On more than one occasion, I have been privileged to catch a glimpse of the diverse wildlife inhabiting the area, including black bear, red fox, and white tailed deer. Spotting these forest dwellers has always added moments of excitement to my hikes.

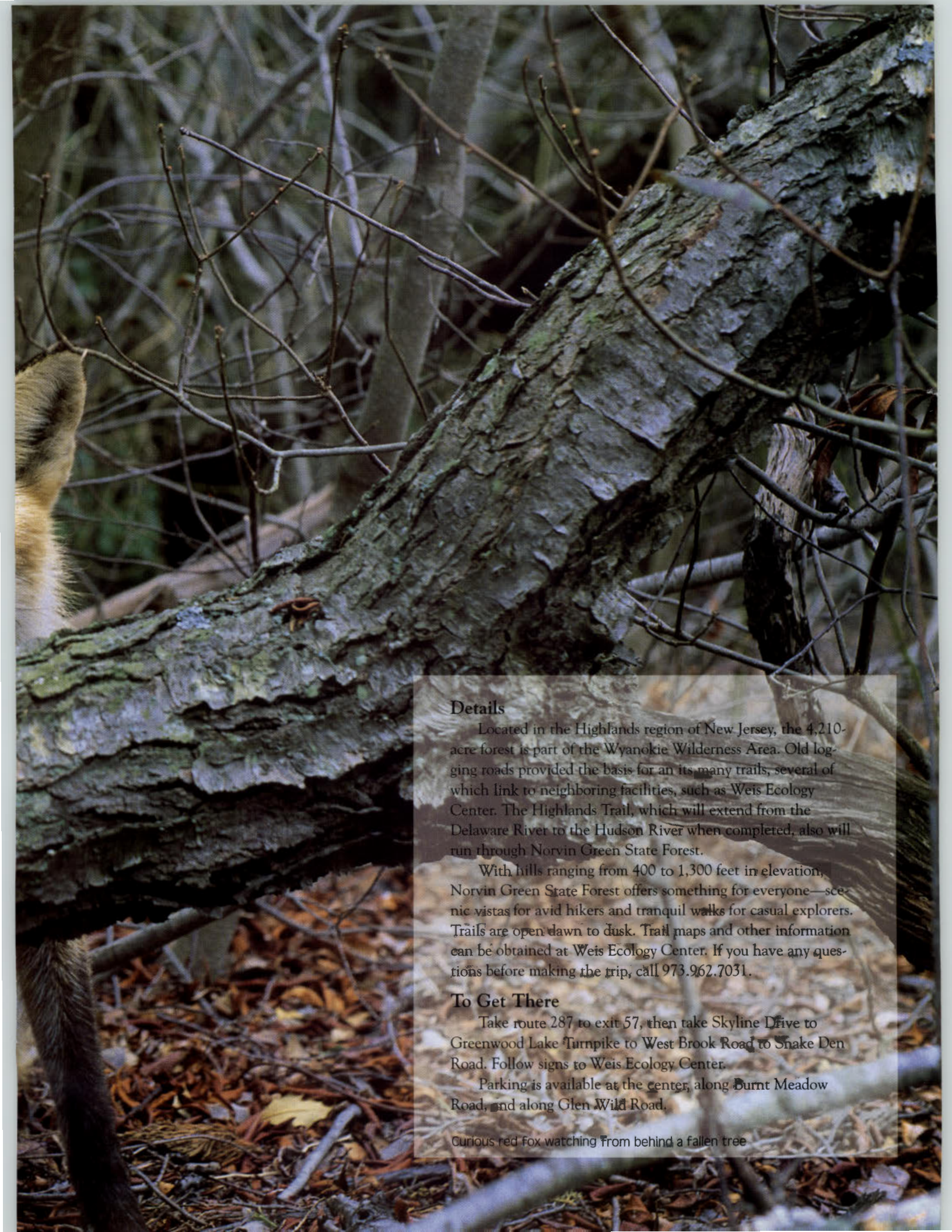
Robert Jasany, an outdoor photographer and avid hiker of the Garden State, has a passion for showcasing New Jersey's natural beauty. The Avenel free-lancer's devotion to his craft has enabled him to produce spectacular landscapes, one of which graced the cover of NJO's 2001 winter issue.





Timber rattlesnake basking in the afternoon sun on the forest floor



A photograph of a red fox peering from behind a large, mossy tree trunk in a forest. The fox's head and one eye are visible on the left side of the frame. The tree trunk is thick and covered in green moss. The background is filled with bare, thin branches and some green foliage, suggesting a wooded area. The ground is covered with brown leaves and twigs.

Details

Located in the Highlands region of New Jersey, the 4,210-acre forest is part of the Wyanokie Wilderness Area. Old logging roads provided the basis for an its many trails, several of which link to neighboring facilities, such as Weis Ecology Center. The Highlands Trail, which will extend from the Delaware River to the Hudson River when completed, also will run through Norvin Green State Forest.

With hills ranging from 400 to 1,300 feet in elevation, Norvin Green State Forest offers something for everyone—scenic vistas for avid hikers and tranquil walks for casual explorers. Trails are open dawn to dusk. Trail maps and other information can be obtained at Weis Ecology Center. If you have any questions before making the trip, call 973.962.7031.

To Get There

Take route 287 to exit 57, then take Skyline Drive to Greenwood Lake Turnpike to West Brook Road to Snake Den Road. Follow signs to Weis Ecology Center.

Parking is available at the center, along Burnt Meadow Road, and along Glen Wild Road.

Curious red fox watching from behind a fallen tree

See the Outdoors Indoors

by Cindy Ross

Editor's note: Although it's a great experience to visit a museum, aquarium, or similar institution at any time of the year, doing so when the weather's inclement is especially rewarding, since it helps you to spend time "outdoors" even though you're indoors. In this article, you'll visit several of New Jersey's best-known repositories of natural and historic resources and artifacts.

New Jersey State Museum & Planetarium, Trenton

The open jagged jaws of the tiger shark move closer to 9-year-old Bryce's head. His eyes widen. It is clear that he can easily fit through the gaping deadly mouth. Tony Miskowski, assistant curator and natural history interpreter at the New Jersey State Museum, puts the shark jaw back on its shelf. No, this isn't yet another shark story; we're just learning about them at *The Nature Show!*, a wonderful program the museum offers every Tuesday.

"Sharks lose thirty thousand teeth in their life," Tony remarks, and my daughter Sierra promises me that she "will find

one next summer, when we visit Island Beach State Park."

Our first introduction to the animals that live in New Jersey begins on the wall, at the state's geological map, whose shape and various bands of color look remarkably like the head of a woman. It is divided into 5 irregular colored bands, Tony tells us, and is very diverse for a state so small.

"That band of green is where the dinosaurs lived," he explains. The first major dinosaurs found in the New World occurred right here in New Jersey. We imagine giant bones being unearthed in

the soggy, muddy ooze near some of our favorite stomping grounds.

"I want to go dig around this spring," my son Bryce whispers. That's the beauty of these New Jersey nature-oriented museums: when the winds blow cold, it's time to head indoors and learn about all the natural magic the state has to offer. This gets your juices flowing to go check out these wonderful areas when the warm breezes return.

The New Jersey State Museum is located in the Capitol Complex in Trenton. It is a major cultural institution in the Northeast whose collections



Karen L. Cummins photo, courtesy of NJ State Museum

reflect centuries of life in the Delaware Valley. Nature lovers that we are, we're concentrating on the museum's Natural History and Archeology exhibits.

Tony is a retired science teacher and his love of the subject colors every stimulating word that he utters. That's the way learning should be. His language is simple enough for children to understand, yet informative enough to capture an adult's attention. His program is one of the museum's highlights.

"The skull of the mountain lion and the domestic cat look amazingly similar," he points out. "Study the behavior of your kitty at home. Their behavior is nearly identical. If you don't have a mountain lion in your backyard you can still study their habits."

We watch a very exciting film of a bobcat stalking a snowshoe hare, racing in the flying snow. After an exhausting chase, the rabbit gets away from the bobcat, only to be surprised by a mountain lion entering the scene and reversing the roles.

"You feel badly for the rabbit or the prey, don't you?" he asks, "but there is a balance in nature. You need 10 prey for every predator and nature is doing very well here in New Jersey."

From The Nature Show we head out to the ground floor where we view *The Sisler Collection of North American Mammals*. The animals are displayed in large diorama habitats, making the bears and wolf and wildcat appear so real in their own environment, you forget you are in a museum at all.

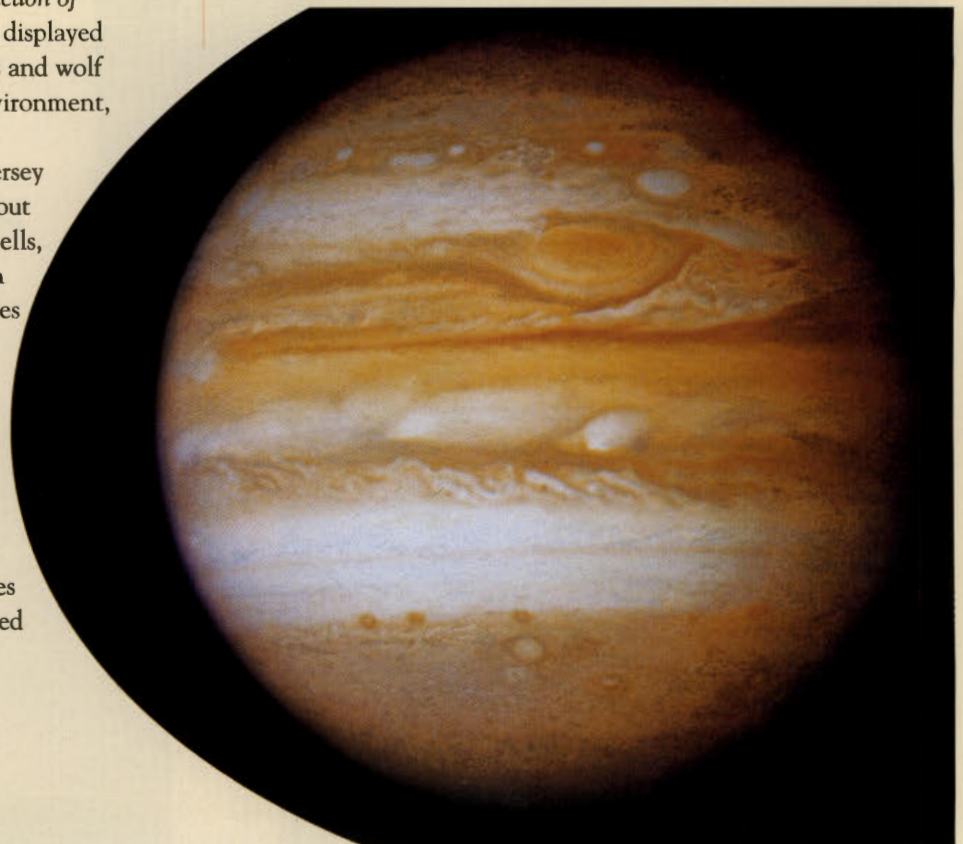
Also on the ground floor is the New Jersey Delaware Indian Room, where we learn about wampum. These small beads, made from shells, were used for money amongst the European colonists. In the pottery display are examples of their weaving technology, for the clay was pushed into the mat it was resting on, which then was "recorded" on the pot's bottom. There are a dugout canoe and all sorts of stones used for grinding and hunting to examine. By Indian standards, New Jersey is a crossroads of trade, with signs of 10,000 years of habitation. Sierra announces that in the spring, when the ground is turned over, she's looking for arrowheads.

On our way upstairs, we stare mesmerized at the beautiful seashell collection in the Neptune Architects Display: the spider conch shells, serpent's head, star turbans, and giant mollusk clams. We learn of the interesting doorways, made of a horny layer, which close behind the mollusk to keep it safe.

The Natural History Hall shows a skeleton of a very strange animal called an elk moose which, by its antlers, is clearly a combination of the two modern animals. This prehistoric creature is associated with this state more than anything else and several excellent skeletons have been discovered here.

The most famous New Jersey fossil exhibited, however, is the mastodon—a large animal related to the elephant that is displayed in near perfect form in the Hall of Natural Science. There is also a life-sized replica of the Hadrosaur, the official state dinosaur. Many well-preserved animal skeletons have been discovered in the bogs of Sussex and Warren counties. After death, their bodies sunk into the soft mud, which provided a quick burial—a factor necessary for fossil preservation. At the *Working Scientist* station here, you can often see a staff member preparing some of the museum's fossil displays and ask questions about the process.

We especially enjoy the section of the museum where New Jersey's diverse physiographic regions are presented: the highlands, piedmont, coastal plain and seashore are represented. All



Jupiter, as seen from *Voyager*
Courtesy of NJ State Museum

life forms—mammals, birds, amphibians, fish, plants—are represented in their natural habitat, helping us appreciate the variety of life in New Jersey and making us anxious to go out there and discover it.

After exploring life on earth in New Jersey, we wander to the museum's planetarium, to sit back and sink into the darkness of the night sky. The state-of-the-art machine in the center of the room projects 3,000 specks of light to teach us to become better starwatchers. The program we see is *Saving the Night*,

and we learn about night pollution (caused by too many lights) and the sad fact that one of our greatest natural shows is fast disappearing. Most of us only see 300 stars at best and certainly not the Milky Way in all its glory. We become anxious to throw out a blanket on the first warm New Moon night and search for our newly learned constellations.

The kids and I are making our New Jersey nature-museum tour the focus of a winter weekend, with the State Aquarium in Camden being tomorrow's

destination. Instead of fighting traffic, we find a charming B&B en route, in the historic town of Medford. Jennifer and Jim Chase of *The Iris Inn* not only accept children, they welcome them. If the irises aren't blooming when you visit, there are always the large oil paintings of flowers inside to remind you of gentler weather. The kids and I "coze out" in bed watching *Animal Planet* on public television, so inspired are we from the day's museum tour. If it wasn't overcast, we'd be out trying to stargaze too!

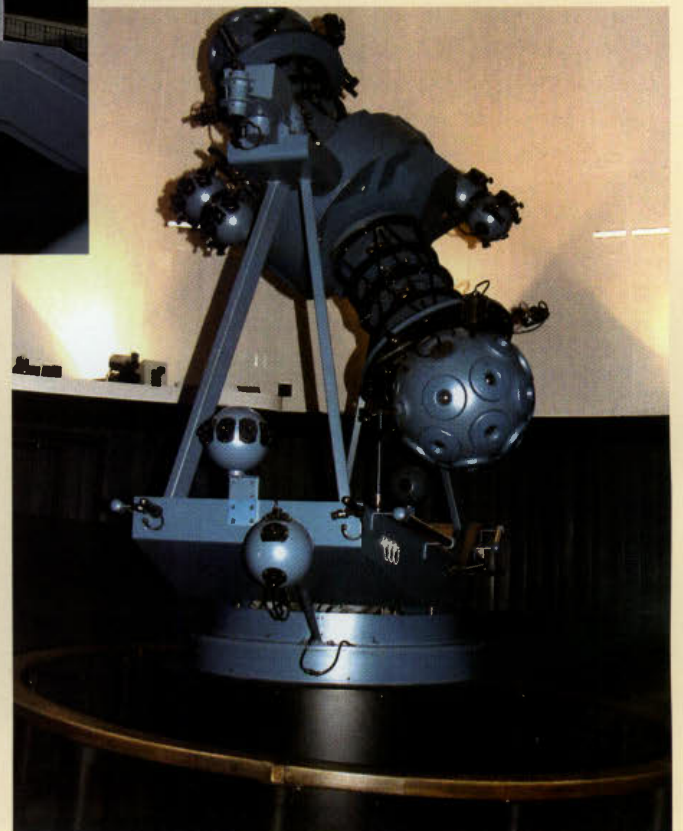


Left: Planetarium dome

Bottom left: Leahbell-Plaza sculpture garden

Below: Planetarium instrument that projects stars

Photos courtesy of NJ State Museum and Planetarium



New Jersey State Aquarium, Camden

The soundtrack to the film *Field of Dreams* is playing as we approach the Open Ocean Tank in the New Jersey State Aquarium, and the intense beauty startles me. We stare with wide eyes and gaping mouths at the giant 350-pound loggerhead sea turtle that appears to be gracefully flapping his flippers in time to the exquisite music. Twelve-foot-long stingrays glide by, undulating in the water, and a huge school of herring, flickering silver, move as if one mass. "This is enough," I tell my kids. "It's so beautiful," Sierra agrees.

The tank, with its 760,000 gallons of water, 25-foot depth, and 2,500 fish, is the focal point of the aquarium. This 4th largest aquarium tank in the world boasts the largest single piece of acrylic in the world. The 12 5/8" thick pane holds back 30,000 pounds of water with no screws, just pressure.

We check our schedule and highlight all the shows on the schedule that we don't want to miss. First, is *Tank Talk*, in the Deep Atlantic Theatre with its two-story window of the Open Ocean Tank. We learn that fish don't sink because they have an air bladder inside—one of those fascinating things you never thought about but which makes perfect sense. The idea was adopted and adapted to allow divers to use a button to pump air into their vests to help them move up and down. In the foreground of the tank are colossal rocks that illustrate the Hudson Canyon off of New Jersey's coast. This great rift, which is situated 80-100 miles offshore with a depth of 250 feet, can fit three Grand Canyons in it!

Divers come into the tank and play ball, illustrating how a fish's shape dictates how it moves through the water. A round ball, shaped like a puffer fish, moves very slowly through the water when they throw it. A torpedo-shaped toy, simulating the shape of the fast-swimming tuna, speeds through the water.



Above: The underwater ballet performed by this penguin fascinates young viewers.
Photo © Cindy Ross

Below: Audience participation is sought at the Dive Show
Brian Porco photo, courtesy of NJ State Aquarium



We learn that the sharks do not eat the smaller fish in the tank (or take hunks out of the divers) because, unlike wild sharks that get a meal about once a month, these are fed 3 times a week. Part of the small fish's defense is to swim in tight schools, simulating one large fish, for most fish have poor eyesight. They are tuned into each other's reflexes, however, and can all change positions in a fraction of a second. The tank's auditorium is filled mostly with children but I find all these things fascinating, and am absorbing information like a sea sponge.

The Touch Tanks are also great places to learn. We stand back and wait until the small harmless shark approaches our spot by the shallow pool; then plunge our arm in and, as the naturalist on duty instructs, "touch with two fingers only, so you don't harm them." The shark's sharp-looking spines are made of cartilage, like our ears. Surrounding the tank on the wall are examples of more than a dozen kinds of sharks, their jaws increasing in size until they could swallow you whole. We learn how useful these creatures are to humans: an extract made from shark cartilage is used to make artificial skin for burn victims. And, since sharks don't develop cataracts, their lenses are used in some human transplants. Not only has our respect grown for sharks, but also our gratitude.

The Seal Show is another favorite, held outdoors in their sunken amphitheater with good views of their 170,000-gallon tank. We learn the differences between the kinds of seals, watch them eat (11 pounds of fish a day!) and marvel at the way they can lift their 150 pounds high out of the water in a jump, just by the use of their powerful flippers.

After we tour the entire complex, we go back to our favorites: the moon

jellyfish, those elegant creatures who pulse their delicate transparent bodies through the water; the moray eels who hide in the rocks, their strange elongated heads sticking out; the colorful frog spawn coral and staghorn coral that undulate in the water; the seahorse tank, with those curious creatures that hold onto the swaying grass with their tails; and the longhorn cowfish, whose hard boxy body and long horns make it very difficult for fish to swallow it.

Our last stop on our way out is the African Penguin Tank. These amusing two-foot-tall animals dip and dive and try to play with us through the glass in their tank, making it difficult to pull ourselves away and bid this wonderful New Jersey nature attraction good-bye.

The seal show is a popular attraction at the aquarium.

Photo © Cindy Ross



A diver offers a *high five* to a visitor.

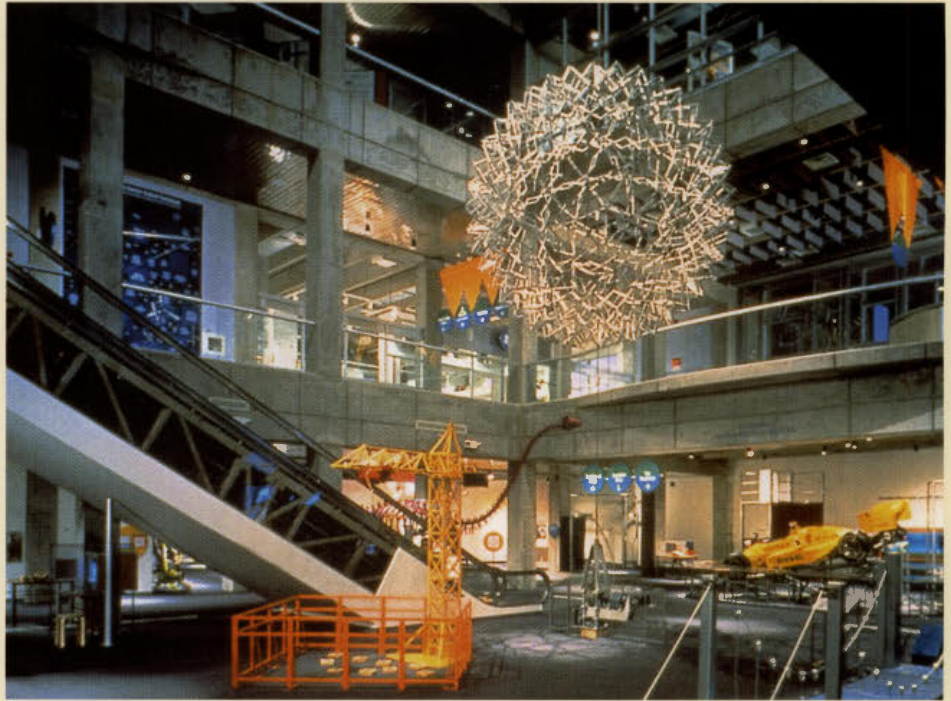
Jennifer Warholak photo, courtesy of NJ State Aquarium

Liberty Science Center, Jersey City

There is another New Jersey nature-oriented museum that is certainly worthy of a visit: Liberty Science Center, a state-of-the-art science playground and world-class education center. It is located way up north in Liberty State Park in Jersey City. There are four huge floors of exhibits exploring Invention, Health, and, on Level 3, the Environment, the floor my family gravitates towards.

First stop is a giant sand and water playground, where we spend a good chunk of our time. This Stream Table Model is filled with sand and pebbles and water spigots, positioned to help you simulate how water and land interact. There are diagrams of different things to build, such as banks and dams. Then you watch as the flowing water erodes, diverts, and changes the shape of what you built.

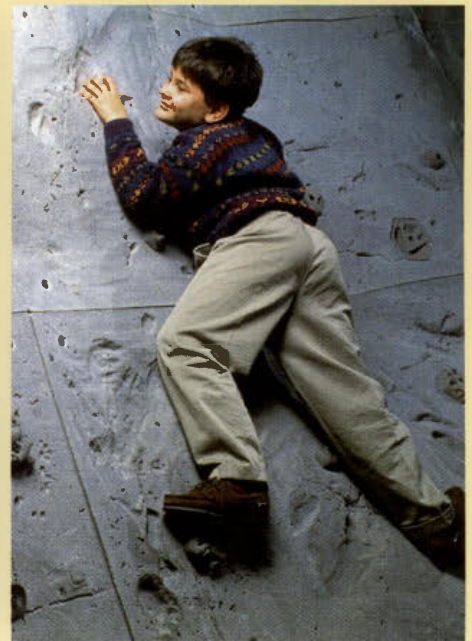
Scientists and engineers use physical models like this one to study nature and engineer changes in rivers. We learn about scouring, stabilization, and preventing erosion. The kids think they're having fun slopping in the water. We



Liberty Science Center's 90-foot-high atrium highlights Hoberman Sphere.
Wolfgang Hoyt photo, courtesy of Liberty Science Center

A young boy meets a Madagascar giant day gecko in the center's Bug Zoo.
Photo © Thomas McDonough

A young climber on Liberty Science Center's fossil-covered rock wall.
Bard Martin photo, courtesy of Liberty Science Center



parents know bigger things are happening in the name of fun.

The Touch Tank here has different critters to handle, such as sea urchins, 9-spined spider crabs, whelks, and the archaic horseshoe crabs. There is something very attractive about a Touch Tank, no matter what your age, for handling creatures leads to a deeper intimacy with them.

The hissing cockroaches from Madagascar, found in the center's Bug Zoo, are not creatures I long to touch, although a museum attendant stands and fondles one in her hand like a pet. There are tarantulas, which grow up to 10 inches long—behind glass, of course, from Venezuela's rainforest. There are giant prickly stick insects from Australia with these strange long, leaf-like extensions on their legs, bearded dragons, leopard toads, scorpions, and more. New Jersey's finest are represented, dead and alive, in the Environment Discovery Room, and we examine house fly wings and mosquito heads under microscopes.

A display case of shoes, wallets, and other strange items made from endangered species and confiscated at various ports of entry is sadly fascinating. The United States is one of 115 countries that are part of the CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) Treaty that prohibits the import and export of these endangered plants and animals.

We learn about rocks and can test various kinds for conducting electricity. We place paper over fossils and make a crayon rubbing to get a portrait of a world long since gone. The kids try their hand at a climbing wall, feeling various kinds and shapes of rocks.

One of our favorite displays is the Kalliroscope, a large disc filled with a mixture of water, blue dye, and ground-up fish scales. You slowly rotate the disc containing this liquid and create flow

patterns that are similar to the flow patterns in the ocean and atmosphere here on earth as well as elsewhere in the solar system. These patterns occur on all scales, from water swirling down a drain to stars swirling around the center of the galaxy. It reminds us how big our wild world is and how fortunate we are to be getting all these inside looks.

To wrap up the day, we catch a film, *Journey into Amazing Caves*, at the center's giant six-story, IMAX Dome Theater (the largest in the country). "In" these films, you can stand inside erupting volcanoes, trek across glaciers, climb Mount Everest, and literally get inside some of the most fascinating places on earth. No matter how many times we see a film in one of these theatres, it is always a thrill. I find myself blinking back tears because of the overwhelming sense of beauty of our earth that these stellar films easily convey.

Before heading home, we move outside to the outdoor deck of the

Atmosphere Exhibit to check out the rain gauge, wind vane, and barometer and try our hand at forecasting the weather.

We feel larger from these wonderful museum visits, more knowledgeable, and clearer as to where we fit into the whole scheme of things. And we are certainly charged up to go see more of this grand little state once the winter breaks.

In past issues, Cindy Ross has, among other things, taken NJO readers on a tandem bike trip along the D&R Canal and on a tour of Batsto. She lives in New Ringgold, Pennsylvania, and has authored several books about hiking and outdoor recreation for families.

Visitors can learn about the human skeleton at the Skeleton X-Ray table, which features a full-length human skeleton. The skeleton contains four "touch and tell" modules that hide mystery bones, which guests are challenged to identify by touch only.

Photo © Thomas McDonough



More Information

New Jersey State Museum and Planetarium

205 West State St.
P.O. Box 530
Trenton, NJ 08625-0530
609.292.6464
www.state.nj.us/state/museum/musidx.html

The museum and planetarium complex is located at 205 West State Street in Trenton and is accessible from State Route 29 and US Highway 1. The museum is open Tuesday through Saturday from 9 a.m. to 4:45 p.m., and Sunday from noon to 5 p.m. Museum exhibits and most of the educational programs are free of charge. Upcoming exhibitions likely to be of interest to NJO readers include *Cruising down the Delaware: Natural History You Can See!* (April 27 to November 3) and *River of Leisure: Recreation along the Delaware* (June 1 to November 2).

Planetarium shows are open on weekends only (during the school year). Admission is \$3 for adults and \$2 for children under 12.

New Jersey State Aquarium

1 Riverside Drive
Camden, NJ 08103
800.615.JAWS or 856.365.3300
www.njaquarium.org

The aquarium is located on the east bank of the Delaware River in Wiggins Waterfront Park, Camden. Take I-676 to Mickle Boulevard and proceed to Riverside Drive following signs. The aquarium is open daily from 9:30 a.m. to 4:30 p.m.; hours on Saturday and Sunday are from 10 a.m. to 5 p.m. Admission is \$12.95 for adults and \$9.95 for children.

Liberty Science Center

251 Phillip St.
Jersey City, NJ 07305-4699
201.200.1000
www.lsc.org

The science center is located in Liberty State Park and is easily accessible from Exit 14B of the New Jersey Turnpike. Open daily from 9:30 a.m. to 5:30 p.m.; closed on Thanksgiving and Christmas. Admission is \$10 for adults; \$8 for seniors and children ages 2-18. IMAX Theatre and 3-D Laser Show tickets are sold separately or in combination with the admission ticket.

Other Places to Go

County College of Morris Planetarium

214 Center Grove Road
Randolph, NJ 07869
973.328.5076; 973.328.5755
www.ccm.edu/c_students/Planetarium.shtml

Jenkinson's Aquarium

300 Ocean Avenue
Point Pleasant Beach, NJ 08742
732.892.0600
www.jenkinsons.com

Monmouth Museum

(on Brookdale Community College Campus)
Newman Springs Road
PO Box 359, Lincroft, NJ 07738
732.747.2266
www.monmouthmuseum.org/

Morris Museum

6 Normandy Heights Rd
Morristown, NJ 07960
973.971.3700
www.morrismuseum.org/

Robert J. Novins Planetarium

Ocean County College
College Drive
PO Box 2001
Toms River, NJ 08754-2001
732.255.0342 (recorded show information)
732.255.0343 (Planetarium office, weekdays 9am to 4pm)
www.ocean.cc.nj.us/campus/planetarium/

The Newark Museum and Dreyfuss Planetarium

49 Washington Street
PO Box 540
Newark, NJ 07101-0540
973.596.6550; 800.7.MUSEUM
www.newarkmuseum.org/

The Planetarium at Raritan Valley Community College

Rte 28 and Lamington Road (North Branch)
PO Box 3300
Somerville, NJ 08876
908.231.8805
www.raritanval.edu/planetarium

The Seabeach Amaranth

Mystery

by Sandra Magee

Jay F. Kelly photo, courtesy of
NJ Div. of Parks & Forestry

Life is full of mysteries. One of New Jersey's most recent is the reappearance and rapid spread of a plant that disappeared from the state more than 90 years ago. The plant, called seabeach amaranth, is on the New Jersey State Endangered Species List.

The seabeach amaranth (*Amaranthus pumilus*) is a very rare plant. It grows on beaches from Massachusetts to South Carolina and seems to come and go like the ebb and flow of the ocean. Reaching heights of only 16 inches, this deep green plant with red stems can spread up to 3 feet across. Before 2000, it had not been seen in New Jersey since 1913, when the last formal collection was made. But recently it reappeared—and scientists are wondering why.

The seabeach amaranth has a short life span at best. It is an annual plant that clings to the ever-moving sand, harsh winds, and storms. Every year it grows, flowers, sets seeds, and then dies, leaving only its seeds to survive the winter. New Jersey waterfront communities, while trying to prevent beach erosion, inadvertently harmed this plant's natural habitat by erecting sea walls and jetties, raking beaches, allowing dune buggies,

and basically forcing the plant to abandon its home. On the positive side, seabeach amaranth produces many seeds and, if conditions are right, it can replenish itself over and over again. The plant is a floater; the seeds can spread via wind and water, and may remain viable for many years.

North and South Carolina had a bumper crop of seabeach amaranth until Hurricane Hugo hit hard in 1989. There was a 90 percent reduction in the amaranth population there between 1988 and 1990. Some believe that Hugo may have delivered its captive seeds to Long Island, New York, where new plants were subsequently found.

What is so important about the seabeach amaranth? As the plant grows, it binds sand so that a mound of sand forms around it. The United States Fish and Wildlife Service is studying the seabeach amaranth and its impact on beach restoration.

David Snyder, of the NJ Division of Parks and Forestry, wrote in a 1996 report entitled *Field Survey for Populations of Amaranthus Pumilus in New Jersey* that, after 17 surveys of 15 sites were conducted on 10 different dates, no extant popu-

lations were discovered. Now, just a few years later, nearly 5,200 plants were counted last summer at three Monmouth County beaches alone.

Last summer Jay Kelly, a Rutgers student interning in Parks and Forestry's Office of Natural Lands Management, got the go-ahead to "find that plant." He walked the state's ocean beaches, from just south of Monmouth Beach to Cape May for two weeks. He found 69 plants during his 120-mile trek. (See sidebar for a record of the beachwalk, which was funded by the U.S. Fish and Wildlife Service.)

Now, back to our mystery – why did seabeach amaranth come back? Could it be that Hurricane Hugo carried the seeds from the Carolinas? Or were the seeds laying dormant on the sea bottom until they sprouted in the exposed sunlight after being pumped up in beach replenishment projects? Or is it just one of nature's tricks to keep us curious! Only time—and research—may tell.

Sandra Magee is *NJO's* assistant editor.

In Search of the Seabeach Amaranth:

A Beachwalk Chronicle

Each day I would get up just before the dawn and begin my walk, looking for the plant if there was light enough, or for some breakfast if there wasn't. The search consisted of walking on the soft, hot sands of the back beach and scrutinizing the ground for the species, which could be anything from about one centimeter in width for seedlings to more than 40 centimeters for full-grown adults. It can grow anywhere between the wrack line and the rising face of the dunes - but there weren't many. I found about 70 plants in the 120 or so miles of shoreline, and more than half of those were located within a quarter-mile stretch of beach at Brigantine. The average, then, was about one plant for every four miles, making for rather uneventful travel. With such a low density, I couldn't risk taking my eyes off the sand for a second—any distraction or lapse in concentration, and I might miss the one plant that occurred in that area. I often became so focused that I would forget entirely about the ocean or the crowds of people on the beach. At times the sight of them would actually startle me when I looked up.

The distance was complicated by having to cross from island to island, which added many extra miles to the actual length of beach by forcing me to backtrack to the mainland bridges, and travel south—by bus, foot or car ride—to the bridge for the next island. I sang old Irish traditional songs for company and would stop every few miles to rest—watching the people, the ocean, the gathering flocks of shorebirds—sometimes leaving the beach for water or a dose of ice cream. The breaks invariably became more frequent during mid to late afternoon when the sun was at its worst, and my energy at its lowest. But the evenings were pleasant, and almost every day's end left me with the satisfaction of having found yet another amaranth plant.

No one, including myself, expected any plants to be south of Long Branch, and each plant seemed like a little miracle, coming as a surprise and a delight that, thinking it was the last I would see, I never took for granted. The species hadn't been recorded in some of these locations since the late 1800's, laying a bridge into the past that connected me to those naturalists who had last laid eyes on it there, and a shoreline that was still wild. It entire length took only fifteen days to finish, hiking from seven to more than twenty miles a day, depending on how much habitat area each beach portion had. Although the beaches were sometimes wide, often due to replenishment by the Army Corps of Engineers (USACE), the habitat was in most places made unavailable for the species by beach raking activity and off-road vehicle traffic. These activities are probably the most significant impediment to the restoration of viable seabeach amaranth populations on the New Jersey shore at this time.

The seed source responsible for its return to beaches in the north is largely a matter of speculation. The two most likely explanations are that the sand pumped from offshore during USACE beach nourishment activities contained seeds that had been lying dormant there, or that it was dispersed the few miles across the bay from Long Island, New York, by wind or waves. It has also been said that Hurricane Hugo may have carried seeds from North Carolina during 1989; however, the beach that the species was found on in New Jersey has only been in existence since 1995, when it was replenished by the USACE. For decades prior to that, there had only been a seawall and water, ruling out this third explanation.

by Jay F. Kelly

Jay Kelly performing a survey of endangered plants at Little Beach Island, Forsythe National Wildlife Refuge.

Robert J. Cartica photo, courtesy of NJ Div. of Parks & Forestry



Treasured Trees Are Shore to Please

by Mary Frances Ferraro

Wherever you are reading this article in New Jersey, the odds are that you are sitting in a forest. You may not think about it in exactly those terms—you are, after all, in the most densely populated state in the union—but New Jersey's 8.4 million people live in communities graced with some of the most beautiful trees on the East Coast. These trees are part of a community's green infrastructure, and these community forests have been officially celebrated on the last Friday of April ever since the New Jersey legislature made it our state's Arbor Day in 1949.

Even though New Jersey is a relatively small state, when it comes to Arbor Day, we celebrate in no small way. The Department of Environmental

Protection's Community Forestry Program (part of the State Forest Service) began taking Arbor Day on the road with the non-profit NJ Tree Foundation two years ago. New Brunswick, a centrally located urban community, was selected to host *NJ Celebrates Arbor Day 2000* and Manalapan, chosen as an award-winning suburban community, was the host in 2001.

More than 300 New Jerseyans attended last year's festivities, the inaugural event of the Manalapan Arboretum in Manalapan, held on the sprawling front lawn of the municipal building. The upcoming festivities are shaping up to rival all past events as Belmar, *A Four Season Resort Community*, completes the first triad of road-trip towns with a Jersey Shore splash.



Pictures on this page were taken at past Arbor Day tree plantings in New Brunswick and Beverly.

Photos courtesy of NJ Tree Foundation



Why Bother?

You may wonder why such tremendous effort has gone into sharing this all day fete with different towns when it could be just a quick ceremony at the capitol. Well, the answer is a simple message with far reaching implications.

By starting with proper species selection and the use of appropriate planting techniques, community forest trees can be successfully maintained in any of the many unique and often challenging environments that make our state special. Each of us calls one of the 566 New Jersey municipalities *home* and we all deserve to have healthy trees. Whether it is meeting the challenges of life on the streets of a large city or battling the salt air and sandy soils of a coastal town, the right tree in the right place pays big dividends throughout its life.

The scientific evidence has been mounting. Even when considered from a strictly financial point of view, a well maintained community forest not only improves the quality of life for all those living in and visiting the area but it more than pays for itself. Recent research being published by the USDA Forest Service and others has documented substantial improvements in air quality, reductions in noise pollution, savings in heating and cooling costs, and measurable reductions in stormwater runoff.



It has long been known that trees quietly improve property values, enhance the success of retail enterprises, and can even shorten post-operative recovery times just by being viewed. New data is now pointing to reduced rates of violent crime attributable to increased neighborhood cohesion as the urban forest brings nature closer to where we live, work, and play.

You're Invited

This spring, you are invited to join the celebration on April 26 in a very special way—as a volunteer at New Jersey's 53rd Arbor Day celebration in Belmar, in Monmouth County. One hundred full-size shade trees will be planted in the park at Silver Lake (on Ocean Avenue between 5th and 6th avenues) to kick off the party.

Certified tree experts, NJ Forest Service foresters, and other professionals will be working with groups of volunteers all around Silver Lake on that special morning. All the tools will be provided and helpers of all ages and abilities are invited to participate; there's sure to be a job to match each person's talents. The 8 a.m. tree planting would be a great service project (and photo opportunity) for scouts, church groups, dance troops, lodges, corporations, school groups, clubs of all types, and senior citizens looking to do something special—and the day's events will be filled with fun and a few surprises.

The ceremony will begin at 11 a.m. Governor James E. McGreevey has been invited to read a Proclamation recognizing the 53rd celebration of Arbor Day in New Jersey and the importance of trees in the Garden State. DEP Commissioner Bradley M. Campbell has been asked to join other dignitaries in recognizing the winners of the NJ Arbor Day Song Writing Contest, Tree City USA, and the prestigious Joyce Kilmer Award.

The song writing contest was open to students in grades K through 4, 5 through 8, and 9 through 12. First, second, and third place winners will receive gift certificates and the first place win-

ners will be invited to perform.

Arbor Day has been receiving increased recognition on the national level, due in no small part to the efforts of The National Arbor Day Foundation. J. Sterling Morton of Nebraska City, Nebraska, initiated Arbor Day in 1872. Today the National Arbor Day Foundation is the world's largest tree-planting environmental organization. A non-profit group with nearly a million members, the National Arbor Day Foundation's influence is felt in all 50 states and especially in New Jersey through its Tree City USA program.

Tree City USA Leader

Among the awards to be presented at the brief ceremonies will be the Tree City USA Anniversary Awards for 1st year, 20th year, and 25th year. You may have seen the green and white Tree City USA signs posted along roadways or maybe a Tree City USA flag flying at a municipal building. Only recognized Tree City USA communities can display these signs of honor. Successful applicants must meet four basic criteria which, briefly stated, include having an official shade tree board and a community tree ordinance, spending no less than two dollars per capita on its trees in a comprehensive tree care program, and observing Arbor Day with an official ceremony and proclamation.

New Jersey is the leader in the northeast with 115 recognized Tree City USA communities, ranking us at an impressive seventh in the nation. This is a real testimony to the thousands of shade tree volunteers hard at work in all 21 counties. More than 2,724 communities nationwide have been recognized since the program's inception in 1976.

The State Forest Service will also present the annual Joyce Kilmer Award in recognition of outstanding service and dedication to New Jersey's community trees and forests. Previous recipients have been honored for their involvement in activities as diverse as spearheading innovative statewide legislation

Courtesy of Belmar Tourism Commission



promoting urban and community forestry to outstanding community-wide projects that improved the care of a town's trees.

Join the Crowd

Belmar's mayor, the Honorable Kenneth Pringle will be on hand, along with the municipality's Shade Tree Commission and Department of Public Works, as the formal portion of the event concludes with the annual Ceremonial Tree Planting. But the fun will not end—there is always a surprise or two in store, especially for all the volunteers!

For more information on anything in this article or on how to help your municipality plant and care for its precious tree resource in a safe and sustainable fashion, please contact the New Jersey Community Forestry Program (501 East State Street, PO Box 404, Trenton, NJ 08625-0404) or visit www.state.nj.us/dep/forestry/community. If you have questions about the Arbor Day celebration, e-mail one of the event coordinators, Mariclaire McCartan (mmccarta@dep.state.nj.us) or Lisa Simms (njtf1@juno.com).

Whether you come by car on the Garden State Parkway to Exit 98, or hop on the New Jersey Transit Shore Line train, or boat into the Belmar Marina, this is one event not to be missed in the great New Jersey outdoors. So, mark your calendar for April 26th and join us at 8 a.m. along with scores of other volunteers from across the state as we create a much-anticipated new landscape.

Mary Frances Ferraro, who has a master's degree in forest management, serves as the forester-communications specialist for the New Jersey Forest Service.

Tree Types

The species to be planted in Belmar, described below, were selected for their tolerance of both coastal and suburban conditions as well as their diverse aesthetic appeal. The 3- to 3.5-inch caliper trees will each be about 15 feet tall at planting. Naturally, the final stock purchased and planted will depend on availability.

Hackberry

(*Celtis occidentalis*) will adapt to just about any growing condition and reaches at least 40 to 50 feet in height. The leaves turn yellow in late fall. The berry-like drupes (fruits), which ripen in autumn and persist into winter, are a favorite of birds. It is also a favorite host plant of the spiny elm caterpillar, which later becomes the mourning cloak butterfly (*Nymphalis antiopa*). This butterfly is one of the few that overwinters as an adult in the Garden State.



Courtesy of Edward R. Hassekus



Courtesy of NJ Div. of Parks & Forestry

Bloodgood London planetree

(*Platanus x acerifolia* 'Bloodgood') is the result of a cross between the native eastern American sycamore and the Oriental planetree that originated in England. It is widely used and durable along streets, in parks, and on campuses, tolerating not only seacoast conditions but compacted soils and drought. It will grow into one of the largest hardwood trees in the East at 75 to 150 feet tall and is sometimes called the button-ball tree for its 1-inch diameter fruit on slender 3- to 6-inch stems. The bark is generally olive-green and exfoliating in roundish plate-like scales.



Courtesy of Ohio State University

Kwanzan Oriental cherry

(*Prunus serrulata* 'Kwanzan') is fruitless and has been made famous by the Washington, DC, pink cherry blossom display. It tolerates drought and seacoast environments but can be sensitive to pollution. The leaves are reddish-copper in the spring, turning dark green in summer and then orange-brown in autumn.



Courtesy of William Flemer III

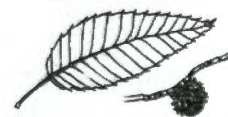
Sawtooth oak

(*Quercus acutissima*) is the most frequently planted non-native oak in the state. It is well suited to urban conditions and generally doesn't need as much space as our natives. This oak will grow to a height of between 35 and 45 feet, and its acorns are eaten by a variety of wildlife. It is often mistaken for chestnut because of their strangely similar leaves.



Courtesy of Henry D. Gernold

Sawtooth oak
(*Quercus acutissima*)



Courtesy of NJ Div. of Parks & Forestry

Zelkova

(*Zelkova serrata*) is frequently used in urban landscapes. Elegantly vase-shaped, it grows to between 50 and 60 feet high. It tolerates pollution, drought, compacted soils, and the seacoast environment. Its dark green leaves often turn a rusty deep red to reddish purple or bronze in autumn. It is best distinguished by its reddish-brown bark, which becomes mottled with age.



Courtesy of William Flemer III

Zelkova
(*Zelkova serrata*)



Courtesy of NJ Div. of Parks & Forestry

Sweetbay magnolia

(*Magnolia virginiana*) is well known for the fragrant creamy white flowers that can be 2 to 3 inches across that blossom on it in May and June. This Jersey native prefers moist locations and can be found growing in our pitch pine lowlands, hardwood swamps, and stands of Atlantic white-cedar, especially near the coast. The upright red cones of two-seeded drupes are very showy in mid-summer and early autumn.



Pamela J. Harper

Sweetbay magnolia
(*Magnolia virginiana*)



Courtesy of NJ Div. of Parks & Forestry

Heritage river birch

(*Betula nigra* 'Heritage') prefers moist, well-drained acid soils, as its name suggests, but is not known for a long service life as a street tree. It is the most southerly of the birches and can do well in a park-like setting. This native grows rapidly when established and presents a striking salmon-white peeling bark on its often narrow trunks. The large triangular leaves are dark green above and lighter beneath, turning soft yellow and falling late in autumn. In contrast to other birches, the fruit of the river birch, a small nutlet, ripens in early summer rather than in early autumn.



Courtesy of Henry D. Gerhold



Courtesy of NJ Div. of Parks & Forestry



River birch
(*Betula nigra*)

Courtesy of NJ Div. of
Parks & Forestry



Courtesy of NJ Div. of Parks & Forestry

“Shore” Sounds Familiar

If Silver Lake in Belmar sounds strangely familiar to you, it could be that you are one of the 50,000 or so seafood lovers who descend upon this quaint community of 6,000 year round residents on the second weekend of each June. Yes, Silver Lake is the site of the famous NJ Seafood Festival, named as one of the *Top 100 Events in North America* and the recipient of the *Governor's Award for Best Tourism Event*. Thanks to the Arbor Day tree planting, this year's festival-goers will be able to enjoy a full day of events, exhibits, food, arts and crafts, and music, along with everything from wine tasting to a petting zoo, in the shade!

For More Information

- **Trees of NJ and the Mid-Atlantic States** This pocket field guide from the NJ Forest Service includes descriptions of 149 tree species-plus a glossary of terms, a simple identification key, region maps, fun forest facts, and more. To order, send your name, address, phone number, quantity desired, and a check (made payable to the NJ Forest Service) for \$10 per copy ordered to the Forest Resource Education Center, 370 East Veterans Highway, Jackson, NJ 08527.
- **The New Jersey Big Tree List** This comprehensive 41-page listing includes color photographs, informative facts on each species, details on measuring big trees and more. To order, send your name, address, phone number, quantity desired, and a check (made payable to the NJ Forest Service) for \$6 per copy ordered to the NJ Forest Service, PO Box 404, Trenton, NJ 08625.
- **Street Tree Factsheets**, available through the NJ FS; call 609.292.2532
- www.state.nj.us/dep/forestry/service/
- www.arborday.org
- www.belmar.com
- <http://community.nj.com/cc/newjerseytreefoundation>
- Visit the Forest Resource Education Center, 370 East Veterans Highway, Jackson (732.928.0029)



Courtesy of NJ Div. of Parks & Forestry

World Class Fossils Unearthed

by Fred Young

Scratch the surface of New Jersey and you discover a fossil record that places the state in a world class category of famous discoveries.

In 1885, the first complete dinosaur skeleton known in North America was discovered near Haddonfield. In 1954, a 7.5-foot-tall Mastodon fossil was found near Vernon. In 1983, a deposit of amber was discovered near Perth Amboy that contained the near perfect fossilized remains of a feather that is the oldest record of a terrestrial bird. Also recovered in the amber deposit were the world's oldest mosquito, moth, mushroom, bee, biting black fly, and tick.

In 1988, a site containing thousands of perfectly preserved footprints of several species of dinosaurs was excavated near Clifton.

NJ Didn't Evolve in a Day

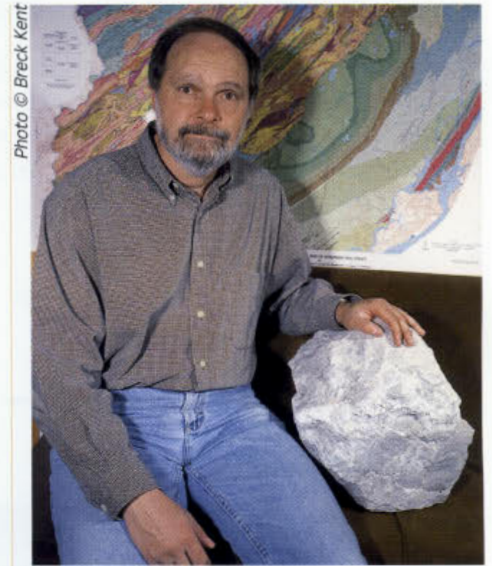
If you could peel back rocks, layer by layer, the youngest layer should be on the top and the oldest layer on the bottom. It would then be possible to age date these fossils in an orderly fashion. But geologic evolution doesn't perform that way.

The New Jersey landscape was not always as it appears today. It evolved over several billion years of geologic processes and has gone through episodes of mountain building, erosion, and submergence under oceans. These powerful forces were repeated several times and today's hills are the root remains of the last great mountain building episode.

The final resting places of these fossils enclosed in seemingly random layers of rock are evidence of a New Jersey that has supported life for a very long time.

The Haddonfield dinosaur, found in a clay deposit near the surface, lived 70 to 100 million years ago. The Mastodon was also found near the surface—in a peat bog on top of a mountain, 1,240 feet above sea level. Yet it lived 12,000 years ago, when New Jersey was coming out of the last great ice age. At several locations in Northern New Jersey, scratches made by the slow grinding movement of the ice sheet as thick as the Empire State Building is tall are still visible in bedrock exposed at the surface.

The amber found in a deep deposit of clay has been dated at 90 to 94 million years old. And the site containing the footprints of the dinosaurs is preserved in rock that is 200 million years old.

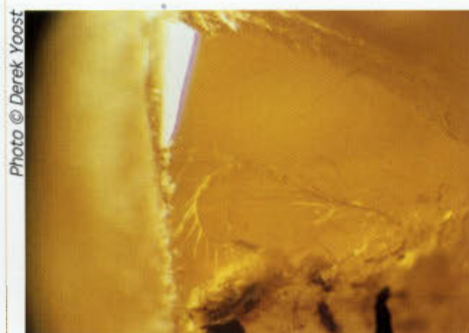


Top right: Richard Volkert with the rock containing the stromatolite fossil he discovered.

Right: A closer look

Below: Amber containing a delicate feather fossil

Bottom right: A wasp fossilized in amber



The Oldest of the Old

In 1999, a fossil was discovered in Northwest New Jersey that predates all other fossils found in the state. It turns back the fossil clock to the Precambrian era, when primitive life existed in only a few places on the planet.

Richard Volkert, a geologist for the Department of Environmental Protection's New Jersey Geological Survey (NJGS) discovered the fossil, a stromatolite, in a surface exposure of a rock formation called Franklin Marble.

This marble, which extends from Oxford (NJ) to Orange County (NY) is interpreted to be nearly 1.2 billion years old. The stromatolite enclosed in the marble can thus be accurately dated at the same age, making it the oldest fossil ever found in New Jersey, according to Volkert. Stromatolites also occur in 3.45-billion-year-old rocks in Western Australia, 3-billion-year-old rocks in South Africa and in rocks in the Adirondack Mountains (NY) and the Canada's Grenville Province that are 1.2 billion years old or more.

Stromatolites are the fossilized remains of colonies of microbial organisms called cyanobacteria, blue-green algae. These organisms, similar to coral in that they built reef-like colonies, lived in a shallow sea that covered the ancient landmass that was to become New Jersey.

At the time, Earth was devoid of all but the most primitive life forms. There were no air

breathing animals or plants on land because the atmosphere contained little of the oxygen necessary for the evolution of life—less than 15 percent, compared to today. Atmospheric carbon dioxide and nitrogen were present in large amounts and, combined with deadly ultraviolet light, a greenhouse warming effect made life on Earth, as we know it, impossible.

Yet this primitive New Jersey garden of blue-green algae was manufacturing a life-giving product. It was setting the stage for all future life on earth.

Through a process called photosynthesis, the cyanobacteria learned how to use chlorophyll to capture light from the sun, convert it to energy, and then release oxygen into the atmosphere, giving evolution a chance to breathe.

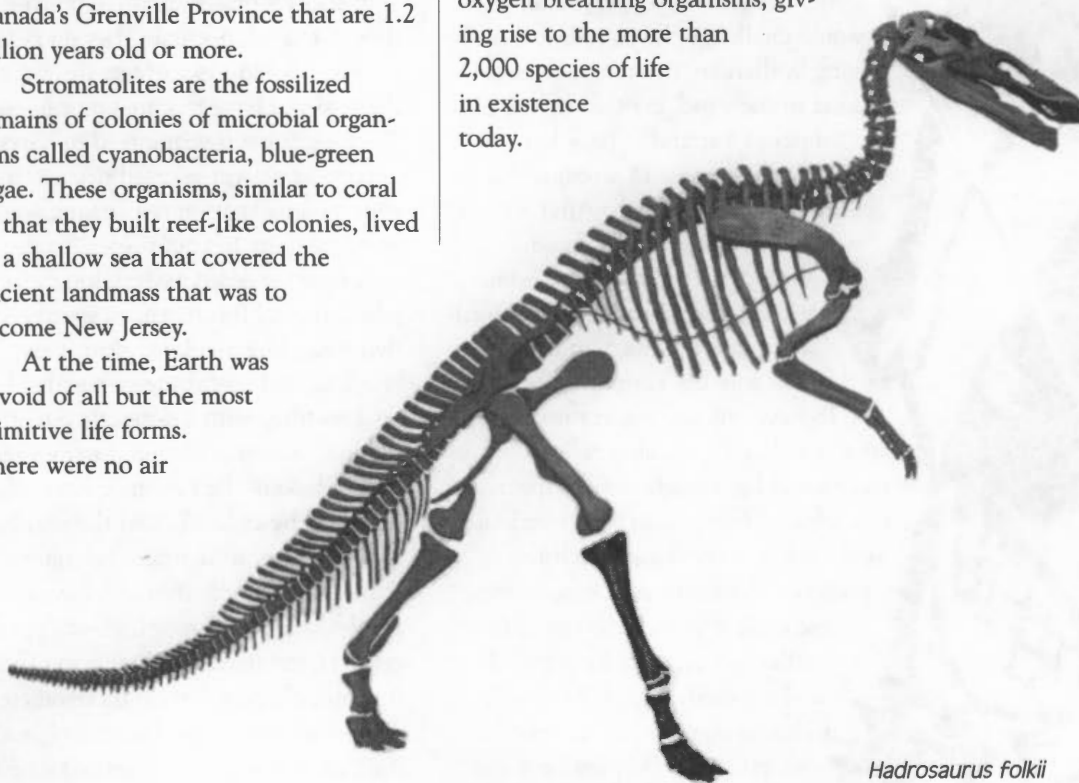
Over time, the atmosphere changed from a carbon dioxide base to an oxygen base, changing a hostile environment to a habitable one. This new atmosphere favored the growth of more complex oxygen breathing organisms, giving rise to the more than 2,000 species of life in existence today.

Like a time capsule with a message from a billion years ago, this New Jersey stromatolite is actually a living fossil.

Cyanobacteria descended from these ancient life forms are still forming colonies in some parts of the world. Marine environments along the Bahamas and Australia today contain colonies of cyanobacteria, making this organism a survivor for more than 3 billion years.

The stromatolite Volkert discovered will, he says, be displayed at various museum sites throughout the state for educational purposes and viewing by the general public.

Sussex County resident Fred Young is a trustee of the Franklin Mineral Museum in Franklin N.J. He serves as a volunteer guide at the museum and enjoys helping the many students who visit during the school year to find their special fluorescent rock in the museum treasure pile known as the Buckwheat Dump.

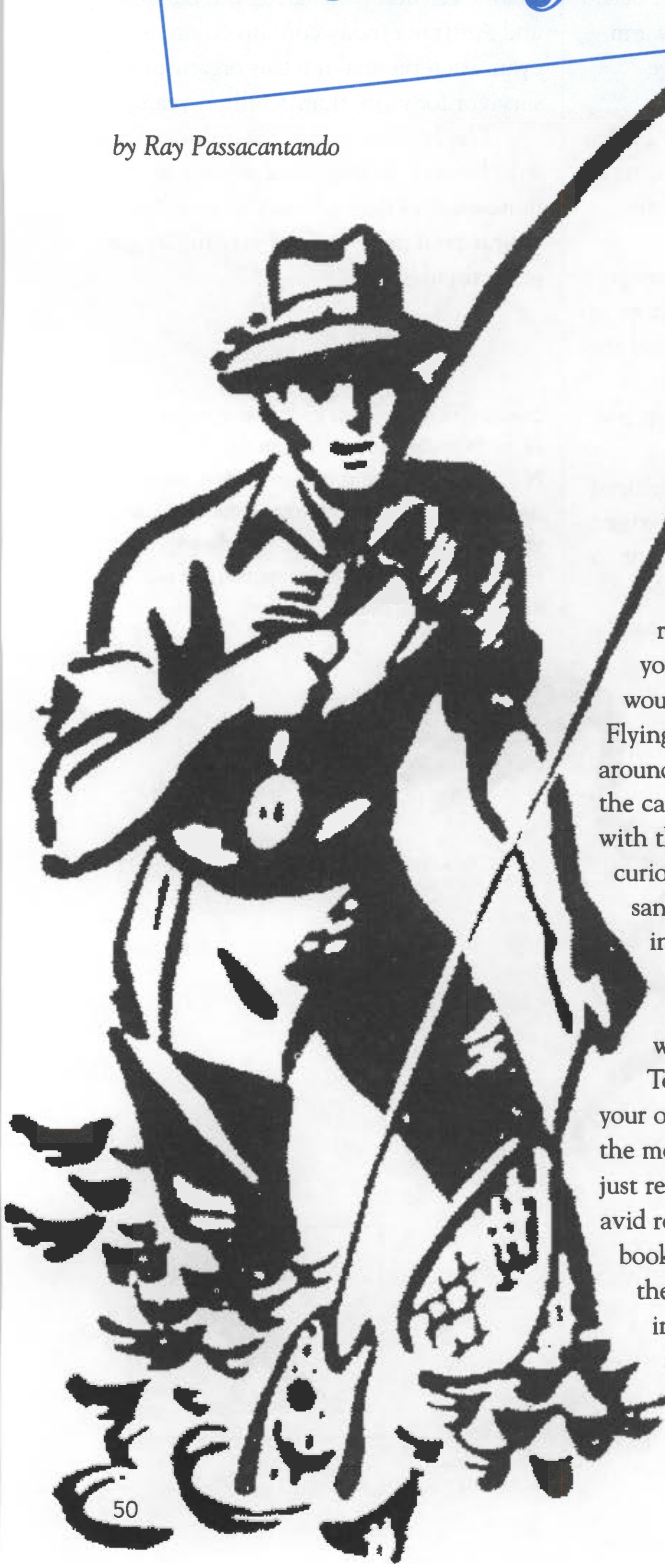


Hadrosaurus folkii



The Nuts and Bolts of Fly Fishing

by Ray Passacantando



Fly-fishing has got to be *the* sport for the dim-witted and yet, year after year, more and more guys—ladies now too—are elbowing me off the streams, forcing me away from my one true passion. Think about it: what you're doing during the spring hatches is standing in freezing, fast-running water, icing up your reproductive system, trying to keep your balance on slippery rocks that would challenge the equilibrium of the Flying Wallendas, heaving fake bugs around in the wind, knotted to a tippet the caliper of a strand of baby hair, all with the sole purpose of arousing the curiosity of a 7-inch fish. After a thousand casts, catch now in hand, instead of taking your prize home and slipping it onto a greased skillet, you send it back to the wild with a sore lip. Hmmm.

To have any success in this sport, your only hope is to happen upon one of the mental lightweights of the species just released from a hatchery. Not being avid readers of anything, much less books on the sciences or entomology, these little guys lack the requisite intellectual capacity for survival and are easily duped. They will chomp down on a piece of steel wrapped in turkey feathers and

deer hair mistaking it for a horsefly or Doritos and wind up with a small harpoon stuck in their lip, which is a fate befitting a nonreader of any species.

Native brown trout, now that's another story. They would all be members of Mensa if they could balance a pencil in their fins and take the qualifying exam. You would not want to play chess against any of them or compete with them on TV's *Jeopardy*. Rainbows are the athletes; they can jump through hoops and walk on their tails. Brookies are the prettiest—red and blue spots with tricolor fins. But native browns, they're the intellectuals; they don't fall for just any old piece of fuzz thrown at them so you have to know your feathers.

One thing is guaranteed to happen as soon as you get yourself situated in your favorite spot on the stream: you're standing there in your suspended neoprene felt-soled waders, long johns, special fishing pants, special fly-fishing khaki-colored shirt with epaulets, and fly-fishing vest with 71 pockets filled with a dozen fly boxes holding hundreds of reproductions of every phase of the metamorphosis of the stonefly, the caddisfly, and the mayfly, including larvae, nymphs, emergers, duns, and spinners. You also have fake beetles, ants, inchworms, grasshoppers, crickets, streamers, bucktails, wet flies, floatant, clippers, stream thermometer, scale, measuring tape, binoculars, wading staff, fingerless gloves, polarized sunglasses,



es, environmentally-friendly split-shot, extra braided tapered leaders, six tippet sizes, magnifying glass,

clip-on flashlight, license, a trout stamp, landing net clipped to your back, a lunar chronometer compass/watch to tell when a "moon over" or a "moon under" is occurring, feather-light graphite rod and weight-matched, adjustable-drag reel with backup reel and sinking line, "Allagash" hat and a Red Baron scarf to let the guys upstream know you're serious, a small flask of 100-proof Yukon Jack to take away the chill of getting "skunked," a sandwich, and a candy bar.

This list is by no means complete and is just drawn

quickly from the top of my head. As a matter of fact, I've forgotten the most important thing, which is panty hose—not because fly-fishing is a kinky sport, but because the tight mesh makes an

unbeatable insect snare as emergers whip past you in the fast current. So if you want to match the hatch, remember your nylons. Also, don't forget a San Juan Worm, just in case you find yourself in bi-lingual waters.

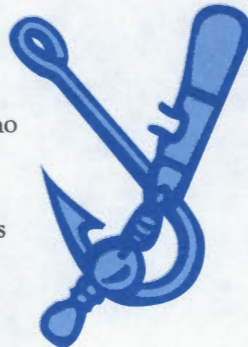
So now you are ready to make your first cast and something happens. The cold water lapping at your kidneys makes you curse that second cup of coffee you downed in the diner on the highway with your over-light eggs, home fries, and marmalade toast. When they talk about a "hatch" in fly fishing, they mean flies emerging and coming off the water; it has nothing to do with an emergency opening in your waders. Now you are forced to abandon your

favorite pool on the stream,

untangle yourself

from 200 pounds of gear, and by the time you return, three guys are slapping florescent lines on the water in your spot, spooking every fish for a half mile.

If you're still compelled to get into angling in one form or another, get yourself a spinning outfit, a baseball cap, and a galvanized pail full of treble-hook plugs and go after big-mouth bass. After your initial investment of \$40,000 for bass boat, trailer and motor, tow it to some serious fresh water in your area. Swartswood Lake and Lake Hopatcong are my favorites in Jersey. In sacred waters like these, your possibilities are endless. In fact, I met a guy in the diner in Sparta the other day who got himself two steel-belted radials with decent tread life, fishing near



Lake's Inn Marina. He got them on a #4 Eagle Claw hook and nightcrawlers, which you're welcome to pick off my front lawn any rainy night. I'll provide the umbrella and the flashlight and an empty Folgers can, but please, forget about fly fishing. There are just so many 7-inch fish to go around and truthfully, my luck has been lousy lately.



inch fish to go around and truthfully, my luck has been lousy lately.

NJO offers a hearty welcome back to Ray Passacantando, whose words last graced these pages a decade ago. Although it was rumored that the Whippary resident spent the intervening years trying to hook that 7-incher, he actually was busy writing for The New York Times, The Writer, New Jersey Monthly, Golf Journal, Renaissance Magazine, and other illustrious publications.



SUMMER FUN . . . AND PROFITS!

Imagine . . .

- ☀ turning back the pages of time, dressing in period clothing, and conducting tours in beautifully restored historic sites, museums, and villages;
- ☀ teaching a group of eager-to-learn youngsters about animals and plants, fresh- and saltwater wetlands, or ecosystems;
- ☀ building your muscles by mowing acres of grass;
- ☀ exercising your green thumb by planting annual and perennial flowers;
- ☀ staffing an office;
- ☀ patrolling park grounds;
- ☀ providing information to visitors; or
- ☀ lifeguarding at freshwater lakes or on an ocean beach.

Some of these activities sound more like play than work, but they're all real summer job opportunities out there waiting for you or someone you know to apply for them. Where can you find them? In New Jersey's state parks, of course.

If you enjoy history, nature, and the great outdoors, New Jersey's state parks offer wonderful summer job opportunities. You'll have fun while learning valuable skills—and making money; the starting salaries are competitive. Applicants for all positions must be at least 16 years of age, and lifeguard applicants under the age of 18 must have a permission slip signed by a parent or legal guardian prior to taking the lifeguard physical performance test.

While no prior experience or certification is necessary if you want to be a lifeguard, you do need to be a strong swimmer. Applicants are required to pass a physical performance test, designed to measure a their potential to successfully complete the lifeguard training program. The test consists of a 500-meter swim in an indoor pool, which must be completed in 10 minutes or less, and a 400-meter sprint on a track or parking lot, which must be completed in 100 seconds (1 minute, 40 seconds) or less.



Seasonal lifeguards

Photo by Gerry Davies

Once an applicant passes the physical performance test, a personal interview is arranged.

Lifeguards receive training and certification in American Red Cross first aid, CPR, oxygen administration, and automatic external defibrillator (AED) use, as well as water safety training approved by the United States Lifesaving Association. The costs of lifeguard training, certification, and uniforms are covered by the State of New Jersey.



Seasonal maintenance workers assist full time staff. *Photo by Gerry Davies*

Volunteers in period dress portray life in days gone by. *Photo by Jonathan Carlucci*



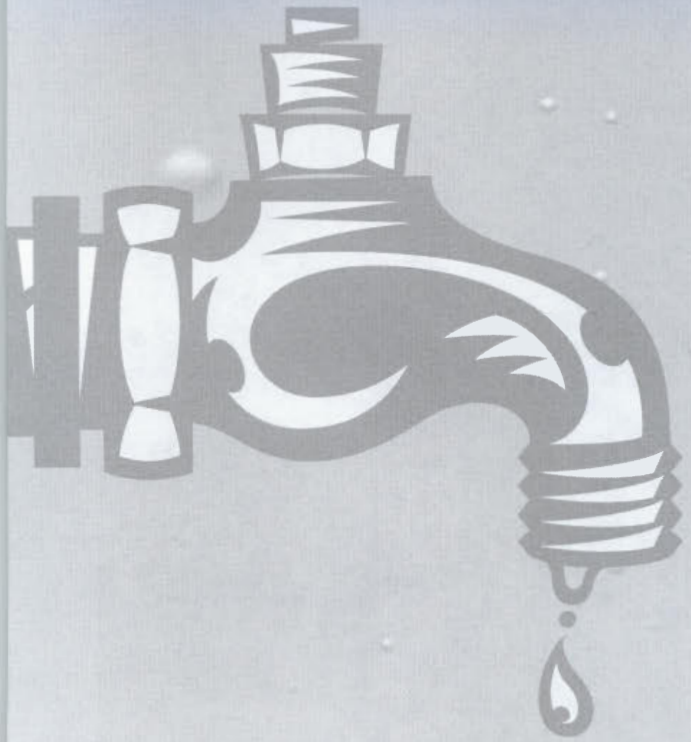
A seasonal worker performs general maintenance. *Photo by Gerry Davies*

If you think a summer job in one of our beautiful state parks is for you, you may request a summer employment application and/or lifeguard testing information by calling 609.984.0370, faxing 609.984.0503, e-mailing gdavies@dep.state.nj.us, or writing to the

**NJ State Park Service,
PO Box 404
Trenton, NJ 08625-0404**

Thanks to Marianne Verde, of the NJDEP Division of Parks and Forestry, for the above information, and to the division for providing the photos.


Dealing with a Drought



Learn the latest about the drought and how you can help save water.

Visit us at
www.njdrought.org

NJ Drought Hotline
Call 1-800-448-7379



Key Restrictions for Individuals, Simply Stated (as of April 24, 2002)

- ◆ Restaurants may not serve water unless requested.
- ◆ You may not wash your car, van, truck, boat, or other vehicle at your house.
- ◆ You may not wash impervious surfaces, e.g., sidewalks, driveways, roadways.
- ◆ You may not open fire hydrants except to fight a fire or if required for public health or safety.
- ◆ You may not power wash your house.
- ◆ Ornamental outdoor water use is prohibited except for wildlife or sanitary purposes.
- ◆ You may not water your lawn except in the central and coastal north regions, where an odd-even system is in effect.
- ◆ You may water trees, shrubs, vegetables, and flowers with certain limitations.
- ◆ You may top off your pool but, with limited exceptions, you may not drain or refill your pool (unless it needs to be repaired), hot tub, spa, or Jacuzzi.

For details, go to www.njdrought.org or call 1 800 4 ITS DRY (448-7379).

Inside

- ◆ Refrigerate water for drinking, rather than wasting it by letting it run long enough to get cold on a hot day.
- ◆ Turn off icemakers and use trays instead.
- ◆ Defrost foods in the refrigerator or microwave rather than under running water.
- ◆ Cool the water in which you've boiled eggs, pasta, or potatoes, and use it—or water from a dehumidifier—to water household plants.
- ◆ Use the water in which you've boiled vegetables as a base for homemade soup; you not only save water, but gain flavor and nutrients.
- ◆ Use paper plates; run dishwashers only when full, using the water saver feature if available.
- ◆ Use the proper load size selection when washing clothes.
- ◆ If you don't have a low flow toilet, place a weighted 2-liter bottle in the tank (away from any moving parts) to displace some of the water.
- ◆ Take shorter showers or take a shower instead of a bath.
- ◆ Turn off faucets when not in use.
- ◆ When running tap water to get it hot, let the initial cool water run into pitcher or some other container, then use it to water plants.
- ◆ Install water conserving faucet aerators and showerheads.
- ◆ Repair leaky toilets, pipes, and faucets.
- ◆ If purchasing appliances or plumbing fixtures, choose ones that conserve water.

Outside:

- ◆ Minimize your lawn area by keeping some areas in their natural state. Plant native flowers, shrubs and trees—they're already adapted to your local environment.
- ◆ Use a broom instead of the hose to clean off sidewalks and driveways.
- ◆ Even if allowed, don't water on windy days or when rain is predicted.
- ◆ Where allowed, water early in the morning or in the evening to prevent evaporation and damage to plants.
- ◆ Get to the root of things—don't water the tops of hedges, bushes, plants and flowers—and water the soil, not paved areas such as sidewalks, driveways, and streets.
- ◆ Reposition downspouts so that rainwater flows onto lawn and garden areas.
- ◆ Catch rain in a barrel and use it to water your garden.

United, We Save

- ◆ If every one of NJ's 8.4 million residents saved just one *drop* of water, more than 800 *gallons* would be saved!
- ◆ If one of every four households in NJ has a slowly dripping faucet, 8 *million* gallons of water are wasted every *day* that fixing the drip is delayed.
- ◆ If one of every ten households in NJ has just one leaky toilet, as much as 429 *million* gallons of water would be wasted every *week* that fixing the leak is delayed.

Let us know about creative ways you save water.

E-mail your tips to NJO@dep.state.nj.us or call 609-777-4182

Please refer to www.njdrought.org for updates.

Events

General information is provided here for frequently mentioned event sponsors. The bold-faced name is all that will appear in an event's description unless contact information differs.

- Ag Museum**—NJ Museum of Agriculture, 103 College Farm Rd, North Brunswick; www.agriculturemuseum.org; 732.249.2077; ♹; \$
- Albert Hall**—Albert Music Hall, 125 Wells Mill Rd (Rte 532), 1/4 mile west of Rte 9, Waretown; www.alberthall.org; 609.971.1593; ♹; \$
- Allaire**—Allaire State Park, Farmingdale; www.allairevillage.org; 732.938.2253 (park), 732.938.6707 (visitor center), 732.919.3500 (village), 732.938.2003 (interpretive center), or 732.938.5524 (Pine Creek Railroad); parking fee
- Bull's Island**—Bull's Island Recreation Area, Rte 29, Stockton; 609.397.2949
- Cape May**—Mid-Atlantic Center for the Arts (MAC) sponsors cultural and historical tours and events in Cape May throughout the year; www.capemaymac.org; 609.884.5404 or 800.275.4278
- Cattus Island**—Cattus Island County Park in Toms River is the home of Cooper Environment Center, which provides a variety of educational programs; 732.270.6960
- Cold Spring**—Historic Cold Spring Village, 720 Rte 9, Cape May; 10am-4:30pm daily through Labor Day, then only on weekends in Sept; <http://hcsv.org/>; 609.898.2300; \$
- Cooper Mill**—Cooper Mill at Black River County Park, 66 Rte 24 and State Park Rd, Chester Twp; 973.326.7645; \$
- D&R Canal**—Delaware & Raritan Canal State Park (Includes the Griggstown and Blackwells Mills complexes, both in Franklin Twp, and Prallsville Mills, Rte 29, Stockton); www.dandrcanal.com/park_index.html; 732.873.3050
- Dutch Neck**—Dutch Neck Village, 97 Trench Rd, Bridgeton; www.dutchneckvillage.com; 856.451.2188
- Fort Mott**—Fort Mott State Park, Fort Mott Rd, Pennsville; 856.935.3218
- Frelinghuysen**—Frelinghuysen Arboretum, 53 E Hanover Ave, Morris Twp; 973.326.7600
- Hermitage**—The Hermitage Education & Conference Center and Museum, 335 N Franklin Tpk, Ho-Ho-Kus; www.thehermitage.org; 201.445.8311; ♹; \$
- Horse Park**—Horse Park of NJ, Rte 524, Stone Tavern (Millstone Twp, Monmouth County); open to spectators for equine events; horseback riding/lessons not available; www.horseparkofnewjersey.com/; 609.259.0170; ♹
- Long Pond**—Long Pond Ironworks State Park, Rte 511, W Milford Twp; public tours on the 2nd Sat of the month, April through Nov, at 10am, noon, and 2pm; www.users.nac.net/folpi; 973.657.1688
- Noyes**—The Noyes Museum of Art, Lily Lake Rd, Oceanville; open Weds through Sun, 11am-4pm; www.noyesmuseum.org; 609.652.8848; \$ (ages 12 and up)
- Pequest**—The Pequest Trout Hatchery and Natural Resource Education Center, Rte 46, Oxford (9 miles west of Hackettstown); 10am-4pm daily; www.njfishandwildlife.com/pequest.htm; 908.637.4125
- Pinelands**—Pinelands Preservation Alliance, 114 Hanover St, Pemberton; sponsors Pinelands educational programs; www.pinelandsalliance.org; 609.894.8000; \$; ♹
- Ringwood**—Ringwood State Park (Ringwood Manor, Skylands Manor and NJ State Botanical Garden), Morris Rd, Ringwood; www.njbg.org/; 973.962.7031 (Ringwood), 973.962.9534 (Skylands); \$ to enter park on weekends from Memorial Day weekend through Labor Day and to enter Skylands Manor
- Smithville**—Historic Smithville, Rte 9 & Moss Mill Rd, Smithville; historic side open from 10am-6pm Sun through Fri and from 10am-7pm on Sat; the Village Greene is open from 11am-6pm daily; 609.652.7777, 609.748.6160
- Space Farms**—Space Farms Zoo and Museum, 218 Rte 519, Sussex; www.spacefarms.com/; 973.875.3223
- TNC**—The Nature Conservancy; <http://nature.org/wherework/northamerica/states/newjersey/>; NJ Chapter Office: 200 Pottersville Rd, Chester, 908.879.7262; Pine Barrens Program Office: 120-34

Events

Ongoing; May

Whitesbog Rd, Browns Mills, 609.735.2200; Delaware Bayshores Office, 2350 Rte 47, Delmont, 609.861.0600
Trailside—Trailside Nature & Science Center, Coles Ave & New Providence Rd, Mountainside; 908.789.3670
Tuckerton Seaport—Tuckerton Seaport, 120 W Main St, Tuckerton; open daily 10am-5pm; 609.296.8868; www.tuckertonseaport.org; \$ (ages 6 and over)
Waterloo—Waterloo Village (in Allamuchy Mountain State Park), 525 Waterloo Rd, Stanhope; www.waterloovillage.org; 973.347.0900; open for general admission from 10am-5pm, Weds to Sun, from May 26 to Sept 1 (2002); \$
Wells Mills—Wells Mills County Park, 905 Wells Mills Rd (Rte 532), Waretown; home of Wells Mills Nature Center, which provides a variety of educational programs; 732.971.3085
Wetlands—Wetlands Institute, 1075 Stone Harbor Blvd, Stone Harbor (3 miles east of Garden State Parkway exit 10B); www.wetlandsinstitute.org; 609.368.1211; \$
Wheaton—Wheaton Village, 1501 Glasstown Rd, Millville; closed on New Year's, Easter, Thanksgiving and Christmas, and on Mon and Tues from Jan through Mar; 10am-5pm; www.wheatonvillage.org; 856.825.6800, 800.998.4552; ♿; \$
Whitesbog—Whitesbog Village, mile marker 13 on Rte 530, Browns Mills (Pemberton Twp); www.whitesbog.org; 609.893.4646

Notes: Information listed was accurate at the time it was submitted to *New Jersey Outdoors*. Before traveling to an event, readers are advised to call the number listed to confirm the information provided and obtain any additional information desired.

Where the sponsor has provided such information, symbols have been used to indicate that the event is handicapped accessible (♿), that an entrance or participation fee will be charged or a donation will be requested (\$), and that preregistration is required or strongly suggested (✍). Lack of the indicative symbol may mean either that the opposite is true or that the sponsor did not provide the information. Please call the contact number for any event about which you have questions.

Ongoing

SATURDAYS EXCEPT DEC 21 AND 28
LIVE BLUEGRASS, COUNTRY & FOLK MUSIC
(SPECIAL EVENTS LISTED SEPARATELY); 7:30PM;
ALBERT HALL

SUNDAYS, MAY TO OCT
GUIDED GARDEN TOURS 2PM; RINGWOOD

SUNDAYS, JULY AND AUGUST
CONCERTS AT THE GAZEBO BRING BLANKETS AND CHAIRS; 7PM; LAVALLETTE; 732.793.3652

MONDAYS, JULY AND AUGUST
STORIES BY THE SEA A FREE STORY AND GAME HOUR FOR CHILDREN AGES 3-7; 2PM; ALO

TUESDAYS, JULY AND AUGUST
INHERIT THE EARTH TRIPS TO POINTS OF INTEREST INCLUDING JENKINSONS AQUARIUM, CATTUS ISLAND, AND POPCORN PARK ZOO; ALO; \$

WEDNESDAYS, JULY AND AUGUST
ECO TOUR OF A BARRIER ISLAND DISCOVER LONG BEACH ISLAND'S HIDDEN TREASURE ON A JOLLY TROLLEY TOUR; 9AM-NOON; CHAMBER OF COMMERCE PARKING LOT, 9TH ST, SHIP BOTTOM; 609.492.0222; \$

WEDS AND THURS, JULY 10 TO AUG 28
FREE BEACH & FAMILY FUN DAYS ARTS & CRAFTS PROGRAM, SAND SCULPTING, KITE FLYING, BEACH PARTIES AND LIVE ENTERTAINMENT;

CARTERET AVE STAGE AND BEACH AREA,
SEASIDE HEIGHTS; WWW.SEASIDEHEIGHTS-TOURISM.COM; 800.SEA.SHORE

THURSDAYS, JULY AND AUGUST
TWILIGHT AT THE BAY LIVE MUSIC, GAMES, A TOUCH TANK, AND MORE; 7PM-8PM; TAYLOR AVE BAY BEACH, BEACH HAVEN; 609.492.0222

FRIDAYS, JULY THROUGH AUG 23
INLET LORE A 1-HOUR HANDS-ON ENVIRONMENTAL EXPERIENCE; 11AM; BARNEGAT LIGHTHOUSE STATE PARK, BARNEGAT LIGHT; 609.492.0222

FRIDAYS, JULY 12 TO SEPT 27
JERSEY FRESH FARMERS' MARKET AT SMITHVILLE PRODUCE DIRECT FROM THE FARMER TO YOU; NOON-5PM; SMITHVILLE

May

To May 15
PREVIEW OF THE CARVING AND WILDLIFE ART SHOW ENVIRONMENTAL EDUCATION CENTER, BASKING RIDGE; 908.766.2489

SUNDAYS
WOODLAND WALKS NATIVE WILDFLOWERS, AZALEAS, DOGWOODS, AND MANY COLORFUL FLOWERING SHRUBS AND TREES; 2PM; LEONARD J BUCK GARDEN, FAR HILLS; 908.234.2677; \$

1 TO 5
GARDEN STATE HORSE SHOW SUSSEX COUNTY FAIRGROUNDS, PLAINS RD, AUGUSTA; 973.948.5022; ♿; \$

3 TO 5
SALEM COUNTY HOUSE & GARDEN TOUR WEEKEND FEATURING THREE CENTURIES OF ARCHITECTURE AND GARDENS; 10AM-4PM; ALLOWAY, ELMER, AND UPPER PITTSBORO TOWNS; 856.935.5004; \$

10TH ANNUAL SPRING FESTIVAL RIDES, FOOD, CRAFTS, GAMES, AND MORE; FIELDS ADJACENT TO CENTENARY COLLEGE, 600 HIGH ST, HACKETTS-TOWN; WWW.WARRENCOUNTYCHAMBER.ORG

NJ PALOMINO EXHIBITORS ASSOC. HORSE PARK; 732.846.9283

4
ANNUAL FISHING CONTEST WIN A PRIZE FOR THE LONGEST FISH OF A SPECIFIC SPECIES CAUGHT IN ANY FRESH WATER LOCATION IN OCEAN COUNTY; 8AM-4PM; REGISTER AT LAKE SHENANDOAH COUNTY PARK, RTE 88, LAKEWOOD; 609.971.3085; \$

PINE BARRENS FESTIVAL AN EVENING OF SPONTANEOUS ACOUSTIC MUSIC; ALBERT HALL

FRIENDS OF THE FRELINGHUYSEN ARBORETUM ANNUAL DISTINCTIVE PLANT SALE RARE AND UNUSUAL PERENNIALS AND ANNUALS, SHRUBS, AND TREES; FRELINGHUYSEN

May Events

10TH ANNUAL PLANT AND LANDSCAPE AUCTION EXCELLENT SELECTION OF PERENNIALS, FOUNDATION PLANTS, AND TREES IN AN EXCITING AUCTION ATMOSPHERE. 8:30AM-5PM; **AG MUSEUM**

FIESTA: CINCO DE MAYO GAMES, MUSIC AND ACTIVITIES; NJ STATE AQUARIUM, 1 RIVERSIDE DR, CAMDEN; WWW.NJAQUARIUM.ORG

KIDS FEST ANIMALS, CLOWNS, JUGGLERS AND MAGICIANS, BIRDS OF PREY DEMONSTRATIONS, AND HANDS-ON ACTIVITIES, COHANZICK ZOO, MAYOR AITKEN DR, BRIDGETON; WWW.HISTORICBRIDGETON.COM; 800.319.3379; Ⓜ; \$

STARWATCH SUNSET-10PM; FORT MOTT

TREELICIOUS! LEARN ABOUT THE PRODUCTS WE GET FROM TREES, INCLUDING ALL THE DELICIOUS FOODS; 1PM; **BULL'S ISLAND**; Ⓜ

RUSTY'S FOLK MUSIC 6PM; DAY USE AREA; **BULL'S ISLAND**

CANDLE LANTERN TOURS THE 19TH CENTURY COMES ALIVE AT NIGHT WITH SPECIAL TOURS, DRAMATIC VIGNETTES, AND STORYTELLING; **LONG POND**; \$; Ⓜ

VOLUNTEER WORK DAY 10AM-3PM; **WHITESBOG**; Ⓜ

4 & 5

CAPE MAY'S SPRING FESTIVAL SPRING FESTIVAL RESTORATION HOUSE TOURS, SECRET GARDEN TOURS, GARDEN TROLLEY RIDES; **CAPE MAY**

KITE DAY FARM/APPLE BLOSSOM FESTIVAL, KITE MAKING/FLYING, PONY AND WAGON RIDES, MUSIC, FOOD, AND MORE; TERHUNE ORCHARD, 330 COLD SOIL RD, PRINCETON; 609.924.2310; Ⓜ

CIVIL WAR LIVING HISTORY WEEKEND CAMP LIFE, MILITARY DRILLS, BATTLE SCENE, TOURS, AND EXHIBITS; 11AM-4PM; **LONG POND**

SPRING CAMPOUT EXPLORE THE PINELANDS, AND ENJOY A GATHERING 'ROUND THE CAMPFIRE; **PINELANDS**

PLANT SALE PERENNIALS, ANNUALS, VEGETABLES, HERBS, TREES, SHRUBS, VINES, GROUND COVERS, HANGING BASKETS, AND POTTED PLANTS; 10AM-4 PM; **RINGWOOD**

4 TO 27

PUBLIC SAILS ON NJ'S TALL SHIP, A. J. MEERWALD A 2.5-HOUR SAILING ADVENTURE; HISTORIC SHIPPING SHEDS, 2800 HIGH ST, BIVALVE; 800.485.3072; \$

5

2002 SUNRISE RUN-BIKE-RUN SEVEN

PRESIDENTS OCEANFRONT PARK, LONG BRANCH; WWW.MONMOUTHCOUNTYPARKS.COM; 732.542.1642

PET FAIR PRESENTATIONS, DEMOS, AND TALKS ABOUT PETS; NOON-5PM; **TRAILSIDE**

ARCHAEOLOGY OPEN HOUSE LEARN ABOUT ARCHAEOLOGY AND SEE WHAT WAS UNEARTHED LAST YEAR; ALLEN HOUSE, RTE 35 AT SYCAMORE AVE, SHREWSBURY; 732.462.1466

ANNUAL WILDLIFE AND CARVING SHOW WILDLIFE CARVINGS, SCULPTURE, PAINTINGS, DRAWINGS, ETCHINGS, AND PHOTOGRAPHY FROM 50 ARTISTS; ENVIRONMENTAL EDUCATION CENTER, BASKING RIDGE; 908.766.2489

GUIDED TOURS OF SKYLANDS MANOR NOON-4 PM; **RINGWOOD**; \$

5 TO SEPT 22

INTRODUCTION TO THE HERMITAGE GALLERY EXHIBITION AND TOUR; **HERMITAGE**

9

NEW JERSEY IN THE 20TH CENTURY LECTURE AND SLIDE PRESENTATION; 7:30PM; **HERMITAGE**

10 TO 12

GARDEN STATE CDE HORSE PARK; 732.446.6245

11

ANNUAL SPRING CRAFTERS' MARKET RAIN DATE MAY 12; 10AM-4PM; **ALLAIRE**

FIVE MILE RUN & 1 MILE FUN RUN 8AM; BANDSHELL, ARNOLD & BALTIMORE AVES, PT PLEASANT BEACH; 732.899.2424

HISTORIC HOUSE TOUR WALKING TOUR; VARIOUS LOCATIONS IN STILLWATER TWP; 973.383.0027; \$; Ⓜ

STREAM SEARCH SEARCH OUT THE CREATURES THAT LIVE IN THE MILLSTONE RIVER AND LEARN HOW TO DETERMINE WATER QUALITY BY ANIMALS LIVING THERE; 1PM; GRIGGSTOWN DAY USE AREA; **D&R CANAL**; Ⓜ

KAYAK ADVENTURE AT THOMPSONS BEACH NAVIGATE A MAZE OF TIDAL CREEKS, STOPPING AT EAST POINT LIGHTHOUSE FOR LUNCH; 8AM-NOON; CUMBERLAND COUNTY; **TNC**; 609.861.0600

ATLANTIC WHITE CEDAR RESTORATION TOUR DRIVING TOUR WITH BRIEF STROLLS; 10AM-2PM; BASS RIVER STATE FOREST, BURLINGTON COUNTY, **TNC**; 609.735.2200

19TH ANNUAL WORLD SERIES OF BIRDING WWW.NJAUDUBON.ORG/WSB

11 & 12

SPRING FLOWER FAIR LANDSCAPE PLANT SALE, TOURS, CHILDREN'S ACTIVITIES, AND MORE; RUTGERS GARDENS, 112 RYDERS LN, NEW BRUNSWICK; 908.213.9100; \$

12

ANNUAL AZALEA FESTIVAL FABULOUS FLOWERS, MUSIC, A HANGING BASKET FLOWER SALE AND MORE; 9AM-4PM; SAYEN BOTANICAL GARDENS, HUGHES DR, HAMILTON (MERCER COUNTY); 609.890.3684

MOTHER'S DAY HISTORY WALK A 3- TO 4-MILE TOUR STARTING FROM THE KINGSTON CANAL HOUSE OFF RTE 27 AND GOING TOWARDS ROCKY HILL; 10AM; **D&R CANAL**; Ⓜ

17 TO 19

NJ AMERICAN INDIAN CENTER ANNUAL POW WOW & FESTIVAL DANCING, DISPLAYS, DEMONSTRATIONS, NATIVE FOODS, ARTS, AND CRAFTS; KENNEDY PARK, WASHINGTON RD, SAYREVILLE, 732.786.0977; Ⓜ; \$

18

SPRING FLEA MARKET, 8AM-3PM; ALLAIRE

3RD ANNUAL SPRING WING FLING A BIRDING FESTIVAL WITH BOAT TRIPS, CANOEING, KAYAKING, WALKS, VAN TRIPS, WORKSHOPS, EVENING BARBECUE, AND MORE; **CATTUS ISLAND, TUCKERTON SEAPORT**

23RD ANNUAL GREAT CAPE MAY FOOT RACE 5K & 10K FOOTRACES; CAPE MAY CONVENTION HALL, 720 BEACH AVE, CAPE MAY; 609.884.5508; \$ FOR PARTICIPANTS

SPRINGTIME FAIRY SHRIMP MYSTERY TOUR EXPLORE VERNAL POOLS FOR THESE MYSTERIOUS LITTLE CREATURES; 9AM-4PM; **PINELANDS**

SHOREBIRDS IN THE MARSH OBSERVE MIGRANT SHOREBIRDS IN THE SALT MARSHES; 8-11AM; DENNIS AND MAURICE RIVER TWPS, CUMBERLAND COUNTY; **TNC**; 609.861.0600

18 & 19

WARREN COUNTY HERITAGE FESTIVAL 18TH CENTURY MILITARY ENCAMPMENTS, CRAFTERS, EXHIBITS, CONCERTS, AND SHIPPEN MANOR TOURS; OXFORD HISTORIC DISTRICT, 8 BELVIDERE AVE, OXFORD; 908.453.4381; Ⓜ; \$

NJAHA ALL ARABIAN HORSE SHOW HORSE PARK; 610.767.7346

SPRING ANTIQUES FAIR NJ'S LARGEST OUTDOOR ANTIQUES SHOW WITH PIECES FROM THE 18TH AND 19TH CENTURIES; 10AM-5PM; **WATERLOO**

19

GARDEN FAIR PLANT SALE & WORKSHOPS; NOON-

Events

May - June

5PM; TRAILSIDE

21 to 26

OCEANPORT LIONS STRAWBERRY FAIR FRESH STRAWBERRY SHORTCAKE, AGRICULTURAL AND EDUCATIONAL EXHIBITS, LIVE ENTERTAINMENT, RIDES, GAMES, AND MORE; MONMOUTH PARK PARKING AREA, OCEANPORT & PORT-AU-PECK AVE, OCEANPORT; 732.542.1244; ♿

24

RUSS JUELG'S JERSEY DEVIL HUNT SEE APRIL 26

24 to 26

WATCHUNG MOUNTED TROOP SPRING HORSE SHOW WATCHUNG STABLES, 1160 SUMMIT LN, MOUNTAINSIDE; 908.527.4900; ♿

24 to 27

WILDWOODS INTERNATIONAL KITE FESTIVAL AMERICA'S LARGEST KITE FESTIVAL WITH KITE BUGGY RACING, SPORT KITE COMPETITION, INDOOR KITING, ILLUMINATED NIGHT KITE FLYING, AND MORE; RIO GRANDE & BEACH, WILDWOOD; WWW.WILDWOODSNJ.COM; 215.736.3715

25

THE HOOT OF THE OWLS LISTEN TO THE SOUNDS OF THE OWLS AND LEARN ABOUT THEIR MANY ADAPTATIONS WHILE DISSECTING OWL PELLETS; 1PM; BULL'S ISLAND; 🍴

ANNUAL CANOE/KAYAK TRIP BRING YOUR OWN CANOE/KAYAK AND A BROWN BAG LUNCH; 11AM-2PM; WHITESBOG; \$

MOONLITE WALK 7PM; WHITESBOG; \$

25 & 26

BLUES & WINE AT WATERLOO GREAT BLUES MUSIC, WINE SAMPLING & SEMINAR, CHILDREN'S ACTIVITIES, AND MORE; NOON-5PM; WATERLOO; 609.588.0085

ESDCTA MEMORIAL WEEKEND SHOW HORSE PARK; 908.647.5801

31 TO JUNE 2

RIVERFEST FOOD, MUSIC, CRAFTS, RIVER CRUISES, KID ZONE; MARINE PARK, WHARF AVE, RED BANK; 732.741.0055; ♿

June

MONDAYS STARTING JUNE 17

STORIES BY THE SEA A FREE STORY AND GAME HOUR FOR CHILDREN AGES 3-7; 2PM; ALLIANCE FOR A LIVING OCEAN ENVIRONMENTAL CENTER, 2007 LONG BEACH BLVD, N BEACH HAVEN; 609.492.0222

1

SOUTH JERSEY CANOE AND KAYAK CLASSIC BOATS AVAILABLE TO TEST PADDLE, CLINICS,

ACCESSORIES, AND MORE; 10AM-4PM; OCEAN COUNTY PARK, RTE 88, LAKEWOOD; 609.971.3085

SHAKESPEARE IN BLOOM GARDEN TOURS, MUSIC, BOUTIQUE, SPEAKERS; CEDARBROOK PARK, 17 GATESHEAD DR; BRIDGEWATER; 908.541.0450

WELL-SWEEP HERB FARM SPRING OPEN HOUSE LECTURES, TOURS, AND HERBAL REFRESHMENTS; WELL-SWEEP HERB FARM, 205 MT BETHEL RD, PORT MURRAY; 908.852.5390

SMITHVILLE DECOY SHOW OUTDOOR SHOW DISPLAYING OLD AND NEW HAND-CRAFTED DECOYS AND RELATED ITEMS; SMITHVILLE

21ST ANNUAL STRAWBERRY FESTIVAL

CRAFTERS, STRAWBERRY SHORTCAKE, FRESH STRAWBERRIES, ENTERTAINMENT, PONY RIDES, AND FACE PAINTING; 10AM-5PM; DUTCH NECK

EDISON HERITAGE DAY STAGE ENTERTAINMENT AND SPECIAL TOURS; EDISON NATIONAL HISTORIC SITE, MAIN ST & LAKESIDE AVE, W ORANGE; 973.736.0550

DELAWARE BAY DAY FESTIVAL LIVE MUSIC, SEAFOOD, CHILDREN'S ACTIVITIES, OYSTER SHUCKING CONTEST, EVENING CONCERT, BOAT PARADE, FIREWORKS; 10AM-11PM; 2800 HIGH ST, PORT NORRIS; 856.785.2060; ♿

ROGUE BASS FISHING DERBY YOUTH FISHING DERBY FOR CHILDREN AGES 4-14; COLONIAL PARK, FRANKLIN TWP; 908.722.7779 x24.; \$; 🍴

FISHING DERBY ASSUNPINK DAM SITE, HAMILTON (MERCER COUNTY); 609.890.3684

NOTTINGHAM GARDEN CLUB ANNUAL GARDEN TOUR RAIN DATE JUNE 2; MAP AND DIRECTIONS PROVIDED FOR A SELF-GUIDED TOUR OF 8 HOMES WITH NOTABLE GARDENS; 10AM-4PM; HAMILTON (MERCER COUNTY); 609.585.9839; \$

CANOEING THE PINEY RIVERS A NATURALIST TOUR OF A BEAUTIFUL AND HISTORIC PINELANDS RIVER; 8AM-4 PM; PINELANDS

VOLUNTEER WORK DAY 10AM-3PM; WHITESBOG; 🍴

1 & 2

TWO RIVERS ANTIQUES SHOW & GARDEN TOUR RUMSON AREA; 732.923.6886; \$

CONFEDERATE WEEKEND CIVIL WAR ENCAMPMENT WITH ARTILLERY DEMONSTRATIONS; COLD SPRING

MICHAEL ARNONE'S 13TH ANNUAL CRAWFISH FESTIVAL AWESOME LOUISIANA FOOD, MUSIC,

AND MORE; GATES OPEN AT 10:30AM; WWW.CRAWFISHFEST.COM; WATERLOO; \$

1 to 16

PUBLIC SAILS ON NJ'S TALL SHIP, A. J. MEERWALD A 2.5-HOUR SAILING ADVENTURE; HISTORIC SHIPPING SHEDS, 2800 HIGH ST, BIVALVE; 800.485.3072; \$

2

MARIA ALLAIRE WEDDING 1-4PM; ALLAIRE; 🍴

MEDFORD VILLAGE FESTIVAL ENTERTAINERS, STILT WALKERS, JURIED ART SHOW, AND MORE; HISTORIC MEDFORD VILLAGE, FROM BRANCH TO ALLEN AVE, RTE 541 MAIN ST., MEDFORD VILLAGE; WWW.MEDFORDVILLAGE.ORG; 609.714.8811; ♿

THE HARTSHORNE WOODS SPRING TRAIL RUN/WALK A 7.2-MILE COURSE (WITH 4- & 5-MILE CUTOFFS); DOGS ON A SHORT LEASH AND RESPONSIBLE OWNERS ARE WELCOME; HENRY HUDSON REGIONAL SCHOOL, 1 GRAND TOUR, HIGHLANDS; 732.578.1771; \$ FOR PARTICIPANTS

GUIDED TOURS OF SKYLANDS MANOR NOON-4 PM; RINGWOOD; \$

7 to 9

FAMILY EXPO OCEAN COUNTY MALL, HOOPER AVE, TOMS RIVER; 732.244.8200

ANNUAL POW WOW NATIVE AMERICAN HAND MADE CRAFTS, FOOD AND ACTIVITIES; SALEM COUNTY FAIRGROUNDS, RTE 40, WOODSTOWN; 856.455.6910; \$

8

6TH ANNUAL BARNEGAT BAY FESTIVAL MUSIC, EXHIBITS, CRAFTS, AND DEMOS; 10AM-4PM. RAIN OR SHINE; BERKLEY ISLAND COUNTY PARK, BERKELEY; 732.506.5313

DOVER TOWNSHIP FOUNDER'S DAY—THE GOOD LIFE STREET FAIR; 9AM-4PM; WASHINGTON ST, TOMS RIVER; 732.349.0220

GREAT SWAMP BONSAI SOCIETY EXHIBIT FRELINGHUYSEN

28TH ANNUAL ROSE DAY LECTURES, DEMOS, THOUSANDS OF ROSES IN PEAK BLOOM, AND MORE; 10AM-4PM RUDOLF W VAN DER GOOT ROSE GARDEN, COLONIAL PARK, 156 METTLERS RD., FRANKLIN TWP; 732.873.2459

ALL ABOUT HORSES LEARN HOW HORSES HAVE BEEN USED IN FARM WORK; BRYER HORSE DISPLAY; AG MUSEUM

VICTORIAN FAIR MUSICAL PERFORMANCES, CRAFTS, COLLECTIBLES, KIDS' ACTIVITIES, AND REFRESHMENTS; CAPE MAY

June Events

FOUNDERS' DAY 2002 RAIN DATE JUNE 9; STREET FAIR WITH PARADE, ENTERTAINMENT, FOOD, CRAFTER'S CORNER; DOWNTOWN TOMS RIVER, WASHINGTON ST, COURT HOUSE LN, ROBBINS ST; 732.349.0220; ☺

EXPLORE MORRISTOWN LOCAL TOURS, SCAVENGER HUNT, ENTERTAINMENT, RIDES, FOOD, AND MORE; AROUND THE GREEN (PARK AVE), MORRISTOWN; 973.455.1133

STAFFORD FOUNDERS DAY PARADE, CONTESTS, GAMES, FOOD, ENTERTAINMENT, AND FIREWORKS; SOUTHERN REGIONAL HIGH SCHOOL, RTE 9 N, MANAHAWKIN; 609.597.1660 OR 609.597.1000; ☺; \$

WORLD WAR II HISTORY CRUISE EXPLORE BUNKERS, GUN EMPLACEMENTS, AND COASTAL ARTILLERY LOOKOUT TOWERS ON BOTH SIDES OF DELAWARE BAY FROM ABOARD THE *CAPE MAY WHALE WATCHER*, CAPE MAY

TRAVEL THE MAURICE RIVER AT WILLOW GROVE LAKE KAYAK OR CANOE THE HEADWATERS; 10AM-3PM; PITTSBORO TWP, SALEM COUNTY; TNC; 609.861.0600

JCAA 8TH ANNUAL FLUKE TOURNAMENT TRUMP MARINA; 732.506.6565

8 & 9 ANNUAL SEAFOOD FESTIVAL ENTERTAINMENT, CHILDREN'S EVENTS, EXHIBITS, ARTS & CRAFTS, MUSIC; SILVER LAKE, 601 MAIN ST, BELMAR; WWW.BELMAR.COM; 732.774.8506; ☺

STAR SPANGLED WEEKEND A TRIBUTE TO OLD GLORY WITH FIRE TRUCKS, FIREMEN, POLICEMEN, MUSIC, SPEECHES, POLITICAL, HISTORICAL AND PATRIOTIC ORGANIZATIONS, AND VENDORS; COLD SPRING

12TH ANNUAL NJ FRESH SEAFOOD FESTIVAL ATLANTIC CITY; 609.FISH.FUN

JERSEY CLASSIC HORSE SHOW HORSE PARK; 732.957.0063

9 PINE CREEK RAILROAD'S RAILROADERS DAY, MACHINERY DAY, & 50TH ANNIVERSARY CELEBRATION EVERYTHING THAT RUNS, DOES—STEAM, DIESEL, TOURS, AND MUCH MORE; ALLAIRE

KING GEORGE III'S BIRTHDAY CELEBRATION CELEBRATE AT THE HOME OF A PROMINENT LOYALIST FAMILY; MARLPIT HALL, 137 KINGS HWY, MIDDLETOWN; 732.462.1466

GLOUCESTER COUNTY WATER FEST MUSIC, CRAFTERS, ANIMAL SHOWS, EXHIBITS, AND MORE; 10:30AM-4PM; SCOTLAND RUN PARK, 2106

CLAYTON-WILLIAMSTOWN RD, CLAYTON; 856.468.0100, 856.881.0845

12 to 15 CLAM FESTIVAL SEAFOOD, MUSIC, RIDES, AND THE FAMOUS BATTLE OF THE CLAM SHUCKERS; WED THROUGH FRI 6-10PM, SAT NOON-11PM; HUDDY PARK, WATERWITCH AVE, HIGHLANDS; WWW.HIGHLANDSNJ.COM; 732.946.2711

14 to 16 JCSA 24TH MAKO SHARK TOURNAMENT BRIELLE; 732.840.1999

15 FINS & FEATHERS FESTIVAL SPECIAL APPEARANCES BY FURRY, WINGED, AND SCALED CRITTERS; 11AM-4PM TUCKERTON SEAPORT

SUMMER FLEA MARKET 8AM-3PM; ALLAIRE

CRAFT/FLEA MARKET 8AM-4PM; RAILROAD SQUARE, ARNOLD AVE, PT PLEASANT BEACH; 732.899.2424

TOWN & COUNTRY GARDEN TOUR VARIOUS NEWTON LOCATIONS; 973.383.0027; \$; ☺

15 & 16 THIRD ANNUAL CIVIL WAR LIVING HISTORY WEEKEND HUDDY PARK, WATER AND MAIN STS, TOMS RIVER; 732.341.1889

FARMFEST 2002 CHILDREN'S BLUEBERRY PIE MAKING, SMALL ENGINE TRACTOR PULL, HAYRIDES, A PIG ROAST, AND MORE; COLD SPRING

ARABIAN HORSE ASSOC. OF NJ HORSE PARK; 908.479.6487

OVERNIGHT CANOE TRIP PADDLE THE MULLICA BY DAY AND HIKE AND ENJOY CAMPFIRE ACTIVITIES AT NIGHT; 8 AM; PINELANDS

SEINING AWAY! TAKE A CLOSE LOOK AT THE TIDAL SPECIES OF FISH AND INVERTEBRATES LIVING ALONG THE EDGE OF THE DELAWARE BAY; 8-10AM; EAST POINT LIGHTHOUSE, CUMBERLAND COUNTY; TNC; 609.861.0600

16 ANTIQUE BOTTLE SHOW & SALE WHEATON

FATHERS OF ALL SPECIES AT SPACE FARMS DISCUSSIONS OF THE PATERNAL INSTINCTS OF LIONS AND OTHER SPECIES; SPACE FARMS

TOOLS OF THE TRADE MEN, MACHINES AND LIFE ON THE FARM; LIBERTY HALL MUSEUM, 1003 MORRIS AVE, UNION; WWW.LIBERTYHALLNJ.ORG; 908.527.0400; \$

NATIVE PLANTS IN A NATURALISTIC GARDEN LECTURE/FIELD STUDY; LEONARD J BUCK

GARDEN, FAR HILLS; 908.234.2677; \$; ☺

18 to 23 MIDDLESEX COUNTY HORSE SHOW HORSE PARK; 609.448.3492

20 to 23 FESTIVAL OF CHAMPIONS COMPETITION FOR THE US EQUESTRIAN TEAM CHAMPIONSHIP; HAMILTON FARM, POTTERSVILLE RD, GLADSTONE; WWW.USET.ORG; 908.234.0555; ☺; \$

21 RUSS JUEL'S JERSEY DEVIL HUNT

22 BOTANY AT BENNETT BOGS JOIN A LOCAL NATURALIST AS HE IDENTIFIES SOME OF THE 250 PLANT SPECIES FOUND HERE; 9-11AM; LOWER TWP, CAPE MAY COUNTY; TNC; 609.861.0600

SUMMER SOLSTICE CANOE CANOE DOWN THE OSWEGO, STOPPING TO VIEW UNIQUE RIPARIAN HABITATS; 9AM-4PM; TNC; 609.735.2200; \$; ☺

MOONLITE WALK 7PM; WHITESBOG; \$

22 & 23 SUMMER FEST AT UNIONVILLE LIVE MUSIC, WINE SAMPLING, FOOD AND CRAFT VENDORS, KIDS' ACTIVITIES, AND MORE; NOON-5PM; UNIONVILLE VINEYARDS, RINGOES; 609.588.0085

THREADS THRU HISTORY REGIONAL QUILT AND NEEDLE WORK DISPLAYS, SPINNING, DRY GOODS, VENDORS, MUSIC; COLD SPRING

CIVIL WAR ENCAMPMENT COMPLETE MILITARY & CIVILIAN CAMP, MARCHING DRILLS, AND MUSKET-FIRING DEMONSTRATIONS; SMITHVILLE

28 to 30 IRONMAKING DEMONSTRATION AN OPERATING IRON FURNACE WILL BE USED TO DEMONSTRATE THE IRONMAKING PROCESS; LONG POND

29 THE LADIES OF COUNTRY & BLUEGRASS MUSIC SHOW ALBERT HALL

19TH ANNUAL WHITESBOG BLUEBERRY FESTIVAL RAIN DATE JUNE 30; OLD TIME COUNTRY FAIR; WHITESBOG; \$

SEAFOOD FESTIVAL FUN AND GREAT SEAFOOD; 11AM-4PM; TUCKERTON SEAPORT

KAYAKING AT BAYSIDE NAVIGATE THE BAY AND TIDAL CREEKS TAKING STOW CREEK INTO THE ESTUARY SYSTEM; 11AM-4PM; CUMBERLAND COUNTY; TNC; 609.861.0600

Events

June - July

29 & 30

RAILROAD DAYS GARDEN RAILROADS, WORKING SCALE MODEL RAILROADS, VENDORS, MUSIC, AND MORE; **COLD SPRING**

DRESSAGE AT THE PARK HORSE PARK; 908.647.5801

30

INDEPENDENCE DAY, 1836 1-4PM; **ALLAIRE**

MULLIGAN QUARRY DAY AT RED MILL LEARN HOW THE RIVER'S POWER WAS HARNESSSED TO RUN THE MILL MACHINERY; RED MILL MUSEUM VILLAGE, 56 MAIN ST, CLINTON; 908.735.4101; \$

CONCERT IN THE PARK *TOTAL SOUL* (R&B/MOTOWN); 7PM; DUKE ISLAND PARK, BRIDGEWATER; 908.722.1200, x351

July

MONDAYS

OUTDOOR LIVE MUSIC ENTERTAINMENT BAYFRONT OR THE BOARDWALK, SEASIDE HEIGHTS

1 TO 7

HAPPY 75TH BIRTHDAY SPACE FARMS ANIMAL TALKS, ARTIFACTS, AND MORE; **SPACE FARMS**

4

INDEPENDENCE DAY CELEBRATION RALLY, PARADE, GAMES, SPEECHES, MUSIC AND TOWN BALL; **COLD SPRING**

DECLARATION OF INDEPENDENCE READING AT RINGWOOD MANOR A LIVING HISTORY EVENT THAT PORTRAYS THE DELIVERY OF THE DECLARATION OF INDEPENDENCE TO RINGWOOD; NOON, WITH READING AT 1PM; **LONG POND**

OCEANFEST AT LONG BRANCH ENTERTAINMENT, FOOD, ARTS AND CRAFTS, AND A WORLD CLASS FIREWORKS DISPLAY; PROMENADE AT LONG BRANCH, ONE OCEAN BLVD, LONG BRANCH; 732.222.0400; ☺

INDEPENDENCE DAY FAMILY FESTIVAL HORSE RIDES, MAGIC SHOW, REVOLUTIONARY PERIOD GROUPS, FIREWORKS AND MORE; 5PM-11PM; NORTH BRANCH PARK, BRIDGEWATER; 908.722.1200, x225

5 & 6

AMERICAN GLOXINIA & GESNERIAD SOCIETY FLOWER SHOW & SALE **FRELINGHUYSEN**

5 TO 7

SUSSEX COUNTY NATIVE AMERICAN FESTIVAL NATIVE AMERICAN FOOD, DANCING, CRAFTS AND MUCH MORE; SUSSEX COUNTY FAIRGROUNDS, PLAINS RD, AUGUSTA; [HTTP://REDHAWKARTS.COM](http://redhawkarts.com)

HOME.MINDSPRING.COM; 718.686.9297

7

FOUNDER'S DAY 1-4PM; **ALLAIRE**

CONCERT IN THE PARK *DAVID CEDANO* (SALSA); 7PM; DUKE ISLAND PARK, BRIDGEWATER; 908.722.1200, x351

N.J. STORYTELLING FESTIVAL **WATERLOO**

8 TO 18

PUBLIC SAILS ON NJ'S TALL SHIP, A. J. MEERWALD A 2.5-HOUR SAILING ADVENTURE; ISLAND HEIGHTS YACHT CLUB, RIVER DR, ISLAND HEIGHTS; 800.485.3072; \$

9

NJ STATE ROWING CHAMPIONSHIPS BRIDGE-TO-BRIDGE ROW FROM SOUTH OF THE MANTOLOKING BRIDGE TO NORTH OF THE MATHIS-TUNNEY BRIDGE IN SEASIDE HEIGHTS; 8AM CHECK-IN; RACE STARTS 9AM; 732.237.0576

9 TO 18

CHARTER THE A.J. MEERWALD NJ'S OFFICIAL TALL SHIP WILL BE AVAILABLE FOR HALF-DAY AND EVENING CRUISES LEAVING FROM THE ISLAND HEIGHTS YACHT CLUB; ISLAND HEIGHTS; 908.647.5022

10

BELMAR ANNUAL SANDCASTLE CONTEST ALL ARE INVITED TO PARTICIPATE IN THIS FREE EVENT, BEACH AT 18TH & OCEAN AVES, BELMAR; 732.863.1900; ☺

11

GARDENS BY THE SEA TOUR GARDENS/STREETS INDICATED ON MAP PROVIDED WITH TICKET; TICKETS \$SOLO ONLY AT PLANTS PLUS, BRIDGE AVE., BAY HEAD; 800.4.BAYHED; \$; ☺

13

SUMMER CRAFTERS' MARKET AND 19TH CENTURY GUILDS OPEN HOUSE & DEMONSTRATION DAY RAIN DATE JULY 14; 10AM-4PM; **ALLAIRE**

JR. ZOOKEEPER'S DAY AT SPACE FARMS ZOO KIDS ASSIST WITH ANIMAL CARE WHILE LEARNING INTERESTING FACTS ABOUT THE SPECIES; **SPACE FARMS**

AUTO JAMBOREE BENEFITS *MAKE A WISH FOUNDATION*, **WATERLOO**

13 & 14

20TH ANNUAL WOODEN BOAT FESTIVAL VENDORS, FOOD, SEMINARS, MUSIC, AND MORE; NJ'S OFFICIAL TALL SHIP, THE A.J. MEERWALD, WILL BE WET DOCKED FOR BOARDING; HUDDY PARK, WATER ST, TOMS RIVER; 732.349.9209

14

SCHOOL DAYS 1830s NOON-3PM; **ALLAIRE**

CONCERT IN THE PARK *LEON REDBONE* (ROCK); 7PM; DUKE ISLAND PARK, BRIDGEWATER; 908.722.1200, x351

15

THE BELMAR 5-MILE RUN ALONG OCEAN AVE, BELMAR; 732.681.3700; \$ FOR PARTICIPANTS

16

SARA THE TURTLE FESTIVAL LIVE TURTLE WORLD EXHIBIT, PUPPET SHOW, RACES, AND MORE; 6PM; JFK BLVD & THE PROMENADE, SEA ISLE CITY; WWW.SEAISLECITY.ORG; 609.263.4371; ☺

17 TO 20

MID-ATLANTIC TUNA TOURNAMENT CAPE MAY; 609.884.2400

18 TO 21

NJ JUNIOR QUARTER HORSE SHOW HORSE PARK; 908.879.7415

19

MERCHANTS IN VENICE SEAFOOD FESTIVAL FOOD, CRAFTS, AND ENTERTAINMENT; ASBURY AVE FROM 6TH TO 9TH STS, OCEAN CITY; WWW.OCEANCITY-NJ.COM; 609.525.9300

FUNTASIA FESTIVAL FOR KIDS OCEAN COUNTY PARK (RAIN LOCATION: LAKEWOOD HIGH SCHOOL, SOMERSET AVE), LAKEWOOD; 10AM-2PM; 732.506.9090

20

JAZZFEST A FULL DAY OF JAZZ; **SMITHVILLE**

JERSEY FRESH SUMMER FAIR AND HONEY HARVEST FARMERS MARKET AND MORE; **AG MUSEUM**

2ND ANNUAL GARDEN PARTY LECTURES, MUSIC, WORKSHOP, AND HORTICULTURAL ITEMS; 3-7PM; PERENNIAL GARDEN, COLONIAL PARK, LOT F, 156 METTLERS RD, E MILLSTONE; WWW.PARK-CO.SOMERSET.NJ.US; 732.873.2459; \$

PT PLEASANT ELKS ANNUAL FLUKE TOURNAMENT \$10,000 IN PRIZES; 6-10PM; POINT PLEASANT BEACH; 732.899.7638; \$

21

GARDEN STATE IRIS SOCIETY PLANT SALE **FRELINGHUYSEN**

CONCERT IN THE PARK *LEON REDBONE* (ROCK); 7PM; DUKE ISLAND PARK, BRIDGEWATER; 908.722.1200, x351

25 TO 29

MONMOUTH COUNTY FAIR ENTERTAINMENT, HORSE SHOW, PIG RACES, REPTILE SHOW, FIREWORKS 4-H SHOWS, ANTIQUE CARS, AND MORE;

Events

July - August

5-11PM THURS & FRI, 11AM-11PM SAT AND SUN, 11AM-6PM MON; E FREEHOLD PARK & SHOW GROUNDS, KOZLOSKI RD, FREEHOLD TWP; 732.842.4000; \$

26 TO 28

QUICK CHEK NJ FESTIVAL OF BALLOONING CONCERTS, 125 HOT AIR BALLOONS, AND MORE; SOLBERG AIRPORT, READINGTON; WWW.BALLOON-FESTIVAL.COM; 973.882.5464; 6; \$

26 TO AUG 2

PUBLIC SAILS ON NJ'S TALL SHIP, A. J. MEERWALD A 2.5-HOUR SAILING ADVENTURE; MUNICIPAL MARINA, FIRST ST, ATLANTIC HIGHLANDS; 800.485.3072

27

38TH ANNUAL OPEN HOUSE DISPLAY GARDEN TOURS, PLANT SALES, GARDENING TALKS, *ASK THE EXPERT* CLINIC; RUTGERS GARDENS, 112 RYDERS LN, NEW BRUNSWICK; 732.932.8451; \$

27 & 28

JERSEY FRESH FOOD AND WINE FESTIVAL NJ WINES, FRESH JERSEY PRODUCE, AND RECIPES FEATURING LOCAL PRODUCE MADE BY CHEFS FROM AWARD-WINNING AREA RESTAURANTS; NOON-5PM; CORNERCOPIA, PRINCETON-HIGHTSTOWN RD (RTE 571), E WINDSOR; 609.588.0085

CARRIAGES, COACHES & WAGONS HISTORY AND SIGHT OF VARIETY OF HORSE DRAWN CARRIAGES; COLD SPRING

NE PERUVIAN HORSE CLUB REGIONAL CHAMPIONSHIP SHOW HORSE PARK; 973.744.8500, x363

MID-SUMMER ANTIQUES & COLLECTIBLES SHOW & SALE WHEATON

28

1830s TEMPERANCE RALLY & CHARITABLE SOCIETY FAIR 1-4PM; ALLAIRE

28 TO AUG 3

WARREN COUNTY FARMERS' FAIR HORSE SHOWS, HOT AIR BALLOON FESTIVAL, AND MORE; HARMONY TWP FAIRGROUNDS, 165 RTE 519 S, BELVIDERE; WWW.WARRENCOUNTYFARMERS-FAIR.ORG; 908.475.6505; \$

30 TO AUG 4

FESTIVAL OF THE SEA BRANT BEACH; 609.494.8861

August

2 TO 11

THE 2002 NJ STATE FAIR AND THE SUSSEX COUNTY FARM AND HORSE SHOW LIVESTOCK, HORTICULTURE, HORSE SHOW, CONCERTS, CARNIVAL,

FOOD, ENTERTAINMENT, CRAFTS AND MORE; 37 PLAINS RD, AUGUSTA (OFF RTE 206); WWW.NEW-JERSEYSTATEFAIR.ORG; 973.948.5500; \$

3

SECOND ANNUAL FANTASEA FESTIVAL RAIN DATE 8/4; NAUTICAL THEME CRAFT SHOW WITH FOOD, CONTESTS, TOUCH TANK, DJ, AND MORE; 10AM-4PM; BICENTENNIAL PARK, ENGLSIDE & OCEAN AVES, BEACH HAVEN; 609.492.0222

18TH ANNUAL PEACH FESTIVAL FLEA MARKET PEACH DESSERTS, FRESH PEACHES, ENTERTAINMENT, PONY RIDES, AND FACE PAINTING; 10AM-5PM; DUTCH NECK

3 & 4

COUNTRY CORN FESTIVAL MUSIC AND CORN ROAST; COLD SPRING

CIVIL WAR ENCAMPMENT COMPLETE MILITARY AND CIVILIAN CAMP, MARCHING DRILLS, AND MUSKET-FIRING DEMONSTRATIONS; SMITHVILLE

REVOLUTIONARY WAR DAYS CAMPS, DRILLS, EDUCATIONAL DEMONSTRATIONS; SAT 10AM-4PM, SUN 10AM-3PM; RED MILL MUSEUM VILLAGE, 56 MAIN ST, CLINTON; 908.735.4101; 6; \$

NORTHEAST CONNECTION-ZONE 7 PAINT-A-RAMA HORSE PARK; 856.468.5366

4

VINELAND JERSEY FRESH FESTIVAL GIAMPIETRO PARK, LINCOLN AND LANDIS AVES, VINELAND; 856.794.4077,x633; 6; \$

BLACK RIVER PARK DAY DISCOVER THE DIVERSE NATURAL AND CULTURAL HISTORY OF THE BLACK RIVER; COOPER MILL

CONCERT IN THE PARK *KEN NAVARRO* (JAZZ); 7PM; DUKE ISLAND PARK, BRIDGEWATER; 908.722.1200, x351

6 TO 9

SALEM COUNTY FAIR PIG RACES, HORSE PULLING CONTEST, MUSICAL ENTERTAINMENT, AND MORE; SALEM COUNTY FAIRGROUNDS, RTE 40, WOODSTOWN; 856.769.0090

7

36TH ANNUAL SEASHORE OPEN HOUSE TOUR A SELF GUIDED TOUR OF HOMES LOCATED ON THE NORTH END OF LONG BEACH ISLAND; 609.494.1241

7 & 8

REVOLUTIONARY WAR ENCAMPMENT LAMB'S ARTILLERY COMPANY, DANIEL MORGAN'S RIFLE CORP (FOUNDED IN 1775) AND THE 43RD REGIMENT FOOT SOLDIERS; COLD SPRING

8

PINE CREEK RAILROAD'S RAILROADERS DAY & 50TH ANNIVERSARY CELEBRATION TOURS, RIDES AND MORE; ALLAIRE

10

THE GIGANTIC YARD SALE 8AM-3PM; ALLAIRE

AIRFEST 2002 AIRCRAFT DISPLAYS, LIVE MUSIC, FOOD, FAMILY FUN AND MORE; NASW AVIATION MUSEUM, 500 FORRESTAL RD, CAPE MAY COUNTY AIRPORT, RIO GRANDE; 609.886.8787; 6; \$

CAPTAIN BILL GALLAGHER ISLAND RUN BEACH PATROL HEADQUARTERS, 44TH ST AND BOARDWALK, SEA ISLE CITY; 609.263.3655; \$ FOR PARTICIPANTS

BKF SPORT HORSE BREEDING SHOW HORSE PARK; 908.647.5801

11

VILLAGE TOWN MEETING 1-3PM; ALLAIRE

CONCERT IN THE PARK *WEST POINT ARMY BAND*; 7PM; DUKE ISLAND PARK, BRIDGEWATER; 908.722.1200, x351

FESTIVAL OF HORSES HORSE PARK; 609.984.4389

15 TO 18

FORKED RIVER TUNA CLUB ANNUAL FLUKE TOURNAMENT 609.693.5353

16 TO 18

NJ PALOMINO EXHIBITORS ASSOC. HORSE PARK; 732.846.9283

17

BIG BARN BASH LEARN ABOUT BARNs, SQUARE DANCE, AND MORE; AG MUSEUM

17 & 18

3RD ANNUAL CLASSIC BOAT SHOW PARENT/CHILD BOAT BUILDING CLASSES, MODEL BOAT DISPLAYS, AND MORE; 10AM-5PM; TUCKERTON SEAPORT

GARDEN STATE RE-ENACTORS WATERLOO

18

DOG DAY ROAD RACE FIVE MILE RUN; HARVEY CEDARS FIRE HOUSE, LONG BEACH BLVD, HARVEY CEDARS; 609.361.9364; \$ FOR PARTICIPANTS

BAYOU FEST *GENO DELAFOSE* AND *ZYDECO-A-Go-Go*; 5:30PM; DUKE ISLAND PARK, BRIDGEWATER; 908.722.1200, x351

Call for Entries . . .

New Jersey
Outdoors



2002 Photo Contest

This *New Jersey Outdoors* photo contest will feature eco-tourists, outdoor recreation enthusiasts, history buffs, and others enjoying our state's abundant natural and historic resources. Examples include: people fishing, birding, sailing, skiing, hiking, and watching reenactments or living history demonstrations.

Images of individuals and groups of all ages are eligible. Pictures may have been taken anywhere in New Jersey, indoors or outdoors, at any time from December 2001 through November 2002.

Photo Contest Rules

- The contest is open to any New Jersey resident or visitor, except Department of Environmental Protection employees and their immediate families.
- Images should show people enjoying New Jersey's natural or historic resources. Both interior and exterior shots are eligible, and pictures may have been taken at any time from December 2001 through November 2002.
- Signed releases are required for entries showing identifiable people or (from the artist) works of art.
- Only unmatted, unframed prints (no larger than 8" x 10") may be entered. Images must be crisp and in focus, except where depth of field applies. Images should not be under- or overexposed.
- Dated images are not eligible, nor are images that have been stapled, torn, written on, or marred in any other way.
- A completed entry form must be taped to the back of each image. (The form on this page may be reproduced as needed.)

■ All entries become the property of the Department of Environmental Protection and may be published or displayed for any purpose, such as illustrating a story or advertising *New Jersey Outdoors*.

■ Images will not be returned.

■ Entries must be received no later than December 31, 2002.

■ Mail entries to:

New Jersey Outdoors
PO Box 402
Trenton, NJ 08625-0402

Categories, Prizes, and Publication

- Eligible entries will be placed into a seasonal category based on when the image was taken. There will be a first, second and third place winner in each category (assuming a sufficient number of entries).
- Prizes will include camera gear, subscriptions to *New Jersey Outdoors*, and more.
- Winning photographs will be featured in the Spring 2003 issue of *New Jersey Outdoors*.

NJO 2002 Photo Contest Entry Form

Name _____

Address _____

City _____ State _____ Zip _____

Daytime phone () _____

E-mail (optional) _____

Where taken _____

When taken _____

Description _____

Form may be photocopied if needed.

Red Knot

by Amanda Dey

About the size of a slightly overweight American robin, the red knot is the equivalent of a tri-athlete when it comes to migration. With a round trip of nearly 20,000 miles, from wintering areas at the southern tip of South America to breeding grounds in the high Canadian Arctic, this shorebird is one of only a handful of species to cover such great distances.

From November to February, red knots are anything but; their plumage is pale gray on the back and breast, white on belly and flanks, with legs that are greenish to black. But in the spring, these beauties molt into a gorgeous plumage of deep salmon on the face and breast with a back spangled black on gray.

Because of the extremes of the bird's migration, there is a great deal yet to learn about its life history. Years of work by many biologists along the knots' migration route, from southern Chile to northern Canada, have revealed much about the challenges these birds face. We know that the Delaware Bay is one of the most critical migratory stopovers in the Western Hemisphere for red knots and five other shorebird species. Research on red knot wintering and breeding areas is uncovering new information each year.

So far, we know that the northward migration of red knots is a hurried and physically stressful affair. They begin leaving their wintering grounds at the southern tip of South America in mid-February, and fly up the Atlantic coast of Argentina to northern Brazil where they lift off for a 3,500-mile, non-stop flight to the Delaware Bay. They begin arriving on the bay in early May, well below their fat-free weight of about 130 grams. In other words, the birds burned off not only all body fat but also some muscle tissue to reach the bay. This depleted physical condition must be quickly reversed if birds are to reach the Arctic on time and in good enough condition

to breed during the short Arctic summer.

Only on the Delaware Bay can red knots quickly make up this crucial deficit. Gorging on fat-rich horseshoe crab eggs, they can double their body weight in an amazingly short two or three weeks. At about 200 grams, they leave the bay to complete the last leg of their journey—a 2,500-mile flight to Arctic breeding grounds, where they are greeted in early June by mostly snow-covered tundra. With little or no food available, knots must have enough fat reserves to sustain them for a week or more while they defend their territory and lay eggs.

Obviously, the key to successful migration and breeding for red knots is plenty of rich food—horseshoe crab eggs—in a strategic location (i.e., Delaware Bay). In early May, horseshoe crabs gather at the mouth of the Delaware Bay and move to the bayshores to spawn. Female crabs dig holes on the shore and lay thousands of tiny green eggs, attended by many males eager to assist with fertilization. The digging action of successive females churns up the sand, bringing to the surface the eggs laid by earlier females. It is this abundance of surface eggs that is crucial for red knots and nearly a million other shorebirds that stop over on the Delaware Bay to refuel. Without enough crabs to continually churn up sand, eggs remain buried and thus unavailable to hungry shorebirds.

Unfortunately, Delaware Bay's horseshoe crabs have been heavily harvested since 1990 for use as bait in the conch fishery. The number of crabs has severely declined, as evidenced by independent long-term surveys.

Biologists of the New Jersey Division of Fish and Wildlife's Endangered and Nongame Species Program (ENSP) believe that the decline of horseshoe crabs and eggs has adversely impacted the red knot population. Counts of red knots on the

Delaware Bay stopover declined from 90,000 birds in 1990 to 38,000 in 2001. Winter counts of red knots in Tierra del Fuego show a similar trend, with 45,150 birds counted in 2000, 30,000 in 2001, and 21,000 in February 2002. These sharp declines prompted New Jersey to list the red knot as a threatened species in 2001.

Long-term research on red knots intensified in 1997 to monitor weight gains of birds on the Delaware Bay stopover, density of crab eggs, and bay-wide counts of red knots and other species. Studies have expanded to breeding and wintering grounds where biologists monitor breeding success and the number of young birds in the wintering population. This work will help us understand if red knots are declining because the birds are not reproducing successfully or because adults are experiencing higher mortality—or due to both factors.

The race to gather information and understand the impacts of the loss of horseshoe crabs is on. The harvest of horseshoe crabs has recently decreased, but because crabs do not breed until nine years of age, biologists worry that ten years of harvest may mean a long recovery for the crab population. This spells an uncertain future for red knots and other shorebirds that rely on Delaware Bay's unique resources and strategic location along the Atlantic migratory flyway.

Senior biologist Amanda Dey, who has been with the ENSP since 1993, is involved with neotropical migrant songbird research, the Landscape Project (see page 10) and the Delaware Bay Shorebird Project. She recently returned from Tierra del Fuego, where she and other ENSP biologists led a multi-national team to study the red knot.

Editor's Note: To find out where to view the spring shorebird migration and horseshoe crabs on Delaware Bay, call 609.628.2103 for a shorebird brochure. For information on current ENSP research, including the recent field trip to Tierra del Fuego, visit www.njfishandwildlife.com.



KSF'02

