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Outdoors



New Jersey Outdoors

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NEW JERSEY OUTDOORS CREDO

This publication is dedicated to the wise management and conservation of our natural resources and to the fostering of greater appreciation of the outdoors. The purpose of this publication is to promote proper use and appreciation of our natural, cultural, and recreational resources, and to provide information that will help protect and improve the environment of New Jersey.

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The views and opinions of authors do not necessarily represent the opinion or policies of the Department of Environmental Protection or the State of New Jersey.

FROM THE EDITOR

Kittatinny Pete

Our Garden State Woodchuck



Editor's Comment: It has been our policy not to publish poetry in *New Jersey Outdoors*. And, generally speaking, this policy still holds. But in this issue we are publishing a work of light verse because it is timely and humorous.

In this world of daily wonders
As men walk upon the moon
There's an ancient superstition
That pronounces man a goon.
He can measure stratodistance;
He can smash the atom small;
He can fly as fast as sound does
He can brave the typhoon's maw.
Yet, each year, on Feb. the second,
Modern man goes obsolete
As he takes his weather queries
To a Woodchuck known as "Pete."
In a place called "Kittatinny"
Kittatinny Pete is king,
As a Nation's seers and sages
Fete the Woodchuck every spring.
Tho the chubby chuck is merely
Coming out to draw a breath,
When he learns he is a Prophet
He nigh laughs himself to death.
It's the thud of interlopers
Pokin' 'round his cozy nook

That aroused Pete from his slumber;
So he sallies forth to look.
Now, this poet thought 'twas proper
Mr. Pete to interview,
When I found 'twas Woody's custom
To emerge each Feb. the two.
When he learned that he was famous
As a yearly weather gauge,
Kittatinny Pete, the groundhog,
Had a laughing hemorrhage.
"I'm a fat and foolish Woodchuck"
Chortled Kittatinny Pete,
"But for stupid superstitions
Homo-sapheads can't be beat."
"If you gotta have a moral"
Says prognosticateless Pete,
"WHEN IT COMES TO GUESSIN' WEATHER,
DAY BY DAY IS HARD TO BEAT!"
Back into his cozy burrow
Went old Pete, with sleep his aim.
Kittatinny Pete, God bless you,
You're New Jersey's claim to fame!
Yes, he plunged into his burrow,
Fat and happy little chuck,
Leaving us, poor Jersey Sages,
With our weather problems stuck!

Tony Fleming

IN THIS ISSUE

A Little "Faith" is followed by "Stars" and "Stripes" is the story of how the New Jersey eaglets "Stars" and "Stripes" and other eaglets in other states are conceived and parent-raised at the Patuxent Wildlife Research Center and then reintroduced into states with remnant eagle populations. The article was written by James W. Carpenter, a Doctor of Veterinary Medicine with the U.S. Fish & Wildlife Service, and John A. Stegeman, a biological aide in the same program.

Our Friends of the Parks sail under many different names and organizational titles, such as: *The Friends of Wallace House and Old Dutch Parsonage*, *The Batsto Citizens Committee*, and the *Washington Crossing Association*, among others. But by whatever name identified, these dedicated volunteer citizen groups, together with Bureau of

Parks Management, have provided better programs for parks visitors, special events and activities, workshops, fund raising, special educational programs, and a variety of programs and activities that enhance the recreational value of our parks. This article was compiled by Jim Rozmus, Superintendent of Wharton State Forest, Dick Riker, Superintendent of Ringwood State Park, Bill Vibbert, Superintendent of Cheesequake State Park, and Paul Taylor, Curator for New Jersey Historic Sites. Mr. Taylor is attached to the Office of New Jersey Heritage in the Division of Parks and Forestry.

On an October day in 1858 in what is now the urbanized town of Haddonfield in southern New Jersey, the first nearly complete dinosaur skeleton was unearthed in a marl pit near the Cooper River. Author Gene

Montgomery writes about this amazing discovery in the article titled, *New Jersey's Haddonfield Dinosaur: A Surprising History*. The author has been a Junior High School teacher for 25 years, and has been published in several Delaware Valley newspapers in an earlier Journalism career.

A *Wildlife Rescue* as described by Jill Padreza and photographed by Klaus-Peter Steitz happened last winter and was received too late to be included in the winter issue. But it was a heroic effort that had to be recognized. So here it is.

Ms. Padreza is a Regional Editor for *Today* newspapers in Wayne, and Mr. Steitz is Photo Editor for *Today*.

Photographer Cornelius Hogenbirk's photographs have appeared on several NJO covers and he's back with *Birds of the Winter*.

Continued on page 34

Patuxent's Bald Eagles.....

A little "Faith" is followed by "Stars" and "Stripes"

BY JAMES W. CARPENTER
AND JOHN A. STEGEMAN

Unceremoniously, a 2½-week-old eaglet named Faith (later named "Check-off") was transported from the Patuxent Wildlife Research Center, where it was hatched, to the wilds of New Jersey. There it was introduced into a nest 80 feet above the ground—proof that a little "Faith" goes a long way! The recipient parents, New Jersey's only pair of nesting bald eagles, had failed during the last six years to produce an egg that hatched. Faith was one of seven eaglets that were hand-raised at Patuxent during March and April 1982 and later fostered into nests of wild eagles with a history of poor egg hatchability. Then, during 1983, five more eaglets were hand-reared—including two nicknamed "Stars" and "Stripes", which were also destined for New Jersey! These eaglets, along with others parent-raised at Patuxent for subsequent hacking into the wild, are part of a program to reintroduce eagles into states with remnant populations.

Decline of the Bald Eagle

More than 200 years ago, the bald eagle (*Haliaeetus leucocephalus*) was adopted by the Continental Congress to be the central figure of the Great Seal of the United States. It is now estimated that during Colonial times, the resident Bald Eagle population in what are now the 48 contiguous states was about 25,000. Today, the population has declined by more than 80%—to around 4,500—an unfortunate fate for any species, much less for the symbol of a country!

Many factors have contributed to this reduction over the years. Some eagles were killed by ranchers who mistakenly thought that they posed a significant threat to their livestock, whereas others were and still are being shot out of ignorance or boredom. The most severe decline, however, occurred between the 1940s and the early 1970s, because of the widespread use of DDT. This pesticide contaminated the birds' food and caused thin eggshells that would break when eggs were laid or incubated.

Since DDT was banned from use in the early 1970s, the severe effects resulting from its accumulation in the environment have been reduced. The Bald Eagle population has begun increasing in the last five years, but so



Wild Bald Eagle.

DON PFITZER

has the rate of disturbance and destruction of habitat. Even under the best of circumstances, Bald Eagle population might never reach or even approach previous highs; in fact, the continued destruction of natural ecosystems through urbanization, wetland drainage, timber exploitation, and other human activities could put this majestic bird back on the decline.

Bald Eagle Act

While some people have inadvertently or maliciously caused the bald eagle to become listed as an endangered species by the U.S. Fish and Wildlife Service in 1969, others fight for its survival. In 1940, Congress passed the Bald Eagle Act, placing the national bird under federal protection. This Act prohibited the molesting of eagles and made it illegal to kill, possess, or sell this bird without a permit.

Since 1940, various federal agencies, state governments, and conservation groups such as The National Audubon Society, the National Wildlife Federation, and The Nature Conservancy have initiated programs to preserve and protect this species.

One step taken to bolster the eagle population is the Fish and Wildlife Service's Bald Eagle program at the Patuxent Wildlife Research Center. This program, begun in the 1970s, was originally intended to breed Bald Eagles in captivity to study the physiological effects of environmental contaminants on them. The original stock generally were injured wild birds that would have had little chance of surviving in the wild.

The first successful breeding of Bald Eagles at Patuxent occurred in 1973, when one pair produced two young. In the late 1970s three other pairs also began breeding. During this time, the Environmental Contamination Evaluation Section developed breeding techniques for this species, and successfully fostered or "hacked" 23 young into the wild. When the propagation value of the colony surpassed that for contaminant research, the program was transferred to another section of Patuxent in 1980—the Endangered Species Research Program (ESRP). Then, in 1983, the breeding program was expanded, helped by a generous grant from the Dupont Corporation of Wilmington, Delaware.

Patuxent's Eagle Propagation Program

The ESRP established three major objectives for its eagle research and breeding program. First, to continue to develop and improve efficient captive breeding techniques for eagles. Second, to conduct research on the behavior, physiology, and veterinary care of captive bald eagles. And third, to provide eaglets for augmenting wild populations in areas with depressed natural production and for reintroducing Bald Eagles where they have been extirpated. Although captive propagation is widely accepted as an important conservation strategy, to be most effective it should be conducted in conjunction with habitat protection, public education, field studies, law enforcement, and control of environmental pollutants.

The breeding facility consists of enclosed pens (each 70' x 36' x 18' high), with each containing several perches, two stumps for the placement of food, a water pan, and a nest box 12 feet above the ground. Mirrors placed above the nest box allow the nest contents to be seen from outside the pen. Twelve pens were occupied by pairs of eagles during 1983; eight pairs were productive, and five pairs produced fertile eggs. Several non-productive pairs were formed late during this year's breeding season so we are hoping that they will form a strong pair bond during the coming year and breed next season.

Eagle pairs are formed by placing a male



Installing a ramp for a flight-less eagle in a breeding pen.

alone in a pen for several days to weeks before introducing the female. This is done so that the male, usually smaller than the female, can attain a temporary psychological advantage in the pen which may help to reduce early aggressive encounters by a potentially dominant mate. Several weeks later, a female of similar geographic origin is placed in the pen, and the compatibility of the birds is then observed from an adjacent blind. Although pairing at the Center has been relatively successful, some "swapping" of mates has been conducted to optimize formation of strong pair bonds. As with their wild counterparts, captive eagles are monogamous and mate with the same bird for life—therefore, they are very particular about their spouse!

Patuxent's eagles usually start laying their eggs in late February, although environmental conditions may delay production. Bald eagles in the wild usually lay a single clutch of two eggs. Egg production can be increased in Patuxent's birds by "double clutching." Three days following the laying of the last egg in the first clutch, all the eggs are removed from the nest and artificially incubated in incubators. Most pairs then lay a second clutch of eggs within 2-3 weeks. One pair at Patuxent has produced 25 fertile eggs in the last six years!

Since 1978, 63 eagle eggs have been artificially incubated at the Center. Three of these eggs were transplanted to wild nests and one was given to another captive pair. One egg in 1980 was found buried in the nest lining and was cold when collected. Forty six of these eggs were fertile, and 24 eaglets were hatched.

The eaglets that hatch in artificial hatches are hand-raised in brooding boxes that enable us to control temperature and humidity. As the eaglets get older, the temperature is decreased to a more comfortable level. By 2½ to 3 weeks of age, the eaglets have become thermo-competent (physiologically capable of maintaining a constant body temperature) and are kept in boxes at room temperature.

Hand-raised chicks are fed with blunt for-

Feeding an eaglet at Patuxent.



MATTHEW PERRY



Stars and Stripes at two weeks of age.

JAMES W. CARPENTER

ceps beginning 12 to 18 hours after hatching—and from dawn until dusk, every 2½ hours until transferred to the wild! The care and feeding of the eaglets is thus very time consuming, requiring one full-time coordinator and the part-time assistance of several individuals for approximately six weeks. The diet provided to the eaglets consists of fish and chicken supplemented with vitamins and minerals, pancreatic enzymes to aid in digestion, and a calcium supplement. All food is prepared fresh daily.

At hatching, the eaglets weigh about 90 grams. Their growth rate is rapid—they double their weight every five days for the first 25 days! Occasionally, eaglets develop medical problems. For example, during 1982, one of

age). In some states where eagles are hacked, the birds are released with radio transmitters attached to their wings. Biologists equipped with receivers can then observe eagle movements, behavior, and activity patterns.

After the eagles are set free, they return frequently to the release site to obtain food. Gradually, less food is provided and the birds begin relying more and more on their ability to catch natural prey. Within a short period of time, the birds become self-sufficient. States that have received eaglets for hacking include Georgia, New York, and Tennessee.

From 1976 to the present, 59 eggs have been parent-incubated by Patuxent's eagles. Three of these eggs were transplanted into wild nests. Thirty-six of the remaining 56



A pair of captive Bald Eagles at Patuxent.

DANE PENLAND,
Smithsonian Institution

seven hand-raised eaglets required veterinary care when it developed a severe respiratory infection. The eaglet was administered antibiotics four times daily for seven days. In addition, an aerosol consisting of oxygen and various medications was piped into the bird's brooding chamber.

At 2½ to 3 weeks of age, the eaglets are transported to states with depressed natural production and placed into nests in which the natural eggs have not hatched. In addition to New Jersey, states which have received hand-raised eaglets include Delaware, Maine, New York, Ohio, Virginia and Pennsylvania. Second clutch eggs are parent-incubated and following hatching, cared for by the adults. Eagles with young are fed twice daily with food small enough to enable the adults to carry it from the feeding site to the nest box. The eaglets are raised for eight weeks and then transferred to states needing more eagles and placed in a hacking tower—usually an elevated platform with a large cage on top. The eaglets are confined in the towers and fed daily (without seeing people) until they are fully fledged (at approximately 13-14 weeks of

were fertile and 33 hatched. Lack of copulation because of late pairing or inexperience seems to be the principal cause of egg infertility.

1983 Breeding Activities

During the 1983 bald eagle breeding season, the Patuxent Center again provided eaglets for Pennsylvania, New Jersey, Tennessee, Georgia, and New York. The situation and results pertaining to New Jersey's only bald eagle nest in 1983 were both surprising and successful. During March, New Jersey's Nongame and Endangered Species Program removed the two natural eggs from the nest and replaced them with plaster imitations. The real eggs were then transferred to Patuxent where they were successfully incubated. This action was taken because last year's eggshell was 25% thinner than normal, caused by residual presence of DDT in the parents. Much to the surprise of New Jersey and Patuxent personnel, both of the natural eggs taken to Patuxent proved to be fertile and hatched. Since the eggs hatched several days apart, however, the sibling size difference might have been a potential problem if both

of the eaglets were placed into the same nest. Instead, the Patuxent Center substituted a larger hand-raised captive eaglet and along with the larger New Jersey eaglet, placed them into the New Jersey nest in April. The parents accepted the eaglets readily and began caring for them. The smaller New Jersey eaglet was placed into a nest in Pennsylvania and successfully raised there.

This flexibility at the Patuxent Center in being able to provide eaglets of different sizes is not only important for matching siblings, but also provides for genetic diversity of potential breeders in years to come. Following fledging and yearly migrations, bald eagles often return to the same nesting area, therefore Patuxent's and New Jersey's decision to use two genetically different eaglets might have dramatic beneficial effects on the future gene pool.

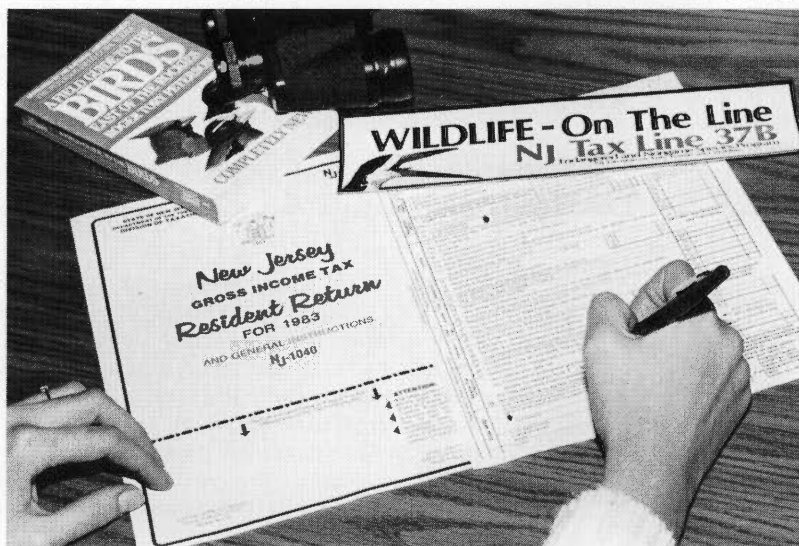
These two eaglets, nicknamed "Stars" and "Stripes" by New Jersey school children, were banded in late spring and successfully fledged in June.

Although the Patuxent Center has the world's largest captive bald eagle breeding program, production of a large number of eaglets is a difficult task. The Center hopes to produce a substantially greater number of eaglets in future years, for fostering and hacking into the wild, as the number of breeding pairs increases, as fertility improves when birds become mature, and as pair compatibility improves as more birds are acquired. Given the relatively slow rate of natural recolonization of bald eagles, fostering and hacking captive-produced eaglets will remain an important means of restoring this species to its historical range within a relatively short period of time.

Future Outlook

The year 1982 was the 200th anniversary of the adoption of the eagle as the national emblem; and now, in 1983, it is again time to reflect, to focus on this species—and on all endangered species—and to identify what we can or cannot do to help them survive in times of ecological turmoil. We must preserve our natural wonders so that future generations may have the opportunity to view and appreciate all the forms that we enjoy today.

It is very encouraging to know that bald eagle numbers in North America are gradually increasing—a comeback that befits the symbol of our country; a comeback that we hope will continue so that all of us may observe the Bald Eagle, not just on currency or on the Great Seal of the United States, but in the skies where they belong. And "Faith", later renamed "Check-off" by New Jersey State officials, the 1982 captive-produced bird which was the first Bald Eagle to fledge in New Jersey in six years, and "Stars" and "Stripes" are symbols of this comeback and of man's effort to restore all endangered species in the wild!



Nongame Wildlife Conservation Fund

The New Jersey Endangered and Nongame Species Program was created in 1973 within the Division of Fish, Game and Wildlife to investigate, manage and protect over 400 species of wildlife classified as nongame. Since 1981, New Jersey citizens have had the unique opportunity to help support their state's valuable wildlife resource. Through the Nongame Wildlife Conservation Fund, taxpayers can donate a portion of their State tax refund.

What is Nongame Wildlife?

It is the majority of wildlife (over 85 percent) found in the Garden State. All animals which do not have a legal hunting or trapping season are considered nongame. It includes everything from songbirds and salamanders to turtles and hawks and the 35 species in danger of extinction.

Why do these animals need our help?

Nongame wildlife provides us with many hours of enjoyable recreation and play valuable roles in the state's ecosystems. However, pollution and habitat destruction have caused many species to become endangered, requiring our immediate attention to preserve them.

How Can I Help?

By "checking off" a tax-deductible donation (line 37B of your State Income Tax form) you will be helping to support important wildlife work. Unlike the political check-off, your voluntary donation is deducted from your State refund. If you have a balance due, you can enclose a separate check with your taxes payable to: Nongame Wildlife Fund.

How will this money be used?

Your donations to the New Jersey Nongame Wildlife Conservation Fund will be used for:

- Investigations* into the causes for the decline of 55 of our wildlife species that are now listed as threatened or endangered.
- Restoration* programs for species like the bald eagle, osprey, peregrine falcon and corn snake.
- Protection* and management of valuable wildlife habitats.
- Education* programs available to the public on New Jersey's wildlife. Lectures, films and slide shows are presented statewide.
- Prevention* of declines in New Jersey's 400 species of nongame wildlife.

For More Information, Write:

Endangered and Nongame Species Program
Division of Fish, Game and Wildlife
CN 400
Trenton, NJ 08625

Our Friends in the Parks

BY PAUL TAYLOR,
JIM ROZMUS, DICK RIKER
AND BILL VIBBERT

Many people think of New Jersey's state parks as places to get away from the hustle and bustle of our daily lives, as quiet refuges from our stressful world. While this is certainly true, our state parks are more—they are also vital, active places alive with special events: antique shows and battle re-enactments, band concerts and quilt shows, flea markets and Christmas candlelight tours. These events and many others are provided to the public through the boundless energy and selfless generosity of the volunteer organizations that are the "Friends of the Parks."

Your State parks as they exist today are not a product of state government alone. They are a result of a long-term spirit of cooperation between the Bureau of Parks and local citizens' groups throughout the state. At Allaire and Batsto, Ringwood and Rockingham, Wallace House, Washington Crossing, and many other sites, dedicated people have formed organizations to advise and assist the park staffs.

What has evolved over the years is a positive, mutually beneficial relationship between the parks and these groups of local citizens. Thanks to this relationship, park visitors enjoy better programs, expanded interpretation of historic and natural areas, a wide

array of special events and activities, and a much richer, more enjoyable experience.

Batsto

In the Pine Barrens of South Jersey, the restoration and development of the iron village of Batsto has been guided and influenced by the Batsto Citizens Committee. This group was formed in 1956 to advise the state in the development of the recently purchased Wharton Tract, and the results of its involvement are apparent, especially at Batsto.

The once overgrown, delapidated sawmill has been restored and again turns cedar logs into usable lumber. The Ironmaster's Mansion has been repainted and furnished under the direction of this group. Those rooms included on guided tours have been provided with plexiglass security screens and partitions to protect the valuable furnishings. Representative early American tools have been acquired and are on display.

Rare archival material such as maps, ledgers, and day books have been purchased and have become part of the Committee's active research program.

The group sponsors annual craft shows and historic art festivals; militia units regularly participate and provide a patriotic air with re-enactments of Colonial style skirmishes.

The restored 1852 Post Office, one of the oldest in the country, inspired the formation of the Historic Batsto Philatelic Society, which annually issues several cacheted covers with special postmarks.

During the past 12 years, the Committee has produced 10 commemorative handmade

PHOTOGRAPHS
PROVIDED BY THE
PARKS BUREAU



"Apple Day" Harvest
Festival at Rockingham.



A Ringwood Manor
historical event.



Craig House—Friends of
Craig House.

flasks depicting scenes of Batsto. Other efforts include the production of "Jersey Devil" T-shirts, and the printing and sale of booklets, postcards, brochures, and the Batsto Citizens Gazette.

With funds raised, the Committee has purchased a variety of livestock for the barnyard complex, including teams of draft horses to pull a period wagon and stagecoach through the village for the enjoyment of visitors.

The Committee is proud of its efforts, contributions, and accomplishments toward the preservation, restoration, and promotion of Batsto Village, and has become an important part of the interpretation of this unique Historic Site.

Wallace House

The Friends of Wallace House and Old Dutch Parsonage, founded in 1979, is one of the newest Friends of the Parks organization, and one of the most active. More than a hundred members and volunteer interpreters in 18th-century costume turn out for each of the special events.

"The Friends" hold three main functions each year: "The Rites of Spring," a fall harvest festival, and a "Taste of Christmas" in December.

"The Friends" also sponsor special educational programs, workshops, and field trips including hand-spinning classes, historic floral decorations, and lectures on local history and 18th-century life. In addition, volunteer interpreters assist with large group tours and offer special hands-on programs for school children.

Washington Crossing

The story of George Washington's historic crossing of the Delaware on Christmas night of 1776 is well known. Often overlooked in the history books, however, is that the success of the mission depended on a local butcher, John Honeyman, who spied on the Hessians in Trenton and falsely reported to the Hessian colonel that Washington's army was near mutiny and incapable of attack.

Today, at Washington Crossing State Park, the Washington Crossing Association has kept John Honeyman's tradition of citizen involvement alive. The Association supports many programs which emphasize both the historical significance and the recreational value of the park.

The Association is directly involved in the historic restoration program, including the Nelson House and the Ferry House, which contains a small museum. It also donated the audio visual equipment in the visitor's center.

During the summer, the Open Air Theatre,

a popular festival of performing arts produces revenue which the Association uses to support many other park projects including the nature center.

Among the many special events supported by the Association are dog shows, an annual antique engine show, and the re-enactment of the crossing of the Delaware which attract thousands of visitors annually.

Governor Kean recently presided over the dedication of the Swan Collection, one of the nation's best exhibits of memorabilia of the American Revolution. Governor Kean presented Historic Curator Harry Kels Swan with a certificate of appreciation for his generosity in making the collection available to the public in the park visitor center.

The sword with which Governor Kean cut the dedication ribbon was presented by Act of the American Continental Congress on December 12, 1775, to one of his ancestors, Captain Henry Beekman Livingston. The gold-gilt and silver sword was the first of only fifteen such Congressional presentation weapons received by American and European heroes during America's first decade as a nation.

The sword is one of some 700 objects in the Swan collection which features actual arms, camp equipment, documents, maps, and other militaria used by the American, British, French, and Hessian troops who saw service during the "Ten Crucial Days" of December 25, 1776, to January 3, 1777, and for the Revolutionary era from 1745 to 1799. The collection was begun by Harry Kels Swan's paternal grandfather, Theodore Cuyler Swan, more than a century ago.

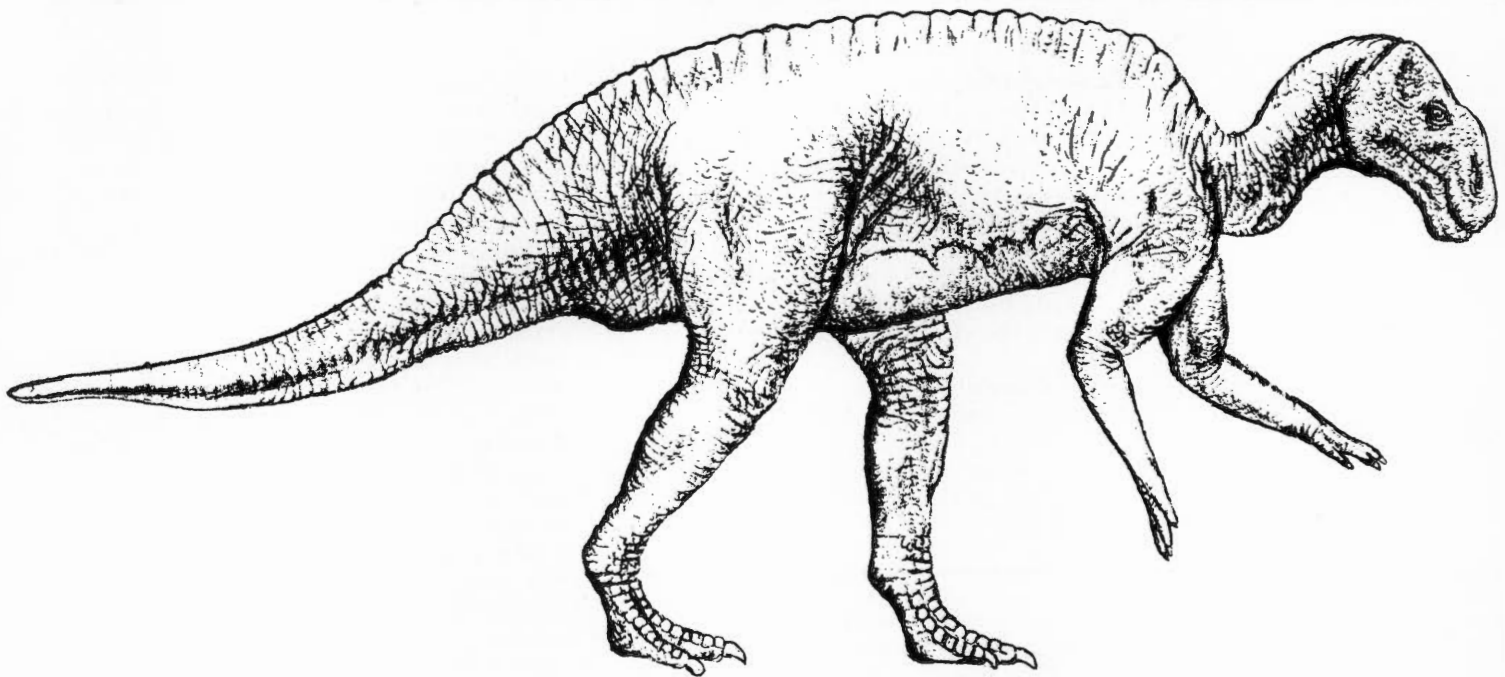
The Washington Crossing Association supplied the programs and other assistance for this ceremony, and participants in period costume demonstrated camp life and artillery procedure, and marched to the fife and drum, giving a revolutionary flavor to the event.

Ringwood (Skylands)

The story of volunteerism at Ringwood State Park began when the North Jersey Highland Historic Society, seriously concerned about the deteriorating condition of Ringwood Manor, appealed to then Commissioner Robert A. Roe to take action in upgrading the park. The Historical Society not only led in sponsoring visitor programs but formed the Ringwood Manor Citizens Advisory Committee, which acts as an umbrella organization for all the volunteer groups now involved with Ringwood Manor and funds much needed improvements to the mansion.

The Historic Society, working with the Advisory Committee, mans the souvenir shop in Ringwood Manor, and sponsors and helps fund special programs and celebrations.

Continued on page 16



New Jersey's Haddonfield Dinosaur: A Surprising History

BY GENE MONTGOMERY

The men had excavated to a depth of about ten feet on that October day in 1858; digging in the marl pit was proceeding with extreme caution. Suddenly large bones poked through the clay and debris. More blackened fossils emerged as dirt was brushed aside. The first nearly complete dinosaur skeleton to be unearthed anywhere in the world had been found in Haddonfield, New Jersey. Because the physical nature of the skeletal beast was so unexpected and so unusual, the find startled the scientific thinking of the day. A shutter into prehistoric times clicked open briefly. Framed was a world of unknown creatures: Dinosaurs, as we know them now, were soon to be discovered.

Mysterious Animal Bones in Haddonfield

Particulars of the discovery begin with a man of science vacationing in Haddonfield, New Jersey, during the summer and fall of 1858. William Parke Foulke was a member of the prestigious Academy of Natural Sciences of Philadelphia. Like many learned men of his time, he pursued a strong interest in a number of scientific disciplines roughly grouped in those days as "natural sciences." Foulke had heard stories that numerous large bones had been found in 1838, deep in a marl pit on the nearby farm of John E. Hopkins. Inquiring at the Hopkins

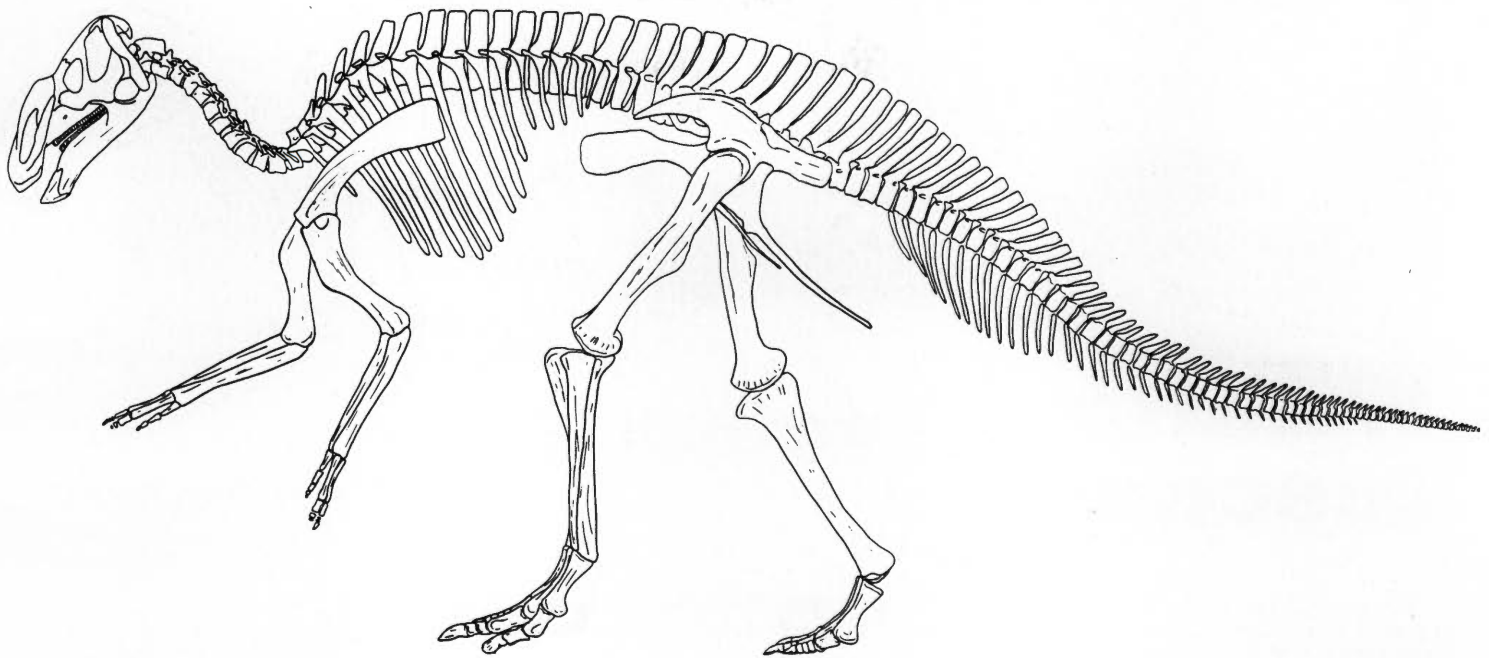
farm, Foulke learned that 20 years earlier, the farmer had allowed friends and neighbors to carry away the bones—none could any longer be located. Recognizing that Haddonfield stood on a geological formation likely to contain fossils, Foulke asked permission to excavate in the long-abandoned marl pit. He hoped that his finds might include the skull which belonged to the bones of 20 years earlier, since no one had ever reported seeing this part of the skeleton.

A day and one-half was needed to get the digging started. Situated in a deep ravine, the pit proved difficult to locate, since it had been filled in. At four feet the diggers struck marl. Just below the first layers of this greenish sediment, some nine or ten feet down, the diggers came upon, in Foulke's words, "a pile" of bones. We can imagine the feelings of awe and excitement experienced by the natural scientist, as inch by inch, a giant skeleton was uncovered.

Although Foulke saw a pile of bones, the skeleton must have been organized to some extent because a drawing was made of the position of the fossil remains. After being sketched and measured the fossil pieces were ever so carefully dissected from their bed, one after another, put on straw in a cart, and transported from the site.

Details of the discovery are described in the excellently preserved record *Proceedings of the Academy of Natural Sciences of Philadelphia*, December 14, 1858. That night a report on the world's first nearly complete skeleton of an unknown giant "lizard" was presented to a quiet meeting of men of science. One of those men, so important to the discovery, was Dr. Joseph Leidy, friend of Foulke, director of the Academy, and professor of anatomy at the University of Pennsylvania. Later to be described as "the founder of vertebrate paleontology in

Artist's life-restoration of Hadrosaurus fouldii drawn by Rodger Walshlager for Richard Rush Studio, Chicago. Photo courtesy of Dr. Donald Baird, Director, Museum of Natural History, Princeton University, Princeton, N.J.



America," Leidy described the Haddonfield fossil.

The bones added up to a 25 foot, seven-ton eight-ton duck-billed, herbivorous saurian (reptile). Height of the creature, depending on erect position, probably ranged from six to ten feet at the hips. (The coloration of dinosaurs is uncertain—we may note that in modern reptiles, skin coloring ranges from well camouflaged to brightly hued.)

Leidy noted that some 55 bones out of an estimated 80 had been discovered. No skull was found though a piece of lower jaw and a few teeth were unearthed. (Earlier fossil finds had consisted only of isolated teeth or bones.)

Studies reveal that the Haddonfield dinosaur, an amphibious creature, lived along a river's edge or around swamps, fed on plants, and probably maintained a rather peaceful life in the pleasant, tropical climate of those ancient times. Leidy theorized that the creature may have died along a river bank and been washed downstream to its entombment in what was to become Haddonfield. (Much of the land that was to become New Jersey had not yet arisen from the sea.)

Concluding his epochal presentation, Leidy turned to his friend and colleague and bestowed on him a singular honor: "The species I would respectfully propose to dedicate to our fellow member William Parker Foulke ... The name of the great extinct saurian will then appear as *Hadrosaurus foulkii*."

New Jersey's *Hadrosaurus foulkii* lived 70-100 million years ago during the Cretaceous period at the end of the dinosaur age. The Hopkins farm fossil was an ornithomimid. Ornithomimids were a subgroup of the bird-hipped ornithischians, one of two

dinosaur lines that evolved from a common ancestor. Ornithomimids evolved into the armored, horned, and duck-billed dinosaurs.

A vital link in the discovery of the fossil was the marl of New Jersey. Laid down during the Cretaceous period by the ocean, marl is a term often used for the green sands that underlie much of the inner coastal plain of New Jersey and which contain great amounts of the green mineral glauconite. The clay was highly prized as a fertilizer, and the Haddonfield marl was being dug for just such a use when the 1838 bones were discovered.

A Big Surprise—the Haddonfield Dinosaur

Study of the Haddonfield dinosaur revealed much information contradictory to contemporary scientific thinking about prehistoric reptiles.

Testifying to the historical significance of the New Jersey find are three distinguished paleontologists, all of whom have made exceptional contributions to their discipline. Dr. Donald Baird, director of the Princeton University Museum, researcher, author, and lecturer, said in a recent interview that the discovery "had provided a great stimulus to dinosaur study at the time." He noted that the find drew scientists to New Jersey from all over the world, particularly Great Britain. Adrian J. Desmond, author of the provocative *Hot Blooded Dinosaurs*, declared the Haddonfield dinosaur to be "... a severe blow to conventional ideas." A third scientist, Edward H. Colbert, former curator of the American Museum of Natural History and professor at Columbia University, author of several dinosaur books and some 200 scientific papers, labeled the discovery "spectacular and significant."

Crux of this significance was the fact that

Skeleton of Hadrosaurus foulkii as reconstructed by John R. Horner of Princeton University. The skull and other missing parts are restored after other species of Hadrosaurus ("Kritosaurus") from New Mexico and Montana. Photo courtesy Dr. Donald Baird, Director, Museum of Natural History, Princeton University, Princeton, N.J.

the prehistoric beast displayed some strange physical characteristics. On the basis of the fragmentary remains unearthed prior to the Haddonfield discovery, dinosaurs were thought to have been huge, four-footed lizards. That the New Jersey creature was quite different was immediately evident. This fossil had two large hind legs, while the limbs that would have been front legs were just small appendages which certainly could not have been used for walking. Dr. Leidy was so surprised by what he called these "fore extremities" that he was inclined to think the legs belongs to different animals. What posture the creature maintained and how it moved about became vital questions, which as shall be seen later, are just now being answered, some 125 years later.

New Jersey's odd creature came along just after dinosaurs had been officially named. Throughout the early 1800s, the concept of dinosaurs was relatively unknown outside the scientific world. Richard Owen, a Victorian scholar, rated by some as the founder and prime mover of paleontology in England, had coined the word *dinosauria* (terrible lizard) in 1841 to describe the four-footed prehistoric creatures as they were visualized at that time. These creatures were all thought to be large, crocodile or lizard like animals. The Haddonfield fossil was re-

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A Wildlife Rescue

By JILL PADREZA

Editorial Comment: This outstanding rescue effort took place last winter and the account of what happened with the accompanying photographs was received too late for our winter issue last year. But we felt it was an effort worth documenting even at this late date.

On a cold, rainy winter morning in December, a report of a dozen deer in a resident's yard prompted the Pompton Lakes police to scout the area. Not long into the search, police discovered two bucks stranded on the rain-softened ice about 1600 feet from the lake shore. Pompton Lakes police Sergeants William Smith and Jerry Paes along with Patrolman Dave Shafer attempted to reach the deer by boat, but without a motor the men became exhausted while chopping at the ice. "The deer ran for safety in the wrong direction," said Lt. Karl Warncke of the Passaic County SPCA. Warncke then called Passaic County Warden Frank Scardo, of the New Jersey Bureau of Forestry, who arrived with a 12-foot motorboat and his assistants Bonnie Anne LoBue, Art Price and Ray Devine. "It took us two and a half hours to cut our way in to get to them," said Scardo. By that time the deer, an eight-point buck and a spiked buck, had fallen through the ice. Ropes were tied around both of them and they were towed

ashore. "They could not have been put in the boat because they would have injured themselves by thrashing about. They can get awfully scared of people," added Scardo.

Hypothermia had set in and the deer were allowed to rest on the shore. They were then tied and lifted into a truck and taken to a state forest. There the deer, still unable to walk, were administered antibiotics by Scardo. They were also given honey and sugar to counteract the hypothermia.

"We rubbed them down with blankets, stood them up and down they went. We rubbed their legs but again they could not stand. Then finally the sugar started working and they got up and walked to the top of the hill and looked back at us before disappearing into the woods. It really gave us a great feeling," said Scardo who has worked for DEP's Bureau of Forestry for 37 years.

The entire rescue effort took approximately seven and a half hours but both Warncke and Scardo said it was worth it. "That was a beautiful animal," said Warncke referring to the larger buck.

Scardo added that he has already received over a hundred phone calls from residents thanking him for saving the bucks. He said he will return to the spot the deer were re-

leased to check on them.

"We all got colds chopping the ice, so you can imagine how the animals felt. They were freezing. I'm just glad that they could have been saved," said Scardo.



Birds of the Winter

BY CORNELIUS HOGENBIRK

Three years ago, shortly after retiring, I made my first wintertime, window bird feeder. I also purchased my first 35mm SLR camera, a used Canon FTb. My thoughts were simple enough. Attract some birds and learn how to photograph them.

Before that first winter was over, in addition to my first window feeder, I now had feeders scattered throughout the back yard. Suet was hung from branches and nailed to the fence posts. Sliced orange halves were placed in other locations for the mockingbirds.

With the second winter approaching, I now had something enjoyable to look forward to. Sure enough with the feeders replenished my old friends of the previous winter returned. The photographs shown are examples of some of the shots that I took the second year.

For anyone newly interested in bird feeding there is a booklet available from the U.S. Government Printing Office, Washington, D.C. 20402. The booklet is in color and is titled *Fifty Birds of Town and City*; publication 1978, 0-259-794. The cost is \$1.50 unless the price was increased.

The tufted titmouse is another of my favorites. Always heard before seen. At one time a rare visitor in New Jersey but now widespread as more and more people set up winter feeding stations.



The admiral, as I like to call str blue jay, wants to be heard as well as seen. With piercing cries he shoo's away the other birds and dines alone, befitting his rank.



Bully-boy starling is ever present. We have an agreement. I put out a plentiful supply of suet. They leave the seed feeders be. They much prefer suet to seeds, where they can be as nasty to each other as they wish.

Why is this starling standing on an orange? It had been chased away from a piece of suet that a mockingbird had claimed. Now, in a huff it stands on the mockers orange seeming to say, "I'll show you."



With the starling gone the sassy mockingbird has its orange back. They love fruit, especially oranges.

Here is an aristocrat of the old south, much admired for its medleys and clever whistles. Now, seemingly well acclimated to even the coldest of our winter days. Although sober in dress they do stand out interestingly when in flight.



House finches are colorful, happy birds to have at a feeder. These I attracted by a copious supply of sunflower seeds.

Originally a native of California and northern Mexico, this is an accidental bird in our region. According to one reference book they were first sighted in Long Island in 1941. Apparently a number of house finches had been released by Long Island pet dealers after learning that this bird was a protected wild songbird.



Hiking the Wyanokies

By J. KENNETH SIEBEN
PHOTOS BY AUTHOR

Only in New Jersey can a hiker experience a day like this. In the morning cross a high swamp and a meadow in search of an ancient Indian hunting cave, spot a herd of six deer, and flush three ruffed grouse. In the afternoon, walk through varying hardwood and evergreen forests, explore two nineteenth-century iron mines, and climb a string of rugged peaks to view the New York City skyline. In the evening, on a hill above a half-frozen waterfall, listen to the nylon tarp snapping in the wind and watch the fresh snowflakes swirling around the campfire.

The scene is the Wyanokie Mountains, which lie to the west of the Wanaque Reservoir in Passaic County. This is rugged country with thirteen peaks rising to more than 1000 feet above sea level, 700 feet above the reservoir. Carris Hill, the highest point on the eastern side at 1032, lies twenty-nine miles northwest of the Empire State Building.

Fifty-seven miles of marked trails can be enjoyed by the casual dayhiker and serious backpacker, although camping is limited to the public portion of land in the undeveloped Norvin Green State Forest and Greenwood Lake State Park. About five miles of old woods roads and marked trails can be used for moderate cross-country skiing. Maps are available at the Weis Ecology Center on Snake Den Road in Ringwood. They can also be ordered from the New York/New Jersey Trail Conference (20 West 40 Street, NYC 10018) or from Walking News (P.O. Box 352, NYC 10012). However, most of the trails are strenuous with many ups and downs, and a few of the rocky peaks cannot be climbed without hand-over-hand pulling.

An appreciation of natural beauty and a knowledge of flora and fauna contribute to a

hiker's experience, but a sense of history can increase the enjoyment of that experience even more. The Wyanokies were there long before there was a Wanaque Reservoir or a New York City skyline. Skirmishes occurred there during the Revolutionary War, and villages grew up around the iron mines, wood-cutting operations, and charcoal furnaces that were needed to supply the furnaces at Ringwood and Long Pond (Greenwood Lake). But the abundant blue iron ore that was dug out of these local mines was the product of geological forces that astound the layman. The Wyanokie Ridge, a part of the New York/New Jersey Highlands, dates back to the Precambrian period, the oldest in geological history. The granite, gneiss, and quartzite rocks that the hiker sees jutting out from the peaks of the Wyanokies are more than 600,000,000 years old!

The principal trails in the system include one through trail, the Hewitt-Butler, and two loops, the Wyanokie Circular and the Stone-town Circular, although a network of connecting trails enables the hiker to make several shorter loops and to begin and end at different parking locations. Since the area is prime hunting territory, prudence suggests that weekday and Saturday hiking be avoided during the hunting season.

The Hewitt-Butler Trail (blue blazes) runs in a generally north-south direction from Hewitt on Route 511 (at the intersection of Greenwood Lake's East Shore Road where parking is available) 18 miles south to Macopin Road in Butler by the Salvation Army Camp. At Hewitt it connects directly with the Sterling Ridge Trail (also blue) which runs almost 10 miles north to Route 210 in New York to connect with the Appalachian Trail, via the Allis Trail (blue). Highlights on the Hewitt-Butler include westward views of the valleys and the Bearfort Mountains, Tallulla Falls on West Brook, the "Wolf's Den" Rocks, the three "Pine Paddies" (rocky, pine-dotted peaks with views of the skyline), Wyanokie High Point, Carris Hill, Otter Hole, and Osio Rock. A rewarding half-mile side trip down the Post Brook Trail leads to the beautiful Chikahokie Falls with a flat campsite for three or four tents. Another

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Outdoor Destination: Park and Walk in Central Jersey

BY STEVEN BRUSH
PHOTOS BY AUTHOR

You see Sourland Mountain blue and low on the western horizon from open uplands in the Plainfield-New Brunswick-Somerville area. It is always somewhere "out there," changing shape according to the moving perspective of an expressway driver. You do not fix Sourland easily on your mental map, however, because highways do not lead through or close to it as they do the Watchungs.

Your approach west off Route 206 in southern Somerset County is on narrow roads often lying below the contour from the days before pavement when traffic wore them into the land. Cultivated, red-shale fields abut overgrown lots, colonial farmhouses counter split-level "colonials." Solid names from old settlements show on road signs: Blawenburg, Dutchtown, Harlingen, Flagtown, Neshanic, Zion, and Wertsville. It seems like West Jersey. In fact, Keith's 1687 survey line separating the provinces of East and West Jersey is only a few miles west. Hunterdon and Mercer counties border Somerset along that line.

No sign directs you to Sourland Mountain, nor is there any single prominence so designated. The mountain, extending southwest 20 miles to the Delaware River is a long, rolling highland characterized by gentle swales between broad ridges. The eastern front and an occasional ravine present the only precipitous



slopes. The nature of Sourland lies in the forest, the rocks, the elevation, and the isolation.

The best way to perceive this nature is on foot in the Sourland Mountain Preserve. The Preserve is an undeveloped unit of the Somerset County Parks system, comprising several square miles at the eastern end of the ridge. Mostly enclosed by private lands, it can be entered along the Texas Eastern gas pipeline where it crosses Long Hill Road in Hillsborough Township. From County Rte. 514, drive south on Long Hill 2.3 miles to the broad swath of the pipeline right-of-way, or ROW (see "To Get There" following article for complete directions). Park in the lot on the right, cross the road and walk east on the ROW. Soon you will come to gates opening through the seven-foot chain-link fence which has paralleled the track for some distance already. The fence marks the Preserve boundary.

A thick hardwood forest borders the ROW in its course straight across the undulating plateau. You have easy walking past tulip trees, red and sugar maple, beech, oak, and shagbark hickory. Continuing through the Preserve to the east gate, you find a view across the fields and buildings up to the Pleistocene glacial moraine at Plainfield. The sharp-eyed can pick out towers on Rutgers' Busch campus.

If you're more adventuresome, plunge into the woods at any point on the pipeline—but be prepared to encounter obstacles. Pieces of gray diabase, or traprock, lie scattered in various sizes and forms among the large verticals of the trees. Like the Hudson River Palisades, Sourland Mountain was formed by molten rock upwelling into sedimentary beds during the late Triassic period. During the next 200 million years, those sedimentary formations—the familiar red shale—eroded more rapidly than the diabase, so that now the hard-rock Sourland Mountain stands 450 feet higher. It is the traprock that catches your eye as you explore Sourland. Sometimes you will have to jump from rock to rock to make progress. Many low areas hold standing water; drainage is poor through the gummy yellow soil underfoot. Early settlers found that its acidic nature made it truly a "sour land" for crops.

What the farmer found sour is sweet enough for uncultivated forms of life. As habitat for birds, the strengths of Sourland lie in the extent of its mature forest, the juxtaposition of swamp and ridge, and the elevation above the surrounding lowlands. Turkey Vultures and Red-tailed Hawks take advantage of the air currents coming off the ridge. The Ovenbird builds its dome-shaped nest on the drier ground of the woods. The Woodcock, its coloration resembling the orangey-brown of freshly-exposed diabase, finds nesting sites in the forest while the ROW provides open space for its nocturnal courtship display flights. Birds such as the Hairy Woodpecker and the White-breasted Nuthatch, which require mature woods, also thrive on the mountain. The drumming of Ruffed Grouse pulsates through the spring woods.

Two woods roads lead north off the pipeline.

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New Jersey's Un-Endangered Species

BY DAVE CHANDA AND
MIMI DUNNE

Did you know that in the late 1800s there were fewer than 200 whitetailed deer in New Jersey? Today they are more common than when the first settlers arrived. There are more herons, egrets, and other wading birds in New Jersey today than in the early 1900s. The wild turkey, gone from the Garden State for almost 70 years, has been successfully restored. The osprey, once in danger of extirpation, is now a regular nester on our coasts. Did you ever wonder why some species become endangered or extinct while others prosper?

Most people do not think of our state in terms of its wildlife resources. Although New Jersey is the most densely populated state in the nation, it still has a healthy variety of wildlife in substantial numbers. More than 600 species of wildlife can be found in the Garden State (not including insects, which are also a form of wildlife). Of these, only 52 species are either endangered or threatened. An endangered species is one whose prospects for survival within the state are in immediate danger owing to one or more factors such as a loss of or change in habitat, over-use, predation, competition, and disease. An endangered species requires immediate mitigation of these factors, or it will be in serious danger of extirpation. A threatened species is not in as serious a state as an endangered species, but it can become endangered if its habitat and surroundings continue to deteriorate.

In order to understand why some species prosper while others do not, we must first understand the needs of wildlife. Just like people, animals have requirements for survival—food, water, and cover. These three items make up the *habitat*—the place where the animals live. Habitat is the key to survival for all wildlife. Whether we are concerned with whitetailed deer, glossy ibis, or painted turtle, without suitable areas to live, the species will not survive. Habitat requirements vary for different species of wildlife. To ensure a variety of wildlife in

the state, we must maintain a variety of habitat types.

People manipulate, or change habitats. We clear forests and build shopping malls as well as create ponds and other wildlife habitat. Manipulating habitat can have both positive and negative effects. Although shopping malls provide good habitat for house sparrows and pigeons, they are not attractive to bald eagles. While ponds and wetlands are good for waterfowl, wading birds, and fish, they are not suitable habitats for the upland sandpiper, which prefers grasslands. Anytime we manipulate the environment it will affect some species positively and others negatively. The consequences derived from our action or lack of action will be based upon what people want.

During the Colonial period, extensive habitat alteration and wildlife exploitation occurred in New Jersey. In North Jersey, forests were completely cutover to make room for farms and settlements and to fuel early industries. The heavily forested Pinelands in South Jersey were cut to manufacture charcoal, the fuel that powered this era. White cedar, found in lowland swamps, was used for shipbuilding. Extensive deforestation and unregulated hunting combined to eliminate some wildlife species and reduce populations of others. Herons, egrets and other long-legged waders were commercially killed for their bright plumage. Beaver were virtually eliminated from the state. Animals like the bobcat, whitetailed deer, wood duck, and black bear were reduced to very low population levels and the eastern wild turkey was extirpated.

Unregulated market and sport hunting had its day before the advent of professional wildlife management in the 1930s, when little was done to conserve wildlife for future generations. There were no closed seasons, no restrictions on manner and means of take and no limits on the number of animals taken. Before federal and state conservation laws were passed and the profession of wildlife management was developed, many wildlife populations were depleted.

By the late 1800s, coal and oil replaced charcoal as a fuel source. Many farms on marginal soils were abandoned. Forests grew up among abandoned fields producing a *mixture* of habitats that, since different species require different habitats, supports a high number of species in a given area. This phenomenon is commonly referred to as the "edge effect." Many species whose numbers declined during the era of exploitation rebounded as the environment became "patchier" with the regrowth of forests.

A notable example of an "edge species" is the whitetailed deer. Widely hunted for venison and lacking the forests for cover, the whitetail had become a scarce animal by the turn of the century. Hunting restrictions and reversion of farmland to old fields and young forests allowed the deer population to increase. Today abundant woodland edge associated with farming has produced in New Jer-

MICHAEL P. GADOMSKI





Osprey on Nest

DIV. FISH, GAME, AND WILDLIFE

sey a density of deer matched by few states in the East. The astonishing growth of our deer herd can largely be attributed to changing land use and sound wildlife management.

The American robin is another example of a species that has increased because of an increase in "edge" and an ability to live in a variety of situations. Even a severe April snowstorm can't daunt the population of the ever-present robin in our state. One of the most common birds in city parks and suburban lots as well as woodlands, the robin's adaptable nature guarantees its status as an "unendangered species."

Several species that were completely eliminated have been returned to the Garden State. The wild turkey is one. In 1977, 22 wild-trapped turkeys from Vermont and New York were released in New Jersey; today the population exceeds 3000, and should continue to grow until all of the 2000 square miles of turkey habitat in New Jersey is filled.

Endangered species have also been restored in New Jersey. The osprey, thanks to egg transplants from healthy populations, may be the first endangered species to become "unendangered" in New Jersey. If the population continues to grow, the bird may soon be removed from the endangered species listed in New Jersey. Similar techniques are being used successfully on the Bald Eagle and the Peregrine Falcon.

Every wild vertebrate species, be it fish, reptile, amphibian, bird, or mammal, occupies its own particular niche in nature—its requirements and activities are slightly different from those of other species in the same environment. Animal populations can increase when a particular niche is unfilled. The cattle egret, bird native to Africa, has expanded its range during the past few decades to include New Jersey. Unlike its wading fish-eating relatives such as the snowy egret, the cattle egret walks on land and feeds on insects, a ready food source during New Jersey summers. The mockingbird is another species that has expanded its range in recent years, sustained by suburban fruit trees and shrubs. The presence of the cattle egret and mockingbird in New Jersey illustrates that

wildlife populations are not static, but dynamic, with numbers and ranges constantly changing.

Wildlife populations are a reflection of land use. Small-field farming has been replaced by more economical large-field farming techniques. As a result, species such as quail and pheasant, which prefer the hedgerows and thickets associated with small-field farming, have slightly declined in numbers. However, species such as Canada geese and mourning doves, which prefer large open fields, have increased. New Jersey supports approximately two million mourning doves and the state Canada goose population is more than five times that of a few years ago (New Jersey supports a winter population of 40,000 Canada geese).

Abundant habitat exists in the state for many omnivorous species—those that aren't "picky" about what they eat. The raccoon, common in cities, suburbs, and rural areas in a variety of habitats, will consume anything animal or vegetable ranging from fruits and nuts to insects and crustaceans, small mammals, and garbage. Opportunistic species such as raccoon are likely to remain "unendangered" in New Jersey.

It is not only the omnivorous species that are thriving in modern day New Jersey. Small mammals that feed on a variety of vegetable matter (i.e. seeds, fruits, leaves, twigs, aquatic plants, etc.) have a large food source and so tend to be more abundant than meat eaters. For this reason, field mice, squirrels, rabbits, chipmunks, woodchucks, and other small herbivores are never likely to become endangered, barring the loss of all habitat.

New Jersey's expanding suburbs, while crowding out some wildlife species, have proven beneficial to a variety of songbirds. Suburban lots landscaped with fruit-producing trees and shrubs are ideal habitat for mockingbirds and other spring and summer carollers. Mockingbirds aggressively defend their territory against two and four-legged intruders but do share their suburban homes with cardinals, song sparrows, starlings, robins, and blue jays. Birds common to suburban areas are in little danger of becoming endangered in the foreseeable

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Our Friends in the Parks

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Together with the West Milford Women's Club, the Society puts on the annual Victorian Christmas celebration in the Manor.

The Advisory Committee, in turn, helped start the Ringwood Manor Association of the Arts in 1966. This group, dedicated to promoting the arts and fostering creativity, presents a full summer-long program of art, photography, and craft shows along with musical and dramatic programs. In addition, it conducts a series of instructional workshops in drawing, painting, and sculpture. The Association has also funded the restoration of a number of Hudson River School paintings in the Manor.

The Friends of Ringwood Manor, a relatively recent addition to the family of volunteers, is dedicated to restoring the furnishings of the Manor. At present the Friends are engaged in a program of statuary restoration in the gardens as well as a joint effort with the Advisory Committee to reupholster furniture in the Ryerson Wing of the Manor.

At Skylands Botanical Garden the Skylands Association leads a hardy group of individual volunteers from a variety of organizations in maintaining gardens that the park can no longer care for. A series of horticultural programs and guided walks, open to the public, are offered in spring and fall. An annual plant sale funds needed improvements in the gardens and the annual Flora Fair of horticultural societies and clubs each spring.

The Hermitage

In HoHoKus the Friends of the Hermitage have led the effort to save that valuable Historic Site. Fund raising is combined with educational tours and cultural programs to provide year-round activities for Hermitage visitors. The Friends' fight to save the Hermitage can well serve as a model for any group interested in organizing an historic rescue operation.

Steuben House

The Steuben House at Riveredge is both a state historic site and the home of the Bergen County Historic Society. Thanks to the cooperation between the state and the Society, the site provides an interesting look at colonial life in Bergen County. Now a group of historic buildings are being established around the Steuben House, each a worthwhile visit. Every year the Society sponsors a variety of programs and exhibits in and around the Steuben House.

Twin Lights

On the Navesink Highlands, Twin Lights lighthouse has been a landmark to mariners for nearly two centuries. Now as a state historic site, it serves in a different role. Through its museum, interpretive exhibits, films, and

publications, Twin Lights brings New Jersey's rich maritime history to life for more than 50,000 visitors each year.

Twin Lights was rescued from public auction by local citizens after the federal government declared America's most important lighthouse to be surplus property. In 1961 the New Jersey Division of Parks and Forestry took over, beginning a partnership that has become closer each year.

At that time the history of Twin Lights was virtually unknown to the public. The site was closed much of the year, there was little interpretation, and the grounds were in poor condition. The Twin Lights Historical Society rescued the building, cleaned the grounds, and operated a museum in the north wing.

In 1978, through a \$50,000 donation from the Rumson Garden Club, the rebirth of the Twin Lights began. First, brick walkways were added to make one of New Jersey's great scenic overlooks more accessible and attractive. Next, landscaping improvements were added to accent locations of historical interest. Then, a comprehensive interpretive program was developed to bring the history of Twin Lights to life. Five audio visual stations tell the story of New Jersey's maritime history. Patrons now hear Marconi's daughter, Joya Marconi Braga, describe her father's inventions and how the history of wireless telegraphy began at Twin Lights in 1899 when the first wireless message was received.

New audio visual equipment and renovations to the auditorium have made possible presentation of slide programs and films to thousands of New Jersey school children.

The Twin Lights Historical Society has purchased printing equipment, so that many handouts to help interpret the history of Twin Lights can be made at low cost; the printing facilities are available to other state parks and historic sites as well.

Three volunteer groups—the Rumson Garden Club, the Twin Lights Historical Society, and the Tallcott Foundation—along with the Division of Parks and Forestry, combined forces to return America's most powerful lighthouse lens to Twin Lights. The great lens was in the Boston Museum of Science but on March 1, 1979, through negotiations conducted by the Garden Club, the lens was brought back to New Jersey and placed on public exhibit; visitors now marvel at this one-of-a-kind masterpiece of art and physics capable of signaling to ships more than 20 miles at sea.

More important than funding or projects, however, is the broad community support and public awareness that the groups have brought to Twin Lights. Attendance is growing every year, and Twin Lights now plays a valuable role in interpreting New Jersey's rich maritime history.

Allaire

In 1822, James P. Allaire acquired the property and iron furnace that is now Allaire State Park. Allaire was a rising industrial en-



trepreneur and an early manufacturer of marine steam engines. He purchased the former Monmouth Furnace tract to supply his works in New York City with iron castings and the basic commodity of pig iron.

Over the next 30 years Allaire built the Village as it exists today, and saw the bog iron business rise and then fall before competition from anthracite furnaces, never to recover.

The Deserted Village at Allaire Corporation was founded in 1957 to develop, restore, preserve, and interpret the history of Allaire Village, in partnership with the Bureau of Parks. Scenes within the Village have changed dramatically since then. In the past, a number of civic organizations, such as the Boy Scouts of America, the Benevolent and Protective Order of Elks, the Kiwanis, and the Womens Clubs of New Jersey, preserved and restored buildings in the Village.

The Corporation and its volunteer members support more than 40 special events and public programs for park visitors, such as antique shows, craft and art shows, antique auto shows, and St. Nicholas Day, to name a few.

Volunteers also help with the interpretation of the Village and turn out in period costumes for regular events. The Corporation also operates the General Store, the snack bar, and the wagon rides as services to visitors and to generate funds to support other programs in the Village.

The Deserted Village at Allaire Corporation has re-created the past for present and future generations, and will continue to do so.

Events

"To every thing there is a season, and a time to every purpose under the heavens."
Ecclesiastes

Events and activities reflect the gentle rhythm of the seasons as each park and historic site organizes its calendar for the year.

Spring's rebirth is celebrated by the "Rites of Spring" sponsored by the Friends of Wallace House and the Old Dutch Parsonage, where the planting of a garden and spring cleaning are highlighted along with other traditional chores and crafts. Allaire hosts an Easter Egg Hunt and a Junior Fishing Contest.

The first flea markets of the season bring out treasures amassed over the winter and carloads of bargain hunters. The Batsto Citizens Committee presents its annual Historic Crafts Festival each June at Batsto Village.

The air is filled with sound and fury and gunsmoke at the annual Firelock Shoot at Monmouth Battlefield. This competitive muzzle-loading target shoot for members of Revolutionary War re-enactment groups is a loud and colorful spectacle.

The Rockingham Association holds a picnic in May and provides entertainment and refreshments for visitors. This year, Clarke House on Princeton Battlefield will present a special costume exhibit entitled "America Through the Eyes of its Women."

At all the sites and parks, apple blossoms, garden flowers, and the quickening flow of school groups on class trips are sure signs of spring.

As spring turns to summer, the larger sites such as Allaire, Batsto, and Ringwood staff up with interpreters who inform visitors about the history of the various sites and the crafts exhibited.

Summer is peak season for both visitors and special functions at the parks and historic sites. There are 4th of July celebrations at Wallace House and Liberty State Park. There are flea markets, craft and art shows, and band concerts.

Each summer various sites hold unique events. Monmouth Battlefield re-enacts the pivotal Revolutionary War battle that was fought there in 1778; Allaire hosts a two-day Decoy Show where carvers and collectors from all over the East come to show and sell their wares; Washington Crossing features an annual Antique Engine and Farm Equipment Show highlighted by chugging and puffing engines and machinery of all sizes and descriptions.

As summer's green gives way to fall's colors, Harvest Festivals at Rockingham, Ringwood and Wallace House feature fresh pressed apple cider and other seasonal activities. Rockingham and Clarke House holds a coordinated

Batsto Post Office and General Store

Continued from page 34

A Skier's Guide to Jockey Hollow

BY ROSALIE STRACHAN

PHOTOS BY
KIT STRACHAN

I am probably one of the few people who hasn't appreciated the recent boom in popularity of ski touring.

For years, I had Jockey Hollow, untracked, all to myself. My first visit was on one of those perfect, crisp, winter days when the sky was sapphire blue and the snow sparkled with flecks of gold and silver. Unfamiliar with the trails, I followed a snowmobile track through the knee-deep powder, grateful that it had packed the snow so I could ski rather than wade. The silent woods eventually opened into a clearing where white birches were bent into bows with the weight of the snow.

That winter, and for many to come, I explored the trails and then-unplowed roads in Jockey Hollow and into Lewis Morris County Park, only rarely meeting another skier.

Times have changed. It's rare to ski at Jockey Hollow today, even mid-week, and not see other skiers. And no wonder. If you haven't tried it, you've missed one of the best places to ski in New Jersey, especially for more experienced skiers.

It's no longer my "secret" ski area, as it used to seem, so if you plan to go there, here are some suggestions.

Stop first at the Visitor's Center and pick up a trail map. Even though maps are posted at trail intersections, the park staff recently made a ski map with colors to designate ability levels for trails and sections of trails. I guess they began to feel outnumbered. A few years ago, a ranger told me it was a historical, not a recreational park, and they seemed only to tolerate skiers. The new map should make it easier for people to pick appropriate places to ski, rather than wander aimlessly through the woods and into situations beyond their ability.

While at the Visitor's Center, learn some background information on Jockey Hollow. Here American troops camped during two of the most severe winters of the Revolution, worse than that of Valley Forge. A movie and reconstructed hut interior show how the soldiers lived. It's almost beyond comprehension to think how those men suffered where today so many people are enjoying a winter day.

Just beyond is Wick House, its clapboards weathered to a gentle gray. Tempe Wick hid her horse inside to keep mutineers from stealing it. Deer often graze in the orchard beyond the house.

Most skiers park in the main lot near the



Wick House, Jockey Hollow. Tempe Wick supposedly hid her horse inside.

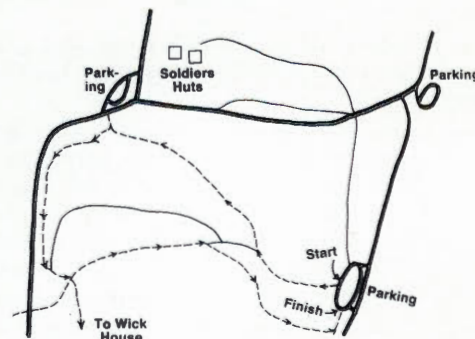
Visitor's Center, ski to Wick House, and then take one of the two trails to the Soldier's Huts. These trails can get quite crowded and snow conditions suffer from overuse.

To ski other sections of the park, you can start at one of the three other parking lots; one at the Soldiers' Huts, another at the end of Grand Parade Road where it intersects Jockey Hollow Road, and the last on the right along Jockey Hollow Road.

This last lot provides the most options for skiers as well as access to the easier sections of trail. However, new skiers might be best sticking to the wide slope near the ranger station, practicing stopping and turning, before striking out on any of the trails.

Tour One is a loop in the center of the park, starting at the last parking lot. Follow the trail almost directly behind the signboard. Don't worry; the beginning is the worst part. Get it over with first, not at the end. After you go past the rocks and climb the steps, the trail levels off until you reach a clearing. In the distance

TOUR ONE





The trails in Jockey Hollow connect with those in Lewis Morris County Park.



View from Stark's Loop where American troops kept an eye on British movements during the Revolution.

on your right are the Soldiers' Huts, but you will bear left into the woods. A gentle winding uphill will take you to the wide, basically downhill, Aqueduct Trail to your left. A solid snowplow technique is helpful for this tour.

A second tour for novices starts across the road from the same parking lot. Begin at the metal gate and follow the wide straight trail (beware of rocks) to the first intersection where you will make a left. A slight uphill grade will take you along a stream and past a pond. After you bear right, you'll have to cross a small unbridged stream. At the next intersection, bear right again and climb the small hill, making another right at the top.

This section of the loop is probably the most level and rock-free trail in the whole park, and the least used by skiers. At the next two intersections, bear right again. A rocky (as usual) descent will bring you past the intersection where you first turned left and straight back to the metal gate.

The above two tours were selected for novice

skiers because, in the direction taken, they provide the most gentle descents and serve as an introduction to the park.

The more experienced skier can start anywhere, adding loops as time and ability permit. A few precautions are advised for all skiers, however. Perhaps the nickname "Rocky Hollow" will suggest the greatest disadvantage to skiing here.

Some sections of trail are more hazardous than others because of this. The broad expanse leading from Wick House, formerly the main road, looks inviting. But once you turn left into the woods, you'll come to a deceptively easy-looking downhill. Although the trail is wide, the curves are fairly sharp and the downhill steeper than it appears. Adding to the challenge are the ever-present rocks that can grab your skis.

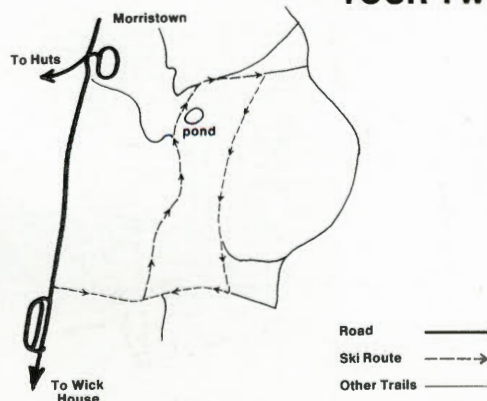
A second similar area is behind the Soldiers' Huts, but the hill is steeper.

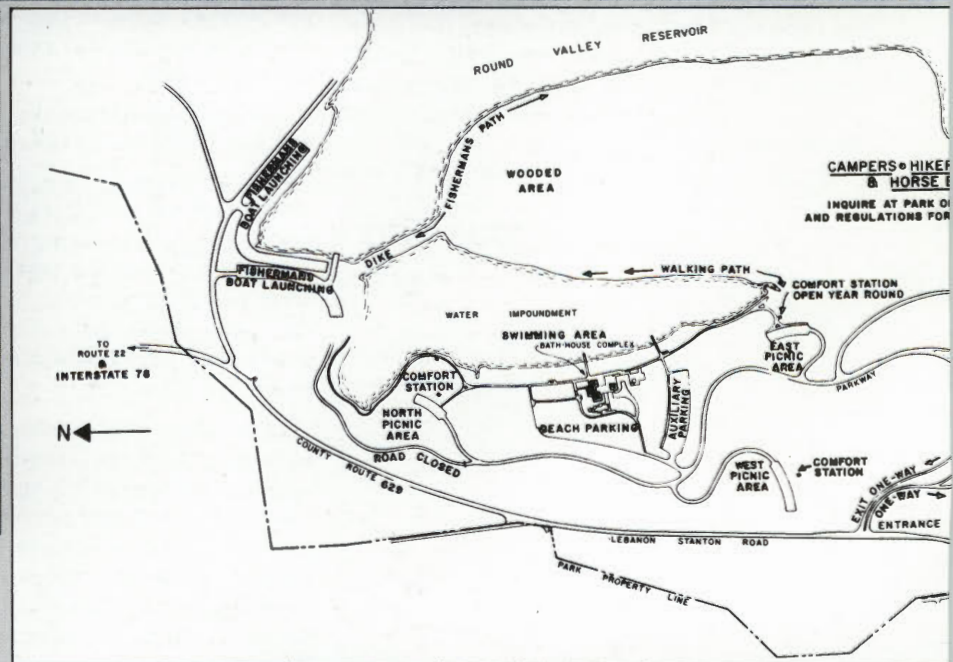
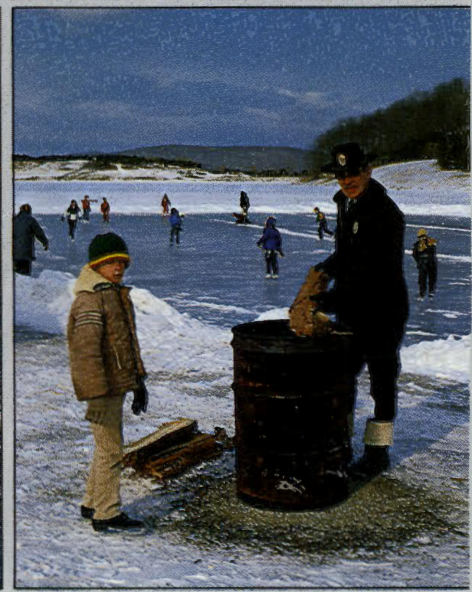
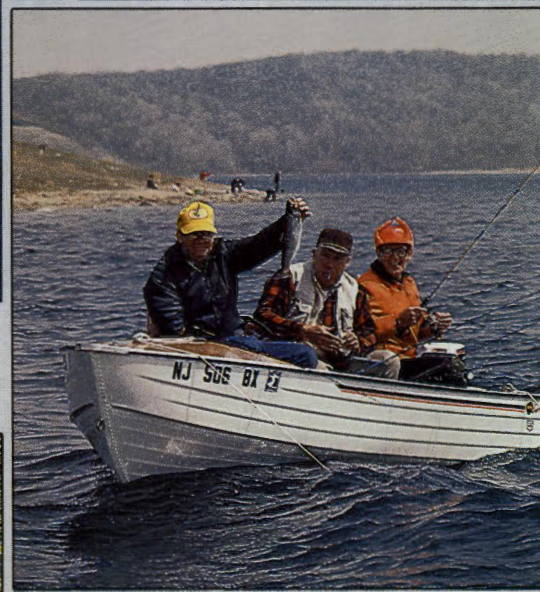
If these two don't satisfy you, try the trail left of the road between Wick House and the huts. I've heard people seeing it for the first time gasp, "You can't see the bottom!" It can be great fun if the snow is deep enough to cover the rocks, which isn't often. At least you can detour left into Lewis Morris Park and still reach the huts.

Visit after visit, Jockey Hollow will never bore you. As your ability increases, you can spend days exploring its approximately 15 miles of trails. If that isn't enough, you can dip into adjacent Lewis Morris Park. Once you get hooked, you'll stop complaining when you see a snowflake and start wishing for winters that are white from November into March. Until then, remember to use your "rock skis."

Location: Between Bernardsville and Morristown, routes 202 or 287.

TOUR TWO





Round Valley Recreation Area

By KEN ORAVSKY

PHOTOGRAPHS BY
WILLIAM LEATHER

It would only be natural to assume that a cool, deep, clear lake would offer fine fishing and swimming, but when that is all that people expect from a lake, they are missing out on a lot. For one thing, this is no average lake. Round Valley Reservoir covers more than 2300 acres and has an average depth of over 70 feet, making it one of the largest and deepest lakes in New Jersey. Acquired by the state in the 1950's, it was officially opened as a recreation area in 1977.

Occasionally the term recreation area may be used to mean just a swimming area, but not here. If you were to visit Round Valley throughout the year, you would be surprised at the wide variety of recreational activities possible.

Cooling fall days mark an end to the swimming season, but they encourage the trout to wander back toward the edges of the lake, making trout fishing from shore practical once again. Birdwatchers can search for southward migrating warblers in the forests and edges, and as fall progresses they can look for ducks on the lake. The great size of the lake also helps in attracting more unusual birds such as three different species of loons.

Trapping and waterfowl hunting are permitted in designated areas around the lake during the regulated seasons. Licensed hunters and trappers should inquire at the Park Office for regulations and maps of designated hunting/trapping areas.

Though the lake freezes later than smaller lakes, it finally glazes over with a smooth ice known as "black ice." This is the smoothest coating of ice the lake will have all winter and is the ideal ice for ice boating. The Eastern Ice Yachting Championships were held on this lake a few years ago.

Also popular in winter is ice fishing, sail skating, and of course ice skating. Again, the large area of the lake gives everyone enough room. Anyone venturing out onto the ice is advised not to do so alone, since ice thickness may vary greatly from one part of the lake to another.

For those who prefer snow to ice, sledding on one of the many slopes can make for an exciting day. Cross country skiers can cruise the fields and lake edges or try their skills on the sledding slopes. Whatever your interests, Round Valley also has much to offer the winter visitor.

As winter fades into spring and the ice melts, you can hear the fishermen getting their gear ready for the April opening of trout season. With waters still remaining cool, trout can be caught from shore or boat. The state record Rainbow trout was caught here in 1979: an 8 lb. 13 oz. giant.

When winter's ice has finally left the lake, sailboats return by the hundreds. Canoeists interested in experiencing a true deep water lake will enjoy paddling the reservoir's seem-

ingly endless acres. Anyone sailing or boating here should be aware of the potentially dangerous winds and cold water. The shape of the valley allows intense winds to crop up quickly, which could easily capsize small craft. Coast Guard approved Personal Floatation Devices (PFD's) are required for all persons, since even the best swimmers could not survive very long in the cold waters in the event of a capsizing.

With summer comes the season for swimming and picnicking, which is what attracts most of the parks quarter of a million annual visitors. There is a main beach with a bathhouse, showers, lifeguards and refreshments as well as primitive beaches without lifeguards.

Trout have now moved into the colder, deeper waters, and fishing for them is confined to anglers with boats, but sunfish and bass can still be caught from shore. Sailing is even more popular now, when an occasional dunk into the cool water feels refreshing on a hot day. The free boat launch ramp remains open 24 hours for early morning and late evening enthusiasts.

Because of the beautiful clear waters, Round Valley is one of the best scuba diving lakes in New Jersey. Divers must be certified and must register at the office before diving. There is one parking area for those who wish to dive right from shore, though diving is permitted anywhere from boats as long as proper safety precautions are followed. The great depth of the reservoir provides plenty of room for all to explore.

For the visitor who wants to get away from the crowds at the beach there is hiking, backpacking and wilderness camping; 116 wilderness campsites are tucked into the woods and hills around the lake, accessible only by foot or boat. A trail leads nine miles from the day use area around to the dam, offering the visitors good views of the lake and the surrounding ridges.

For the horseback rider, the same trail is available for about six-miles around the lake. Campers, hikers, scuba divers, and horseback riders should inquire at the Park Office for information and regulations for these activities.

Brochures, regulations, seasons, camping rates and other information for the Round Valley Recreation Area can be obtained from:

Division of Parks & Forestry
State Parks Service
CN 404
Trenton, N.J. 08625
or

Round Valley Recreation Area
RD #1 Lebanon/Stanton Rd.
Lebanon, N.J. 08833
Phone (201) 236-6355



OPEN AND OPERATING

New Jersey's Pesticide/ Toxic Substance Laboratory



DEP's Pesticide/Toxic Substance Laboratory is housed in a modern facility with advanced environmental controls to protect both worker and the environment.

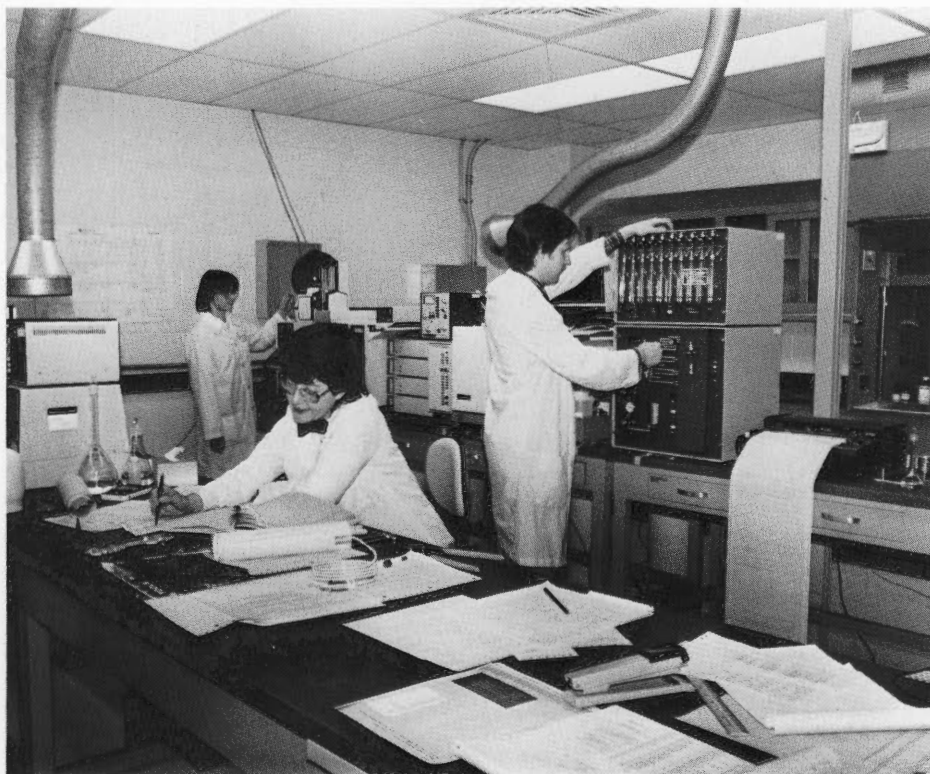
BY EILEEN HOTTE

PHOTOS BY KEN DEBLIEU

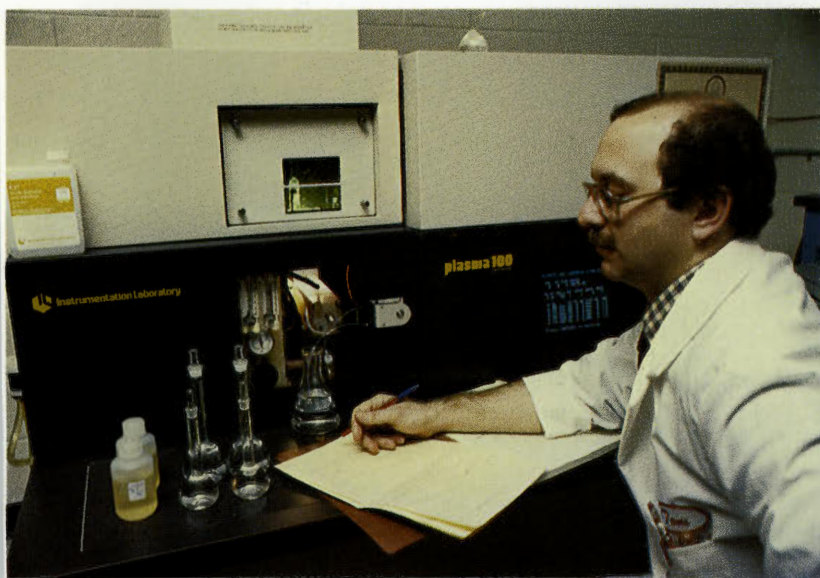
The State of New Jersey recently opened its first Pesticide/Toxic Substance Laboratory. The facility, located in Ewing Township, Mercer County, was made possible by a federal program designed to provide states with laboratory capability in the area of pesticide control. The laboratory is operated by the Department of Environmental Protection (DEP).

The main thrust of the laboratory's expertise is priority pollutant analysis. (Priority pollutants are the 129 toxic chemicals the U.S. Environmental Protection Agency has determined to be most hazardous to us and our environment. They include benzene, PCBs, dioxin, vinyl chloride and other organics and metals.) The laboratory has the capability of analyzing samples ranging from air and water to sludge, oil and industrial residue.

A unique aspect of the laboratory's operation is its management of samples. A computer tracks the preparation, analysis, storage and disposal of each sample.



The laboratory's environmental section contains the most advanced instrumentation available. Here, chemists Nancy Lemmo (background) and Ed Reilly prepare the gas chromatograph for analyses of PCBs and pesticides as chemist Janet Rose makes entries in the log.



Senior Chemist Tom Costantino prepares sample for the analysis of metals by inductively coupled plasma spectrometer.

The building was designed with two wings to provide for two totally separate laboratories, one for macro testing, the other for micro testing. The macro laboratory analyzes samples which contain high levels of toxic materials, such as formulated pesticides. The micro laboratory analyzes environmental samples, such as air, soil and water, for toxic substances which may be present in minute quantities.

All analytical work is performed by a staff of qualified chemists and technicians. These include specialists in mass spectrometry, computers, quality assurance, environmental and pesticide analysis.

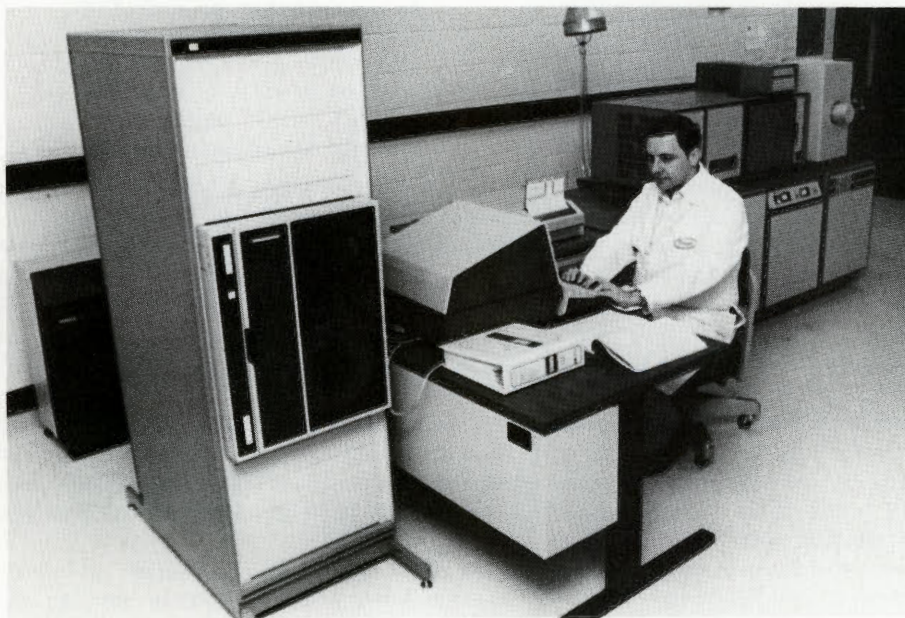
Funding for the design of the facility, purchase of analytical instrumentation and staff support for one year was provided by a \$2.3 million federal grant and a \$200,000 state appropriation.

The one-story, 25,000-square foot building contains instrument and wet chemistry laboratories, administrative offices and training facilities.

The laboratory's sophisticated monitoring and analytical equipment enhances DEP's waste, water and natural resource protection programs and better equips the department to accomplish its goal of a safe, clean and healthful environment.

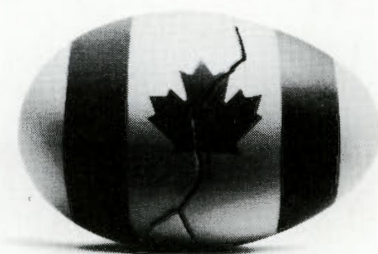
The Pesticide/Toxic Substance Laboratory opened in the spring of 1983. It will contract its services to various DEP bureaus, municipalities and other states. Inquiries should be directed to:

Dr. Eileen Hotte, Chief, Bureau of Environmental Laboratories
DEP
380 Scotch Road
Trenton, New Jersey 08628



Floyd Genicola, environmental scientist, calibrates the mass spectrometer prior to the day's run of samples.

New Jersey State Library



70% OF OUR WILD DUCKS ARE BORN IN A FOREIGN COUNTRY.

Most of this continent's wild ducks are born in the wetlands of Canada, which are under threat of extinction. Revenues from Federal Duck Stamps can't help because law forbids their use outside the United States. That's why Ducks Unlimited is working to preserve Canadian wetlands. Send your tax-free contribution. Because if ducks have no home, America will have no ducks.

DUCKS UNLIMITED INC.,
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ICEBOAT RACING: Faster than the wind



JIM HASSFIELD

By GARY ANN LEWIS

It's been called the coldest sport in the world and its practitioners and spectators would probably agree. But like all sports its difficulties are soon forgotten when the action begins.

Not a sport for the timid, Section 2 of the General Rules for racing states: "The host fleet in sponsoring a regatta ... shall not proceed unless there have been arrangements for adequate and speedy rescue and conveyance to hospitalization." Warnings aside, iceboating is a popular sport for over 500 New Jerseyans. Red Bank, located on the Navesink River in Monmouth County, is the racing center for iceboaters in the Northeast. The North Shewsbury* Iceboat and Yacht Club, established in 1880, is one of the oldest iceboating clubs in the country and the oldest one in New Jersey.

Boats with wooden hulls, called fuselages, and tall, narrow triangular-shaped sails can be seen gliding across New Jersey's frozen waters December through March on Barnegat Bay, the Navesink River, Lake Hopatcong, Greenwood Lake, Budd Lake, Round Valley and large ponds and estuaries.

The season begins with the first ice. The ice must be very hard and thick. Salt ice must be at least five inches thick since it is a spongy, softer ice. Fresh water ice is harder and three inches thickness is sufficient. Thickness is checked with an ax and a ruler. Too much snow can prevent the boats from sailing as can too little wind. A perfectly aligned iceboat can sail in as little as 3 knots of wind. A good racing wind is from 5 to 21 knots (6 to 24 mph). High winds can be dangerous as boats can go up to five times faster than the speed of the true wind. Racing speed is from 0-100 mph usually averaging around 50 mph.

Iceboating started in Holland in the mid-1600s when the Dutch fitted their conventional sailing crafts, with makeshift run-

ners. With this ingenious adaptation they were able to ship cargo over the frozen canals along the North Sea. The Dutch settlers brought this idea to the New World and sailed on the North Hudson for sport in the winter months. These crafts were much larger than their modern-day counterparts. Franklin Delano Roosevelt's uncle, John A. Roosevelt, sailed an iceboat that measured almost 50 feet in length and carried 735 sq. ft. of sail. Today's scaled-down iceboats measure as little as 12 feet in length with a single sail of 75 sq. ft. Most are steered from the front in contrast to older stern-steered designs. Boat designers found that moving the steering runner to the front of the boat changed the platform and made the boat a lot more controllable and safer. Modern boats are divided into six classes for races:

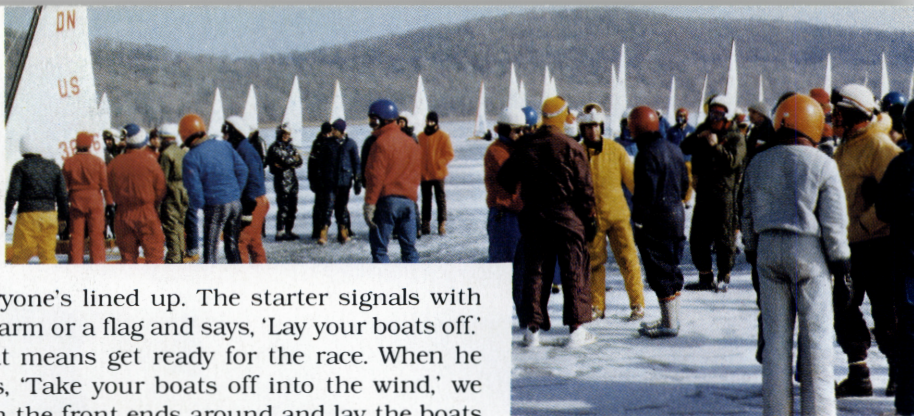
- Class A- up to 350 sq. ft. of sail
- B- up to 250 sq. ft. of sail
- C- up to 175 sq. ft. of sail
- D- up to 125 sq. ft. of sail
- E- up to 75 sq. ft. of sail
- DN- up to 60 sq. ft. of sail

The E-boat is called a Skeeter and is the fastest iceboat. The DN is a portable 125 lb. 12 foot-long craft that won a design contest sponsored by the Detroit News during the Great Depression. By far the most popular iceboat, the DN is the easiest to build and relatively inexpensive costing about \$1200. Skeeters can cost up to \$10,000. Both boats are single-seaters while the others are two-man boats. Although a new A-boat has not been built for 15 years they still compete, many having been renovated in the past few years.

An iceboat has a backbone or center fuselage with a runner plank 90° to the fuselage. It has two side runners and a steering runner with a mast and sail controlled by

*Other name for the Navesink River.

*Captains milling around
before the race begins.*



JIM HASSFIELD

the pilot. The old sails were made of Egyptian cotton and modern ones are made of dacron. Sails of kevlar and mylar are beginning to show up on some boats. Earlier hulls were made of Sitka spruce with plywood frames and a thinly veneered plywood deck, but some of the newer boats have fiberglass hulls. Sitka spruce is a very fibrous wood grown in Alaska. The fibers are interlocking which makes it so strong it can flex. The fibers keep the wood from fracturing and shattering. Fiberglass is very messy to work with and needs a crew and special equipment. Wooden boats are still made in people's basements but fiberglass hulls are made by professionals.

The ultimate goal of the sport is speed. Races consist of three laps in a windward; leeward course starting at the leeward pin which is usually a Christmas tree or a traffic cone nailed to the ice. The term windward means toward the wind and leeward sailing means sailing downwind. The course varies from two to four miles in length and the race can be over in as little as five minutes.

Accidents can and do happen. The most common are: boats colliding, flipping over, shearing off of a runner blade and the most destructive of all—the hull breaking in half. Fatigue (wood too old) is another problem.

Channing Irwin, the 1981 winner of the National Iceboat Regatta held in Red Bank, told me, "The most dangerous part of the sport is the air you breathe. It's easy to get frostbite of the lungs. No racing should be done when the temperature is below 4° fahrenheit."

At 32, Channing Irwin is a third-generation iceboater. He still has his grandfather's (Capt. Bill Irwin) boat built of Sitka spruce in 1884. "Georgie" is a stern-steering A-class iceboat. In 1976, he and teammates raced the "Georgie II" built by his grandfather in 1904, along with a second Red Bank A-boat to win the Van Nostrand cup for his club. Made by Tiffany's, the silver-plated cup is valued at \$20,000. It was commissioned by a Mr. Van Nostrand from Newburgh, New York in 1882 as a sort of America's Cup for iceboaters. The Red Bank club won the competition in 1882 with two A-boats sent by rail to compete as a team on the Hudson. In the '76 race, Irwin and his teammates competed against many boats including the Roosevelt boat mentioned above. The cup has not been competed for since.

I asked Channing to describe what it was like on a racing day when there was the right combination of ice, wind and temperature.

"We draw numbers out of a hat and then push our boats up to the starting blocks. We head our boats directly into the wind until

everyone's lined up. The starter signals with his arm or a flag and says, 'Lay your boats off.' That means get ready for the race. When he says, 'Take your boats off into the wind,' we turn the front ends around and lay the boats off so the sails fill with wind. We work our way back to the cockpit holding the boat so it doesn't lunge forward. Then we trim the sail so we get the most acceleration at the start of the race. The starter says, 'Everybody ready? Let me see a hand.' We all raise our hands, his hand drops within a minute and the race begins."

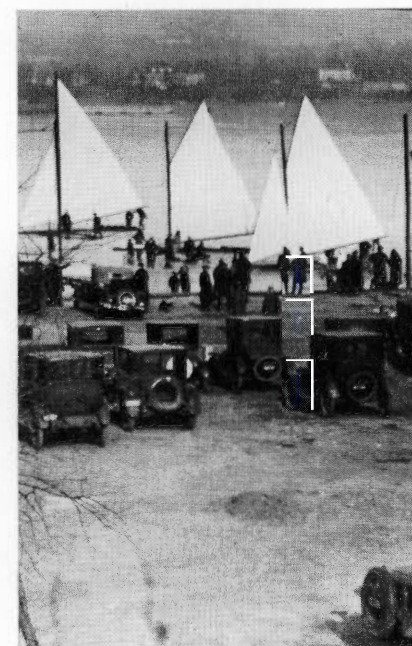
All this maneuvering is done in a matter of minutes with the iceboaters dressed in very thick clothing. "We look like penguins," Channing laughed. He typically wears corduroy pants, snowmobile boots with felt inserts and steel cleats that bite into the ice, motorcycle helmet (mandatory), gore-tex jacket, goggles and full face mask. Frostbite is a hazard and chips of ice can fly into your face. The description of the race continues.

"The air starts taking the boat out from under you. I run like mad, get in one last push and jump in. I start trimming the sails and jockey for position. If I get out in front I'm into clear air. Clear air gives you better acceleration and you move faster than the other boats that are jammed together. I then crank my winch with a handle and pull the sail down to the deck. Once the sail is down to the deck it's very stiff like cardboard. I feather the boat upwind to gain maximum speed and control. When I get to the windward pin I turn. Then the boat is broadside to the wind and accelerates enormously—often my feet have been pulled off the steering pedals. You shoot downwind—that's the fastest ride. I work the boat again steering in and away from the wind to keep the optimum speed that the boat can create downwind. Once I get to the other pin I go broadside, turn around and go up again to get another blast of air. Sometimes the boat and sail shudder and you go up into a hike. That's when one of the three runners comes off the ice and the boat lifts up into the air. It all happens very fast. You make one mistake and can find yourself in last place. It's very exhilarating and I never tire of it. It's all over in three to five minutes depending on how hard the wind is blowing.

Scheduled races are held every weekend in January and February at Red Bank. Further information can be obtained by calling the North Shrewsbury Iceboat clubhouse at 201-747-9845. Unscheduled races take place on other New Jersey waters when weather conditions are suitable.

*A-boats on the Navesink
River in 1926.*

*Provided by the North
Shrewsbury Iceboat and
Yacht Club.*



JOHN MEYER



Professor William Dunscombe of Union County College poses with a normal-colored English ring-necked pheasant, an albino pheasant, and a black mutation pheasant.

JOHN MEYER



The ptarmigan—a grouselike btrd of North Temperate zones which undergoes seasonal color changes—is shown here in its full white winter color.

JOHN MEYER



Shown here L to R are a normal colored adult woodchuck, an albino, and a young melanistic specimen. All are from New Jersey. The albino is from Sussex (1926) and the melanistic one is from Newton (1954).

MICHAEL P. GADOMSKI



Wood frog—Example of countershaded animal.

Color and Color Variations in Animals

BY RICHARD E. MCKEEBY

Have you ever seen a black squirrel or an albino pheasant or woodchuck? Why are some screech owls gray and some red, while most owls are always the same color for their particular species? Why do some animals "change color" seasonally and how is this accomplished? Let's look at the answers to some of these questions concerning color and color variations in animals.

Most species of mammals are "somber" or "dull" colored and blend in well with the soil or vegetation of their natural habitat. This, "camouflage," of course, is a survival mechanism. The dull color of most mammals results from the presence of different amounts of black, brown, yellow or red pigments present in their hairs.

Albinism is the complete lack of a brownish-black pigment called melanin which is normally present in skin, hair, and the iris of the eye. The result is an animal with pure white hair or feathers and pink eyes. The eyes appear pink because of the absence of melanin in the iris, which normally masks the blood vessels. The result of a recessive gene, albinism has been observed in all major vertebrate groups including fish, amphibians, reptiles, birds, and mammals—including humans.

If you go to a county fair and see a white rabbit with blue or brown eyes it is not an albino, but if it has pink eyes, it is a true albino strain. The albino woodchuck in the accompanying photograph was shot during woodchuck season in Sussex, N.J., by my grandfather in 1926. Albino animals generally have a poorer chance of survival since they do not blend in as well with their background and are more easily seen by their predators. However, white body color is quite common among many smaller vertebrates (and even insects) that live on white desert sands. This is the result of millions of years of "natural selection" favoring white animals in such an environment. Darker-colored animals, on the other hand, did not "blend in" well against the white sands, and were eliminated.

Melanism, or very dark (sometimes

pure black), pigmentation is the opposite of albinism, an excess of black or brownish pigments. I have recently observed several black squirrels on the Princeton University campus, and many years ago I observed them at Glassboro State College. A young melanistic woodchuck is shown in one of the photos. Dark-colored animals of course tend to blend in well with darker environments. The dark volcanic lava-covered regions of the earth are "home" for many melanistic animals and other dark-colored species and varieties.

Sometimes an animal is partially albino and partially normal colored. This condition is called *piebaldism*. A piebald deer was recently housed at a park in Middlesex County. Its body color was "splotchy," with some normal pigmented areas and some unpigmented (albino) areas. Piebaldism also occurs in humans.

Sometimes two or more color phases normally occur within one species. This is called *dichromatism*. The screech owl previously mentioned is a good example. Two common color phases of this little owl are red and gray; the gray phase is shown in one of the photos. The red fox also exhibits dichromatism. In one litter of red foxes three color variations may occur in addition to the normal red color. These are called "Cross" (brownish-tan), "black" (very dark or black) and "Silver" (silver-gray).

Several species also undergo *seasonal color changes*. This normally occurs in animals that live in North-Temperate zones with continuous snow cover in the winter. They have white coats in winter, but are brown or dull colored in summer. Most mammals normally molt (shed) their hair in spring and fall anyway. Molting is a gradual process and so is the color change. Good examples of seasonal color changes include the arctic fox, snowshoe hare, weasel (whose white fur is called ermine), and the ptarmigan, a grouse-like bird. One of the photos shows the ptarmigan in its full white winter coloration.

Disruptive coloration is the presence of dark and light spots or stripes. It tends to camouflage the shapes of

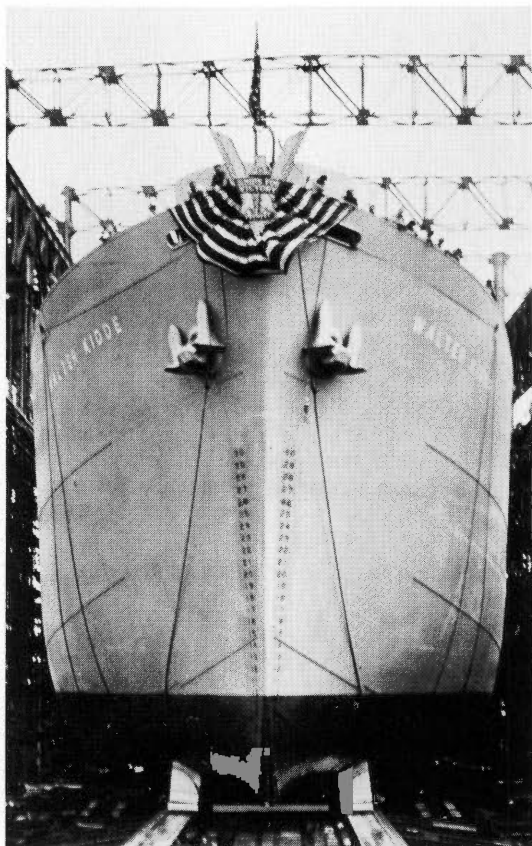
animals when they are among broken patterns of light and shade in their environments. Facial and head spotting or striping also helps to disguise the conspicuous eyes of many animals. The stripes of zebras are also believed to make them appear bigger than they really are. Disruptive coloration is common among many animals including leopards, tigers, zebras, shorebirds, leopard frogs, pickerel frogs, and many fish, such as the N.J. yellow perch, pickerel, bass, and many others.

Most animals are also *counter-shaded*—dark colored on top and lighter colored beneath. In the water this is an obvious advantage. The light-colored belly surface of a fish blends in with the light coming from above as an enemy looks up from beneath. The dark-colored back of the fish blends in with the darker-colored rock or mud bottom, thus protecting it from enemies above. Counter-shading is common among fish, amphibians, reptiles, birds, and mammals and most other forms of life.

In many species of birds the males are brighter colored than the females. This is the result of "sexual selection," whereby the "handsomest" males are the most likely to attract females for mating. The genes for the feather color or pattern involved are thus passed on to future generations. The duller-colored female is also better camouflaged while incubating the eggs. Male hormones influence the brighter feather colors, bright-colored comb and wattle of rooster and turkey, and spur development on the legs of such birds. *Sexual dimorphism* is the term applied to such male-female color differences. It is most common among birds, but does not occur in all species of birds.

Some animals are specifically bred by humans to produce unusual and beautiful color and hair or feather variations, often for show purposes. Many such types can be seen at any county fair. These include all sorts of "fancy" pigeons, roosters, pheasants, rabbits, guinea pigs, and waterfowl.

Take a closer look at the wild and domestic animals around you, and you're sure to see many interesting examples of animal coloration.



Shipyards in Kearny, Hudson County.

Shipbuilding in New Jersey

By DEBORAH A. BOERNER

Historical photographs provided by George Pierson,
Chief of Forestry Management

Shipbuilding has a long and colorful history in New Jersey. Given the state's peninsular shape with an extensive coastline, many bays, and inland waterways, it seems only natural that ships would be needed, and therefore built, here. Although shipyards exist to this day throughout the state, long gone are the days when ships were fashioned by hand using local materials.

Undoubtedly, the early Jersey colonists found boats to be the quickest way of transporting goods from one place to another. During the American Revolution, however, the significance of ships and shipbuilding in New Jersey was more than just commercial. With the New York harbor closed and the Delaware Bay blockaded, privateering was common along the south Jersey coast. Even before the war, many shipbuilding communities in south Jersey were involved in smuggling and other activities which helped them avoid the

customs and taxation imposed on the colonies by the British Crown.

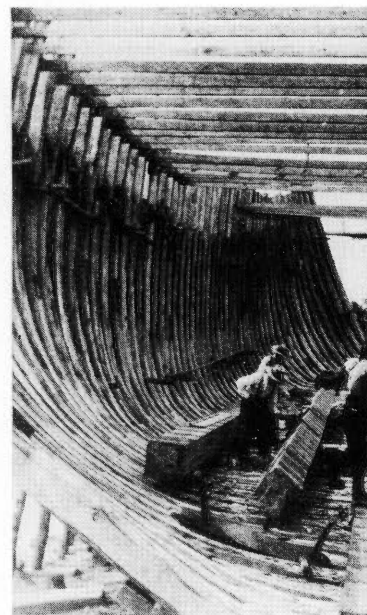
Towns along the Mullica and Egg Harbor rivers were prime locations for storing supplies and cargo that had been taken from British ships by privateers. One such spot, a knoll overlooking a town called Mays Landing along the Great Egg Harbor River, was used for the temporary storage of sugar and molasses. Privateers would bring the stores there, and they would be distributed as needed to other towns in the region. The area thereby came to be called Sugar Hill, and Mays Landing naturally became an early shipbuilding center. Other shipbuilding towns near the Great Egg Harbor River were at English Creek, Patcong Creek and Tuckahoe.

Farther north, where the Mullica River meets Great Bay, Nacote Creek (known today as Port Republic) also became a shipbuilding center during the Revolutionary days. Privateers operated out of nearby Chestnut Neck, where the British launched an attack on them in 1778. Ships were also built at Green Bank and other inland towns along the Mullica.

Almost every community along the rivers feeding the Delaware Bay had its shipyards at one time or another. Along the Cohansey River in Cumberland County, ships were built at Bridgeton, Fairton, and Greenwich. The shipyards of Millville, Port Elizabeth, Mauricetown, Dorchester, Leesburg, and Port Morris flanked the Maurice River, also in Cumberland County. In Cape May County, even Dennis Creek (now called Dennisville) and Goshen, located along very narrow channels, built ships weighing hundreds of tons. Many of these ships were also used by privateers and smugglers, who sometimes ventured from the Bay as far north as the Mullica River.

However, shipbuilding in New Jersey supported more than just wartime activities. Much of the Cape May coast was settled by whalers in the late 1600s, and when whaling died out, shipbuilding became a way of life there. Ships were needed to harvest fish and mollusks from the Bay; oystering became a primary occupation there which continues to this day. The ships built in the Jersey yards were used to carry cargo to and from Philadelphia, New York, and various ports in between. Coal was the principal product shipped out of Philadelphia (after the mid-1800s), while pig iron and lumber were picked up at Jersey ports along the way. On longer trips, cordwood was transported up the Hudson to the brickyards in New York. Still longer journeys took the Jersey ships to more distant ports up and down the East Coast.

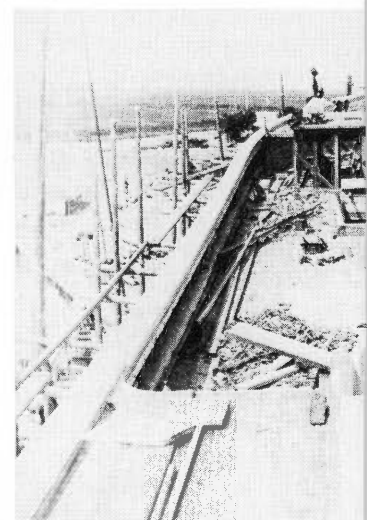
It might seem odd that, in its early years, shipbuilding was centered inland rather than right along the shore. Actually, an inland location was ideal for shipbuilding. The land nearer the bays was often flooded by the tides. Also, inland shipyards were close to forests, and the timber from these forests was used as



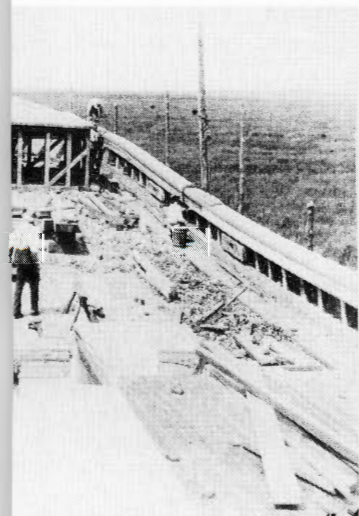
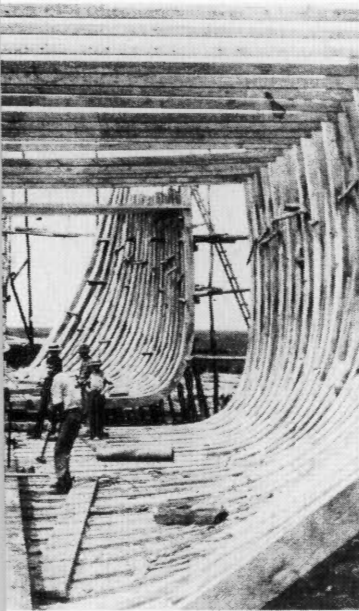
Shipbuilding, Dennis Creek
Cape May County, N.J.



The ATR series was built
during World War II. Notice
the wood planking on these
ships.



Cape May, 1880.



building material. White oak, a strong wood with watertight properties, was usually selected for the keel. Because no single piece long enough could generally be found in the south Jersey forests, the keel on Jersey boats was spliced together, a feature which Jersey shipwrights claimed made the ship stronger. The frame was built of white oak, pine, or Atlantic whitecedar; the latter being found in south Jersey swamps. Nails, bolts, rings, and other fittings were made at nearby forges and furnaces such as those at Weymouth, Gloucester, Batsto, and Etna. Since these were made of rustfree Jersey bog iron, they were especially useful to shipbuilding. Planking was usually of white oak or Atlantic whitecedar. The earliest ships were fitted with masts right where they were built, using the tallest, straightest pitch pine or shortleaf pine trunk that could be found. Later, as the supply of suitable timber dwindled, masts were imported from New England or the West Coast and were fitted at Philadelphia.

The type of ship built in early Jersey shipyards was influenced by what was being built elsewhere in the colonies and in Europe. The earliest American shipwrights undoubtedly built shallops, two-masted sailing ships like the ones in which the first settlers had sailed to America. As early as 1735, the sloop, having a single mast with fore and aft sails, was being built. Then around 1760, Jersey shipbuilders began building schooners, which had appeared in Holland more than a century before. Each area along the Eastern Seaboard developed its own particular style of schooner. Schooners built along the Delaware Bay, for example, had wide, squat beams, which made them excellent vessels for fishing the Bay. On the other hand, schooners built for coasting as fast as possible between ports were generally quite sleek.

The schooner had at least two masts, but the forward mast carried a smaller sail, a fore and aft sail like the sloop; one or two head sails on the forward mast were also common. Three- or four-masted schooners were sometimes built. Shipbuilding is said to have reached its peak in the days when the schooner was the primary type of ship being built. In addition to being a good vessel of commerce, a schooner coasting the open waters was a beautiful sight to behold.

It's little wonder, then, that the launching of each new schooner was a momentous occasion in a shipbuilding town. The launchings at Dennis Creek and Goshen were particularly memorable to those who happened to be standing on the opposite bank. The streams into which the boats were launched are so narrow that the ships had to be sent into the water sideways or they would ram into the bank on the other side. People watching from the other side, usually out-of-towners who thought they had the best view of the ship coming down the ways, would get drenched by

the wave the ship created as it hit the water broadside. Local folk, who knew better than to stand on the opposite bank, would say it added more fun to the celebration. Once the boat was in the water, it was often several days and several tides later before the ship finally reached open waters in the Bay.

Records show that the last schooner to be built in Cumberland County was completed in 1904, and the last one in Cape May County was probably built around 1900. Most of the shipbuilding centers in south Jersey had actually been building fewer and fewer ships since the mid-1800s, about the time that larger vessels were beginning to be built and that shipbuilding moved closer to open water. Soon, these larger ships were without sails; coal and steam power took the place of the wind and human ingenuity. In time, the ships were built of iron, but not the famed Jersey bog iron. Nearly all the bog iron forges had closed down by then, because they could no longer compete with the coal mines discovered in Pennsylvania. Likewise, sufficient timber was no longer locally available for Jersey shipyards to build enough wooden vessels to compete with ships built elsewhere.

Shipbuilding in New Jersey made somewhat of a comeback during the first and second World Wars. At that time, New Jersey ranked second in the nation in the value of ships built or under contract. (California ranked first, so if figures are put on a per-square-mile basis, New Jersey actually comes out on top.) The New York Shipbuilding Company in Camden produced one-quarter of all Navy ships built in WW I. It became the largest self-contained shipyard in the world, building any size or type of ship ordered. Another large shipbuilding plant in Kearny and smaller shipyards throughout the state also helped the war effort by building high-quality ships and repairing damaged ones in record time.

By that time, timber was becoming fairly abundant again, and there were still people around who knew how to use it to build boats. During World War II, the country needed subchasers and minesweepers made out of wood, because wooden structures were more difficult for the enemy to detect than steel ones. The shipyards of New Jersey received many of these orders, and the Jersey forests supplied excellent planking once again.

Although small craft and pleasure boats are still built in shipyards scattered along south Jersey rivers and the Delaware Bay, most of the names and places have changed since the days of the schooner and the inland shipbuilding centers of south Jersey. The only reminders many of these towns have of their shipbuilding history are small boatyards and marinas that stand where shipbuilding once flourished. Indeed, many towns owe their whole history to their shipbuilding background, because were it not for this industry, they could not have survived the early days.

Haddonfield Dinosaur

Continued from page 9

cognized as a dinosaur though of a different kind. This difference was to spark a dramatic search for fossil remains to see what ancient history had buried beneath the earth.

Another significant outcome of the discovery was the assembly and display of the skeleton. New Jersey's *Hadrosaurus foulkii* was the world's first skeleton to be mounted. Creation of the exhibit involved still another of those intellectually gifted, multit talented gentlemen of the Victorian era. An Englishman, Benjamin Waterhouse Hawkins, was a student of anatomy, a painter, deeply involved in the study of natural sciences but, most of all, an outstanding sculptor. In the mid-1800s, Hawkins had used all these talents to sculpt prehistoric creatures in London for the English industrial exhibition of 1854 at the famous Crystal Palace.

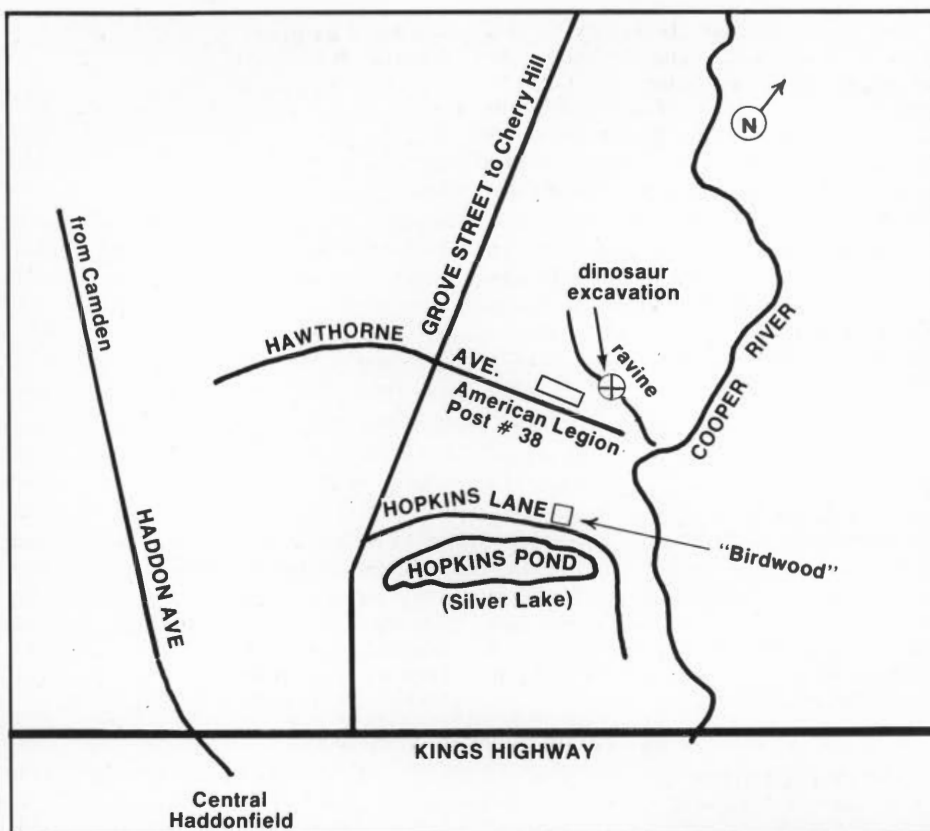
Hawkins arrived in America 10 years after the Haddonfield discovery to extend his artistic fortunes. His first major project was erection of the New Jersey dinosaur for the Academy of Natural Sciences of Philadelphia. Great interest in dinosaurs was generated when scientists by the hundreds and laymen by the tens of thousands visited the exhibit. Commenting on the display at the Academy, Dr. Baird said the dinosaur presentation to the public was "a first—a big first."

The English sculptor also made a replica of the Hopkins farm fossil for the Princeton University Museum of Natural History, where it was displayed until the early 1900s. *Another skeleton of a duckbill in the New Jersey State Museum at Trenton is not a replica of the Haddonfield dinosaur although often mistakenly thought to be, Dr. Baird noted.

Why the Haddonfield dinosaur was not erected for 10 years is unclear. Perhaps the Civil War had its effect. Paleontologist Colbert maintains, "The bones of the new dinosaur gathered dust on the shelves of a case in the Philadelphia Academy while outside in the streets columns of blue uniformed men marched off to war." Another theory is offered by Hollister Knowlton, administrative assistant at the Academy. She suggests that perhaps no one had ever thought of erecting a dinosaur skeleton until Hawkins came up with the idea.

The dinosaur was to remain on exhibit some 70 years until its original import began to dim. In the years from the New Jersey discovery on, other bigger and more spectacular dinosaur skeletons were being excavated and displayed at museums throughout the United States. These newer dinosaur displays, spanning the decades

*The NJSM model was acquired many years ago at a time when *Hadrosaurus* and such duck-billed dinosaurs as *anatosaurus* were thought to be very similar, and substitutions were freely made in the mounted skeletons. Unfortunately, this is now known to be untrue, and the State Museum model skeleton has little to do with *Hadrosaurus*.



An x marks the area behind Haddonfield American Legion Post No. 38 to show area where dinosaur bones were excavated on the Hopkins farm in October 1858.

from the Civil War until World War II, made the Haddonfield fossil seem, by comparison, outdated and outmoded. Also, by pre-World War II times the accuracy of the posture began to be more extensively questioned. Experts were becoming increasingly certain that the kangaroolike position was incorrect and suggested that the dinosaur be dismantled.

Return of the Haddonfield Dinosaur

In about two years, our New Jersey dinosaur will return for a command performance at the Academy of Natural Sciences. In progress right now is construction of a \$2.4 million exhibit *Discovering Dinosaurs*. The Haddonfield dinosaur, according to Knowlton, will be one of the main features. "Dinosaurs are always the most popular children's attraction at the Academy," Knowlton emphasized during a recent interview—more than 50,000 youngsters a year visit the Academy and stand at the feet of the Museum's present duck-billed dinosaur, *Corythosaurus*.

"Dinosaurs will not simply be exhibited this time," Knowlton continued, excited about the Academy's new project. "Much of the revolutionary new information about dinosaurs as living animals will be presented in a dynamic exhibition which will encourage audience participation."

Academy visitors will see *Hadrosaurus foulkii* in a posture totally different from the 1868 version; the new mount will be based on current scientific information. Knowlton stressed that science is ever-changing be-

cause more study leads to new information. The dinosaur exhibition will show science as a self-correcting process.

Only recently had information come from a young curator at a Montana museum which substantiates the fact that *Hadrosaurus foulkii* did indeed function in the horizontal position. John R. Horner, curator at the Museum of the Rockies (Bozeman, Montana), discovered the correct position by studying numerous dinosaurs, including a *Hadrosaurus*, from the fossil-rich Montana area. This information is confirmed by Dr. Baird, who is consultant for the Academy. Thus the dinosaur's position at the upcoming exhibit will be nearly horizontal, with the animal balanced by a heavy tail that is held well up off the ground.

A Visit to the Hopkins Farm Discovery Site Today

Bright, tree-shaded suburban homes, complete with manicured lawns and color-splashed flower beds, sprawl through the Hopkins farm area now. The section just east of Grove Street is indeed unusually beautiful. The original Hopkins farmhouse, built in 1794 by John Estaugh Hopkins and called Birdwood, stands lovely and majestic, facing a tranquil pond in a heavily wooded area. The house is currently the property of the family of former New Jersey Governor Alfred E. Driscoll. Several hundred yards behind the house is a deep gully or ravine that at one time carried water eastward into the Cooper River. The first bones were discovered in this ravine.

Today one may visit the site by turning east off Grove Street onto Hawthorne Avenue. On the left, coming into view, is American Legion Post #38. Just behind the Post and immediately to the right is the ravine in which the dinosaur was entombed millions of years ago. A visitor will not find the exact spot of the excavation—yet.

However, this situation is to be corrected soon by a member of the Haddonfield Boy Scouts of America. For his Eagle Scout rank, Chris Brees of Troop 65 has undertaken a project to mark the spot with a commemorative plaque. DeForest Brees, troop leader and Chris' father, said that the discovery location should be marked by spring or summer of 1984. Finding the exact spot, however, could be a problem. Location of the marl pit had been nearly lost in antiquity; however, DeForest Brees is in possession of two authenticated maps depicting the site. Another source, William Brown, a Cherry Hill geologist, when contacted for this article, commented that he too knows of a map, sketched by Foulke, which could pinpoint the location.

The Final Surprise: A Dinosaur with Famous "Relatives"!

Had the Haddonfield dinosaur purposely chosen to be discovered by distinguished, outstanding citizens, it could not have done better. Would you believe the New Jersey farm fossil was unearthed on land that involved such historically famous persons as William Penn for one, a prominent English Quaker family, and the daughter to that family, the founder of Haddonfield?

This is Haddonfield tells how ownership of the Hopkins farm descended through the English lineage. John Haddon, an English Quaker, obtained a land grant from William Penn. John sent daughter Elizabeth, 19, to manage the grant. She came alone to the new world of West Jersey and founded Haddonfield in 1713.

Elizabeth's sister, still in England, married a Benjamin Hopkins. One of the children by that marriage was Ebenezer Estaugh Hopkins. Elizabeth brought Ebenezer to the colony as a young lad and later set him up on the tract of land that became the Hopkins farm.

Ebener's descendants up to the time of the discovery included son John Estaugh Hopkins, grandson William E. Hopkins, and great-grandson John E. Hopkins. Today just one direct Hopkins descendant lives in Haddonfield, although many Hopkins relatives are scattered throughout the United States. Elizabeth Hopkins Lenhart, active in civic affairs and author of many historical articles, is a distinguished lady of Haddonfield.

Respect—for a Dinosaur?

After its early years of acclaim, our New Jersey dinosaur fell into disrepute, than into obscurity. However, we should not forget that our New Jersey fossil opened a door into ancient history. It was, and always will be, a highlight of paleontology. Perhaps now, the second time around, our famous fossil will regain the lasting esteem it deserves.



Un-Endangered Species

Continued from page 15

future.

Sediment basins and farm ponds created by people provide the water and water-edge habitat needed for animals like the bullfrog, red-winged blackbird, muskrat and green heron. Small bodies of water such as farm impoundments are probably more numerous today than at any other time, and the animals associated with ponds are likely to be increasing in number as well.

Some wildlife populations have rebounded remarkably as a result of complete protection. The long-legged wading birds, much sought by the millinery trade for their plumes around the turn of the century, were in serious decline. Complete protection from market hunting has allowed the herons and egrets to again become numerous, but their numbers now face the more serious threat of habitat destruction. The coastal and freshwater marshes where these birds breed are threatened by pollution and development, forces more destructive and permanent than the market hunter's gun could ever be.

Pollution produces a profound change in aquatic habitats. The American shad was very abundant in the Delaware River at the turn of the century; however, in the early 1900s it was eliminated from the Delaware by a "pollution block." Pollution in the Philadelphia-Camden area consumed all the oxygen in the water and prevented the shad from migrating up the river to spawn. Today, the pollution has been reduced and the shad are abundant in the river because the block breaks up in the spring just at the time of spawning.

Some of the byproducts of urbanization that we consider pollution are a desirable food source for gulls which are among the premier "unendangered" species in New Jersey. Herring and great black-backed gulls have become more frequent breeders and are more abundant year-round residents because of the food subsidies we provide in the form of garbage dumps. The future of gulls in New Jersey is certain if we continue to dispose of our garbage



JOHN JANZEN

in landfills. However, gulls may find slim pickings if we pursue ecologically sound alternatives to land-filling.

By far the greatest threat facing wildlife today is the loss of habitat. Each year New Jersey loses 45 square miles of land to urban sprawl and industrial development. While many of the Division of Fish, Game and Wildlife's programs are successful, people must realize that they are not a cure-all. Wildlife species with specialized habitat requirements or a low tolerance of humans can never be as numerous as they once were. A simple formula for the survival of any wildlife species is HABITAT + REPRODUCTION = SURVIVAL. As long as we can provide suitable habitat and the species is capable of reproducing, it will survive.

The future for wildlife in New Jersey looks encouraging. Most of our wildlife species are doing very well. Through research, land acquisition, and professional wildlife management programs, supported by a concerned public, wildlife will continue to flourish in the Garden State for the enjoyment of everyone.

WYANOKIES

Continued from page 12

half mile brings the hiker to a secluded hemlock forest by a cascading stream, a perfect spot for a leisurely lunch.

The Wyanokie Circular Trail (red-on-white blazes) begins and ends at the Weis Ecology Center. It forms a nine-mile loop west of the southern half of the Wanaque Reservoir. Within a mile, it connects with the Mine Trail (yellow), passes the flooded Blue Mine, whose shaft once extended some 250 feet into the rock. Another mine, with a horizontal shaft of 65 feet, can be found by detouring left on the MT within a half mile of the start of the WCT. This is the Roomy Mine, located at the base of Inspiration Point. The hiker can then continue on the MT until it joins the WCT just north of Blue Mine.

The WCT then passes the Blue Mine lean-to and makes a rugged ascent of Wyanokie High Point where it joins the HBT for the next half mile. Another three miles brings the hiker to the Stone Hunting House, a ledge "cave" which, according to legend, was once used by the Assiniwakan Indians as a sort of hunting headquarters. The trail then makes a gradual ascent of Black Rock (1060) with northwest views and descends to Boy Scout Lake, follow-

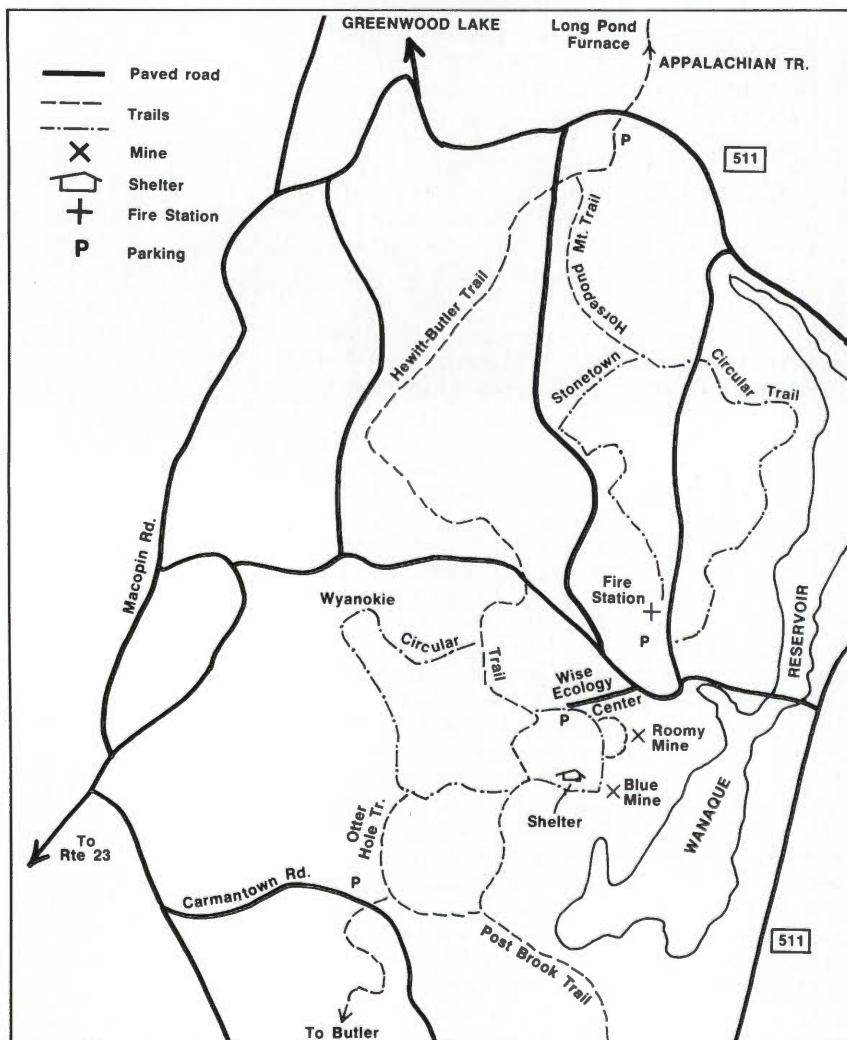


ing a half mile of paved road. After crossing the dam, it climbs to more than 1100 feet and joins the HBT to climb the three Pine Paddies, then descends to Snake Den Road.

The Stonetown Circular Trail (red triangles on white blazes) forms a loop west of the northern half of the Wanaque Reservoir, which is every bit as strenuous as the WCT. Starting near the Ringwood Fire Station at the intersection of Stonetown Road and Magee Road (permission required to park at the fire station), the trail heads north, climbing and descending Windbeam Mountain (1018), Bear Mountain (920), and Board Mountain (880). It then turns west and ascends Harrison Mountain with north and south views of the entire Wyanokie Ridge. The final leg of the trail moves in a southeasterly direction and takes the hiker onto the 40-foot cliffs called "Tory Rocks," where Tories hid from the continental army during the 1780-81 winter encampment. The trail passes the site of an old sawmill, climbs Signal Rock, and descends to Magee Road near the firehouse.

One important feature of the Wyanokie trail system is the connecting trails. The Wyanokie Circular Trail can also be approached from a parking area on Carmantown Road via the Otter Hole Trail (1 mile, green). The Stonetown Circular Trail can be reached via the Horse Pond Mountain Trail (2 miles, white), which leaves from the Hewitt-Butler Trail a half mile south of Hewitt. Several of the peaks can be avoided by using marked or unmarked woods roads. Careful study of the maps should lead to a delightful day or weekend trip.

The Wyanokies can be enjoyed by the hiker, the hunter, and the photographer. Beautiful forests, an abundance of wildlife, breathtaking views from the peaks, and the sense of solitude within sight of the nation's largest city: together these are the Wyanokie experience. But an awareness of the past and the inter-relatedness of past and present can heighten that experience for any outdoors enthusiast.



SOURLAND

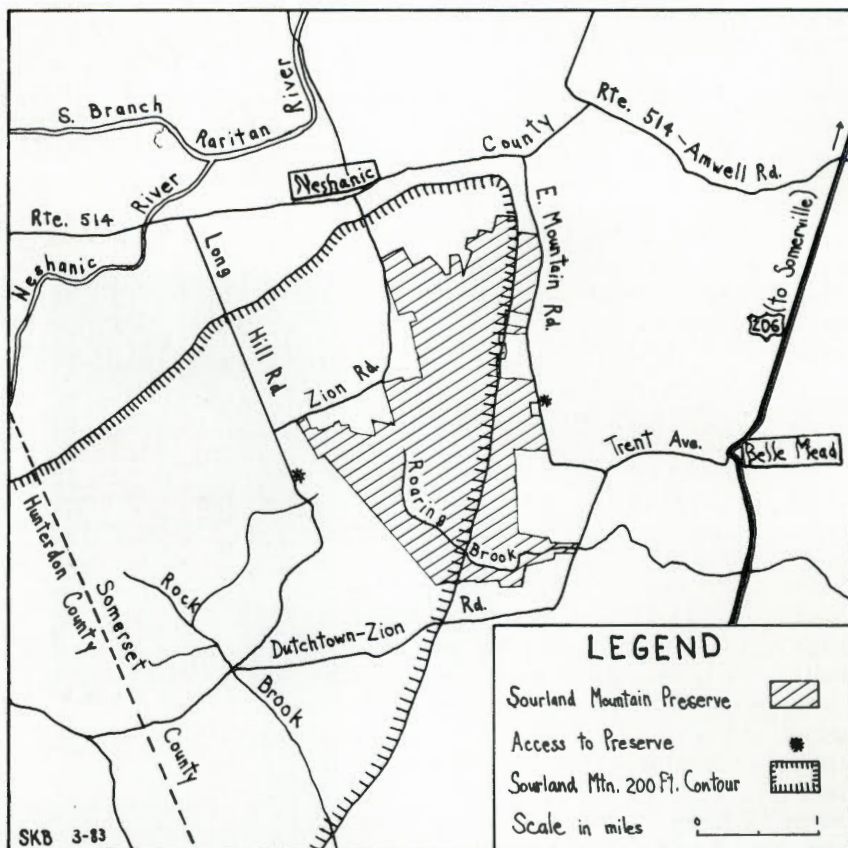
Continued from page 13

They are worth walking, especially to get closer to swamp pools where the brown-on-brown Wood Frog quacks in the early spring. From a distance, the undertone of its call can be mistaken for people, dogs, cars, or machinery (at least one Sourland aficionado made these misidentifications). Through the trees the red haze of highbush blueberry twigs also signals the wetland; other understory shrubs include spicebush in drier areas, witch hazel at the edge of the ROW, blackberry in light gaps and sassafras clustering on the rocky ridge. From the forest floor, many species of ferns rise in fine-patterned green fronds. Spring beauties send their small pinkish flowers from tubers several inches in the ground.

Roaring Brook, the major drainage of the Preserve, crosses the ROW just east of a patch of 12-foot-high *Phragmites*, the plumed reed of the coastal marshes. To the north the brook bisects a broad basin filled with large beech and oak. Head south, on a hunter's path along the banks. As you pass a cluster of huge rocks, including one which resembles a giant recliner chair, notice the tree stands used by deer hunters. The brook winds through a flat area where mud and the whiplike underbrush will slow you, but the slope increases and the water begins to gurgle over exposed rocks; at times the smoothest passage is over the rocks in the streambed. Eventually, though, the water is no longer visible, only audible, and you will be as much as fifteen feet above it. Where Roaring Brook flows down the steep eastern scarp of Sourland Mountain it is actually two streams. A massive "river of rocks" parallels and conceals the water in its channel. Heavy runoff roars as it courses through the blocked streambed, as if leaving the protection of the high forest for the exposed lowlands is difficult.

From Roaring Rocks it is a good 30-40 minutes back to the pipeline. Take a last look: Deep green ferns proliferate in the organic duff collected atop the bare slabs. Diabase outcrops, like shoulders of the mountain, confine the brook in its descent. Close searching may reveal a formation interesting in appearance and history.

Tradition says in Revolutionary days an old Dutchman named Hans Van Pelt deserted the American Army to preach a



doctrine of world brotherhood. He fled to Roaring Rocks, the legend says, lived there in the cavelike cellar until the war was over. The rock was his fort and bears his name today ... The fort is an immense rock with a fissure making two parts. On its top initials of hundreds have been chiseled. Many date well into the past century. (Somerset Messenger Gazette, Somerset County, 250 years, Somerville, 1938).

Hans' refuge is our preserve. The 7486 square miles of diversified landscape in New Jersey contain many such spots of beauty and recreational opportunity. By now, we all have been reeducated to this knowledge by the likes of John McPhee, *National Geographic*, the State Division of Travel and Tourism, and every newspaper with a travel writer. If you are pursuing your New Jersey education further, you may want to put Sourland Mountain on your "curriculum."

TO GET THERE: Take Rte. 206 south from the Somerville traffic circle to Somerset County Rte. 514. Turn right on 514, also called Amwell Road, and drive west to E. Mountain Road. 2.85 miles past this intersection, turn left on Long Hill Road. Long Hill will take you up the north slope of Sourland. The Texas Eastern pipeline and parking are 2.3 miles along this road. The Preserve also is accessible from the east, off E. Mountain Road, although parking is difficult. From 514, drive south on E. Mountain two miles, where you will see the ROW cleared up the mountain. Park where you can, taking care not to block any lanes or drive-ways. You will have a 400-foot climb in less than a mile into the Preserve from here.

Our Friends in the Parks

Continued from
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exhibit of antique quilts and coverlets including demonstrations of quilting techniques. Fall at Allaire is marked by an antique show and a stocking-stuffer sale at the general store.

As the year ends at the parks and historic sites, a series of special events focuses on traditional Christmas activities. There are special candlelight tours at many sites and a Victorian Christmas program at Ringwood. On

Christmas Day, the re-enactment of General Washington's crossing of the Delaware River brings the year's calendar of events to a close.

There are many other groups and individuals who make New Jersey's state parks much more than they would be without citizen support. The list is endless! At Island Beach, the Beach Buggy Association helps stabilize the dunes by erecting snow fences and planting dune grass. Throughout the state parks Boy Scouts and Girl Scouts participate in many projects. Canoe and trail groups keep miles of trails and streams free from litter and obstructions.

The New Jersey Audubon Society operates the Owl Haven Nature Center at Monmouth Battlefield State Park and the Rancocas Nature Center at Rancocas State Park. New Jersey Audubon also conducts the annual Fall Hawkwatch at the Cape May Bird Observatory in Cape May State Park.

And there are many more—thousands of individual park visitors who just want to help. They clear trails, assist lost hikers, donate personal collections, and help make *their* parks better places to visit.

Through this partnership, our state parks and historic sites will continue to grow, providing New Jersey citizens with improved awareness of their heritage, better facilities, and many enjoyable events throughout the year.



Friend of the Park, Debbie Kean (left) at Allaire State Park.

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Two hiking articles that include maps of the areas hiked are printed side by side. One, *Hiking the Wyanokies* by J. Kenneth Sieben, describes several hiking trails in northern New Jersey; the second, *Park and Walk in Central Jersey* by Steven Brush, describes hiking the Sourland Mountain area of Hunterdon and Somerset counties. Mr. Sieben has previously published articles on fishing, backpacking, N.J. history, and mountaineering in *N.J. Fisherman*, *New York-New Jersey Trail Walker*, and *New Jersey Outdoors*. Mr. Brush serves on the N.J. Trails Council as a hiking representative.

In our state we have some endangered species of wildlife but we have many *Un-Endangered Species*, as described by Division of Fish, Game and Wildlife biologists Mimi Dunne and Dave Chanda.

Writer Rosalie Strachan writes that she had the ski touring areas of Jockey Hollow Park all to herself for many years but she is now willing to reveal all in the article titled, *A Skier's Guide to Jockey Hollow*.

The article titled, *Round Valley Recreation Area* describes the recreational activities available at this location. This is the

first article of a series titled, *Parks '84*. Each NJO issue in 1984 will include an article describing the recreational opportunities available at a particular state park.

Author Ken Oravsky wrote the Appalachian Trail article in the November/December *New Jersey Outdoors*. The photographs used in the article and the front cover photo are the work of Ranger William Leather, of Round Valley.

The article, *Toxic Substances Laboratory* describes the operation and services offered by this DEP laboratory located in Ewing Township, Mercer County. The article was written by Dr. Eileen Hotte, Chief, Bureau of Environmental Laboratories.

Something different, *Iceboat Racing: Faster than the Wind* by Gary Ann Lewis. This activity has been around for a while because there are some third-generation iceboaters participating in this sport.

The author, a free lance writer/photographer, has been published in the New York Times New Jersey Section.

Color and Color Variations in Animals was written by Richard E. McKeeby, Associate Professor in the Biology Department, Union County College. Professor McKeeby has been published several times in NJO.

Deborah Boerner, frequent contributor to

NJO, writes about *Ship Building in New Jersey* as it was practiced early in the 20th century. The photographs were provided by DEP's Forestry Bureau.

Our *Wildlife in New Jersey* series features the *Black Duck* in this issue. It was written by wildlife biologist Dave Chanda. The article is introduced by the illustration by Carol Decker on the inside back cover.

The snow storm scene on the back cover is the work of Anne Ross, of Summit, her second effort for our publication.

In my editorial in the January/February 1983 issue, I noted that that issue kicked off the 10th year of publishing this series of *New Jersey Outdoors*. Well, the 10th year was closed out with the November/December 1983 issue. What we have now is the beginning of the 11th year of publishing this magazine—the 61st issue and the first of this new year. And I do hope this will be a happy, happy year for all of us.

Steve Penner

Letters To The Editor

New Jersey Outdoors welcomes letters from readers. Letters for publication should include the writer's name and address and should be mailed to: Editor, New Jersey Outdoors, CN 402, Trenton, N.J. 08625. Letters may be edited for reasons of length or clarity. In the July/August issue, we announced the start of a Letters to the Editor column. Here's a sampling we have received over the last few months. Please keep the letters coming. We'd like to hear what you think about the magazine—good, bad or indifferent. We'll also try to answer questions and if we cannot, we'll ask our readers for help.

I appreciated the quotation from Chief Sealth in the September/October issue (editorial). When we moved to our small farm in 1971, we were fortunate to hear "the lovely cry of the whippoorwill" and the sweet call of the quail. No more. The sound that replaces them is traffic's roar, wearisome and aggravating. We seem to be growing closer to mere survival, and further away from quality living.

Mary H. Owen
West Long Branch

I have been doing some research on historic sites in New Jersey and have discovered some names of so-called ghost towns. I cannot find their locations on maps or in any texts. Three names I'm particularly interested in are Ong's Hat, Old Half Way (somewhere in Burlington County) and Topanemus (somewhere in Monmouth County). If you could tell me something about these places or where to get information about them, it would be greatly appreciated.

Richard Trippeda
Carlstadt

Ong's Hat is in Pemberton Township, Burlington County. We've found two places named Old Half Way: one in Manchester Township in Ocean County and one in Woodland Township in Burlington County. Old Topanemus is an Indian burial ground near Marlboro. John Hight, founder of Hightstown, was buried there in 1723.

For additional information, try the N.J. State Library, 185 W. State St., Trenton, N.J. 08625.

Please tell me who to contact to obtain N.J. State Laws and regulations governing hunting for deer and other game with bow and arrow. Thank you.

Otho Easterday
Warren

We've forwarded your request to Thomas Mulvey, Chief, Law Enforcement, Division of Fish, Game and Wildlife, CN 400, Trenton, New Jersey 08625.

On Wednesday I caught a three and a half pound Rainbow trout in the Maurice River in South Jersey. On Saturday I shot two ringneck pheasants in Millville. On Sunday my family and I had a delicious surf and turf dinner, courtesy of N.J. Fish, Game and Wildlife. Thank you.

Tom Parisi
Elmer

P.S. I really enjoyed the fall stocking. It provided an added dimension to the fall seasons. Watch out turkeys!

In reply to Douglas Reynold's request (September/October) for a way to filet pickerel he could try the following technique. After removing the skin, cut along the backbone from tail to head with a sharp knife. Carefully separate the flesh from the side bones by shaving close to the backbone and lift the filet with your other hand. Turn the fish over and separate the flesh on the other side. Then pull out the backbone with the attached side bones. The fine bones in the flesh can be removed with a pair of tweezers.

Warren Neale
Ridgewood

I must correct Ken Oravsky in his fine article "The Appalachian Trail in New Jersey," (November/December). He says the highest elevation on the AT is Baxter Peak of Mountain Katahdin in Maine at 5267 feet. The fact is, Clingman's Dome in the Great Smokies at 6643 feet is the highest peak on the AT, along with many others higher than Katahdin including Mt. Washington in New Hampshire at 6288 feet.

Paul Wittreich
Tenaflly

Many thanks for letting us know.

Please tell me the locations of Lord Stirling Park and Troy Meadows Natural Area, described in the Sept./Oct. issue. I for one would like to visit them.

Walter A. Haas
Westfield

Lord Stirling Park is on Lord Stirling Road, off North Maple Avenue (Route 657) in Basking Ridge. The Troy Meadows Natural Area is on Troy Meadows Road off South Beverwyck Road (Route 637) in Parsippany-Troy Hills.

Family of hikers, canoeists, climbers, backpackers, cross-country skiers, snow shoers like the magazine but would love inside photographs—in color.

Terry Dreler
Ridgewood

I am concerned about the growing number of litterbugs that plague the beautiful Flatbrook Wildlife Management Area in Sussex County. I believe N.J. needs a can and bottle law. Beer and soda cans and bottles and fast food wrappers are a horrendous eyesore. It is not right to let this go unchecked. There are not even any "No Littering" signs. Only 60 miles or so from New York City and the black bear, deer and fox still inhabit this great land. This among all our environmental crimes and troubles in 1983, is something to be most glad and thankful for.

Nicholas R. Homyak
Bloomfield

In your May/June 1978 issue you published an article by Bob Byrne, "Giving the Bluebird a Helping Hand." This bring-back-the-bluebird program has been very successful and as of now over 6,000 bluebird houses have been distributed in Sussex, Warren, Morris and Hunterdon counties. And the bluebird population is again on the rise. If you're interested in learning more about bluebirds, why not join The North American Bluebird Society, Box 6295, Silver Spring, Md. 20906-0295. The \$10 annual dues include a quarterly magazine, *Stala* (Latin for Bluebird).

Junius Birchard
Hackettstown

BLACK DUCK

BY DAVID CHANDA

The black duck has long been a prized game bird along the Atlantic Flyway. A native North American puddle duck, weighing approximately three pounds (females are slightly smaller), the black duck is similar to the mallard in size and flight characteristics. Although it appears jet black at a distance, the feathers of this duck are actually dark brown, with lighter colored feathers on the head and neck. In general, its plumage resembles that of a hen mallard. In the winter, the male black duck may be distinguished by orange-red legs and a yellow bill, while the female is less brightly colored. Their speculum, or wing patch, is a purplish blue with a narrow white line behind it.

Black ducks can be found on freshwater ponds, streams and lakes. However, in New Jersey they prefer the coastal marshes where they feed on eelgrass, widgeon grass and snails.

Black ducks are the only common duck in eastern North America in which both sexes look alike. This is probably an adaptation to the wooded habitat of their breeding range. Although most species of puddle ducks breed in the prairie pot hole regions of Canada, black ducks breed in the wooded portions of eastern and central North America. The female will lay 8-10 greenish-buff eggs in a nest which is typically hollowed out on the ground and lined with grass and down.

Immediately upon hatching, the young are led to water where they feed on mosquito larvae and other insects. This is an important food source while they are young, as insects provide the necessary protein for the developing ducklings. As they get older, the young birds switch to a vegetarian diet. After about eight weeks, the young are capable of flying and are then on their own.

Once the young leave the hen, she retires to a secluded section of the marsh to moult. She remains flightless for about ten days while her feathers grow in. Males moult earlier while the hens are caring for the young. Just about the time the eggs begin to hatch, the males will fly out to the nearest large body of water and congregate on the middle of it. There they moult and are more vulnerable to predators. However, out in an open lake it is very difficult for predators to approach unseen.

Autumn and winter are periods of wandering and exploration for black ducks. They spend the day out in open water where they cannot be easily approached and come into the marsh after dusk to feed on snails. At first hint of dawn, they head back out to the safety of open water. This behavior makes them a difficult bird to

hunt. In addition, they are very intelligent and are not readily fooled by a hunters rig of decoys. It is under these situations that the New Jersey waterfowlers closely follow weather patterns, hoping for high tides and a strong west wind. Such weather conditions make the bay extremely rough and forces the black duck to seek refuge in the marsh.

The black duck has always been a favorite quarry for sportsmen in New Jersey. Each year, black ducks provide 108,000 days of recreation for waterfowl hunters. In addition to recreational and aesthetic qualities the black duck resource generates approximately one-hundred and fifty thousand dollars into the state economy.

Aerial surveys flown early in January indicate New Jersey has a wintering population of approximately 70,000 black ducks. Our State is a very important wintering area for black ducks, as over 30 percent of the black ducks on the Atlantic Flyway winter here.

Although the birds appear to be doing extremely well in New Jersey, the black duck population on the Atlantic Flyway has been declining for the past 20 years. The black duck is not in any danger of becoming extinct, but this decline of about 1½ percent per year has been of great concern to the U.S. Fish and Wildlife Service and state wildlife management agencies.

There are three theories which try to account for the decline. One is a decline in habitat. Over the past thirty years there has been an increase in the development and recreational use of our coastal areas, with continual filling in and building on critical habitat. A second reason is the invasion of mallards into the black duck range, with genetic swamping through hybridization as a result. The third theory is that of over harvesting, specifically of immature birds.

Other factors which may also be affecting the black duck population include lead poisoning, use of pesticides in the environment, acid rains which may be reducing insect populations and other critical invertebrate food supplies and illegal hunting.

The U.S. Fish and Wildlife Service and states in the Atlantic Flyway are developing plans to reduce the harvest of black ducks in an attempt to reverse this declining trend. This coordinated approach to black duck management carries no guarantee that a reduced harvest will return this species to its former abundance. However, the goal of this coordinated management plan is to prevent any further decline of this valuable natural resource, and if possible, to increase the black duck population on the Atlantic Flyway and insure that black ducks remain a part of New Jersey's wildlife resources for the enjoyment of everyone.

FRONT COVER

Cross-country skier at Round Valley Recreation Area. Photographed by William Leather.

INSIDE BACK COVER

Black Ducks—Illustration by Carol Decker.

BACK COVER

Snowstorm at Reeves-Reed Arboretum. Photographed by Anne Ross.



New Jersey State Library

'83 © Carol Decker

