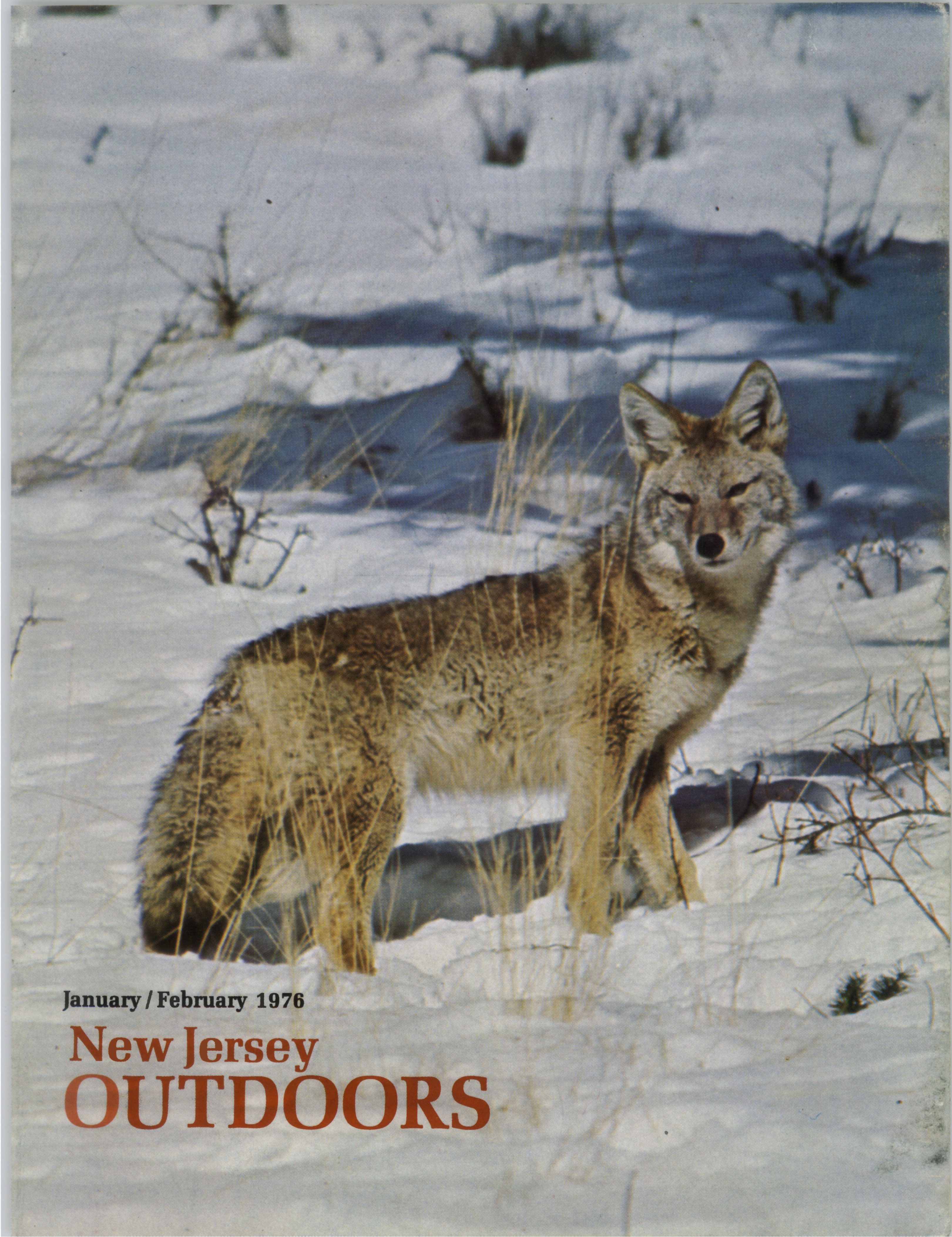


January / February 1976

New Jersey OUTDOORS

NEW JERSEY OUTDOORS is the bi-monthly magazine of the Department of Environmental Protection of New Jersey. This publication is dedicated to the wise management and conservation of our natural resources and to foster a greater appreciation of the outdoors.

(Note: Costs of publishing the magazine not covered by subscriptions are met primarily from the Fish and Game License Fund, administered in the Department of Environmental Protection by the Division of Fish, Game, and Shellfisheries, and from general revenues available to the Department of Environmental Protection.)

Second-class postage is paid at Trenton, N.J. and additional mailing offices. Subscriptions are $3.00 per year and three years for $8.00 payable by check or money order to New Jersey Outdoors Mailing Office, P.O. Box 1809, Trenton, N.J. 08625. Change of address should be reported to the above address. Send old and new addresses and the zip code numbers. The Post Office will not forward copies unless forwarding postage is provided by the subscriber. Allow six weeks for change of address to take effect. Unsolicited material is sent to the magazine at the risk of the sender. Permission granted to reprint with credit to New Jersey Outdoors. Publication office is Rm 702, Labor and Industry Building, John Fitch Way Plaza, Trenton, N.J. 08625.

January / February 1976
VOL. 3 NO. 1

New Jersey OUTDOORS

FEATURES

from the editor

OUR READERS TALK BACK

Our subscribers have spoken and this is what they say. Eighty-four percent of our readers believe New Jersey Outdoors is effective in its efforts to educate and inform the people of New Jersey about our environmental problems and the conservation of our natural resources. The same percentage find our outdoor recreational articles informative and entertaining. But six percent of our readers think not on both counts.

Ten percent of our readers did not answer this portion (Survey Question 12) of the Reader Survey which appeared in the July/August 1975 issue. But based on their answers to the other questions in the survey, we feel that over fifty percent of this group also believe that NJO is effective.

The survey showed that seventy-seven percent of each issue is read by almost three persons including the subscriber. This figure does not include classroom subscriptions which are read by the entire class.

Seventy-six percent of our readers are fishermen and/or hunters, and fifty percent enjoy other outdoor recreational activities such as hiking, birdwatching, boating, canoeing, and camping.

Students make up eleven percent of our readers, and this figure includes both high school and college students. Fifty-seven percent of our readers have attended college or have graduate degrees.

Asked what they read first, thirty-six percent checked Wildlife Management; seventeen percent checked the Editorial Page followed by Recreational Articles, Features, and Environmental Articles.

Word of mouth was the best circulation booster. Thirty-one percent subscribed to New Jersey Outdoors after being "sold" by another reader. The category "other" which includes school library, Fish Compendium, Game Compendium, other publications, accounted for forty-one percent of our subscribers.

As to how long our readers have been subscribing, the surprising figure is the twenty-four percent subscribing less than a year. The introduction of the new series of NJO in January 1974 is also reflected in the twenty percent figure for both 1-2 year readers and 2-5 year readers. Twenty-five percent have subscribed for over ten years.

And what are the ages of our readers? Forty-seven percent are between 30-50 years old; twenty-three percent are over 50; twenty percent are 20-29, and ten percent are under 20 years of age.

After spending the better part of a week (most productive periods were the quiet hours between 9 PM and 1 AM on my kitchen table) checking and analyzing the responses to our survey, I feel like I had a talk with our readers and now I know them better. The survey shows that despite age differences, occupational differences, and educational differences, most of our readers are concerned about New Jersey's natural resources and the recreational opportunities these resources provide.

And I'm especially grateful to the readers who responded to our survey. They have given us new ideas and information which will enable us to give them a better magazine.

One fine idea submitted suggested that we enroll volunteers to clean up litter on our state lands, to put up no litter signs, plant wildlife cover, map our wildlife management areas, and submit articles about their own recreational experiences on state lands.

One of the most persistent comments received in the survey was "Why don't we include maps and writeups of our Wildlife Management Areas in New Jersey Outdoors". Probably many readers are not aware that we have a "Guide to Wildlife Management Areas" available. This 112 page illustrated book contains writeups, directions, and maps of the 53 wildlife management areas in New Jersey. Turn to page 17 for ordering information.

Another comment made by many readers was "Why not include letters from readers in New Jersey Outdoors?" In the past we have included some readers letters in several issues, but not as a regular feature.

Another frequent comment was "Why not make New Jersey Outdoors a monthly?" The obvious answer here is money—magazine production costs would double. Another reason is lack of staff which is also related to money.

Several readers complained about the lateness of the magazine. The correction of this problem has top priority at this time. This will happen gradually by moving each issue out a week or so earlier.

As you can see, several of the reader comments have the same answer. To make a point, a number of our readers compared NJO favorably with the New York Conservationist and the South Carolina Wildlife magazines. And I'm flattered and grateful for such a comparison with two of the finest state magazines in the country. But you will note that both of these magazines are also published bi-monthly and both have staffs of about ten to twelve people. On the other hand New Jersey Outdoors, because of the severe money crunch, has a fulltime editorial staff of one—the undersigned.

Steve Perrone

new wolf for an old niche

BY ROBERT C. LUND
Bureau of Wildlife Management

JOE TAYLOR

Female adult caught in fox set after feasting on eight penned turkeys

Since the last gray wolf disappeared from New Jersey more than a century ago, the "niche" or ecological role vacated by this large carnivore has been empty. However, within the past few years, a "new" wolf has appeared. Smaller than the gray wolf, but larger than the coyote, this "new" wolf has firmly established itself in the Northeast and apparently he means to stay.

Where did it come from?

Known scientifically as *Canis latrans, var.* the Eastern coyote, our new wolf has been reported from the New England States since the early 1930's. Some believe its ancestors may have crossed the St. Lawrence River into New York State as early as 1912.

Extending its range eastward north of the Great Lakes, it was recorded in Ontario, Canada by 1935 and Quebec by 1944. Crossing the St. Lawrence into New York, it then spread south and east, and by 1950 was reported common in the Adirondacks. By 1958 it was reported from every New England State as well as New Jersey.

The first, of what the author considers a "wild-type"* specimen of the Eastern Coyote, was shot by a deer hunter in December, 1958 near Pinecliff Lake, Northwestern Passaic County. It was described as a 30-pound adult. Local residents reported at least two such animals from this area in the fall of 1958. Pinecliff Lake is located only 12 miles south of the New York border, so its occurrence here is not too surprising.

The earliest New Jersey coyote record I was able to

* As opposed to those released from captivity.

uncover was an animal reported killed by deer hunters near Fishing Creek, Cape May County on December 13, 1948. This animal was described by Dr. Frederick Ulmer of the Zoological Society of Philadelphia as a large male coyote weighing 36½ pounds. However, Dr. Ulmer believed that the animal had either escaped or was released from captivity. I must agree, since it was not until the late 1950's that coyotes were considered common in the northeastern states.

It is probably true that many coyote reports both here and in other states are the result of escaped or released western coyotes. For example, in August 1962 a coyote was killed by a vehicle on the Garden State Parkway near New Egypt in Ocean County. From its description, it was probably a released or escaped western coyote. Again in June, 1969 a 23½ pound adult female was shot by police in the town of Little Ferry, Bergen County. Because of physical characteristics and its location within the northeast megolopolis, this too is believed to have been a releasee or escapee.

On January 28, 1975, a large coyote was captured by two young trappers on the salt marshes near Erma, Cape May County. This animal, examined by the author, was a large male, weighing 38 pounds. It was in excellent physical condition and its stomach was full of muskrat remains. I believe this animal may also have been released or escaped due to its location, and the fact that both upper canine teeth had been broken sometime earlier, possibly during escape. However, whether escapee or wild-type, this animal was apparently doing quite well on its own, judging from its excellent physical condition and its ability to capture suitable quantities of wild prey.

SUMMARY OF COYOTE SPECIMENS FROM NEW JERSEY

Date	Location	Sex	Age	Weight (lbs)	Remarks
Dec 1948	Fishing Creek, Cape May County	Male	Adult	36.5	believed escaped or released from captivity
Dec 1958	Pinecliff Lake, Passaic County	Unk	Adult	30.0	seen in company of a second animal
Aug 1962	Forked River Mt., Ocean County	Unk	Adult	Unk	hit by car, believed escaped or released from captivity
May 1967	Hainesburg, Warren County	Fem	Adult	42.0	caught in fox set killing turkeys
Jun 1969	Little Ferry, Bergen County	Fem	Adult	23.5	believed escaped or released from captivity —Western Coyote
Apr 1971	Hainesburg, Warren County	Fem	Adult	35.0	porcupine quillss in mussel
Feb 1972	Hainesburg, Warren County	Male	Adult	Unk	dark color phase
Nov 1973	Hopewell, Mercer	Fem	Adult	Unk	oldest animal examined
Dec 1973	Hope, Warren	Fem	Adult	Unk	red color phase
Oct 1974	Hainesburg, Warren County	Fem	Adult	34.5	red color phase; had nursed pups in spring of 1974
Jan 1975	Erma, Cape May	Male	Adult	38.0	stomach full of muskrat
Mar 1975	Sussex, Sussex	Male	Adult	58.0	largest reported to date
Mar 1975	Lafayette, Sussex	Fem	Adult	35.0	hit by car

TABLE 1.

BOB MCDOWELL

Compare sizes of pelts (bottom to top) timber wolf, Eastern coyote, and grey fox


LEONARD LEE RUE III

Joe Taylor with New Jersey coyote

Of the 13 confirmed coyote specimens reported from New Jersey between 1948 and 1975, four are probably the result of intentional or unintentional release of "pet" coyotes. The remaining nine specimens are considered by the author to be wild Eastern Coyotes. Analysis of skull characteristics appear to confirm this.

It was not until 1967, that a second wild-type specimen was reported from New Jersey. On May 15 a 42-pound adult female was captured in a fox set near Hainesburg in northwestern Warren County after dining on eight penned turkeys. The mounted skin is now on display at the Space Wild Animal Farm in Beemerville. This was the first of five coyotes to be reported from northwestern Warren County, the most recent in October 1974. Several sightings by reliable observers have also been recorded from this area, the most recent in May 1975. Mr. Alex Monid of Wayne observed what he described as a light brown, bushy animal about the size of a shepard dog running across a field near Columbia. Other sightings from this area have also been recorded.

Since 1967, nine additional specimens have been brought to our attention. Seven appear to be Eastern Coyotes, and two possibly Western Coyote escapees.

The Eastern Coyote is still a rarity in the Garden State, as evidenced by the few specimens recorded. However, 10 of the existing 13 records have been reported in the last 10 years and eight within the last five. Despite its rarity and the confusion resulting from the escape or release of captive coyotes, it now appears that the Eastern Coyote has not only taken up residence in New Jersey but has bred and successfully reared young here.

On October 20, 1974 an adult female was reported from the Hainesburg area which showed signs that she had recently nursed young. This was later collaborated by the observation of three almost full grown pups in the same area by several observers.

Coyotes have now been reported from the counties of Passaic, Ocean, Bergen, Mercer, Cape May, and most commonly Warren and Sussex (which account for 7 of the 13 existing records). It is currently believed, that the Eastern Coyote crossed into New Jersey from New York following the natural dispersal path created by the Kittatinny Ridge, which extends approximately 30 miles from Port Jervis, NY to the Delaware Water Gap. This is not a great distance for a dispersing canid to cover. Dr. Robert Chambers of Syracuse University has records of coyotes traveling 120 miles in eight months. In the midwest, a male red fox equipped with a radio signal transmitting collar, traveled 250 miles in 48 hours!

What is he and what does he look like?

So New Jersey has a new predator, but just who and what is he? This is a question that researchers in the northeast have been trying to answer for several years. It was first thought that this "new wolf" was the result of a coyote-dog cross, the so called coy-dog. However, most workers now feel that he is mostly coyote with some wolf genes possibly introduced during its extension into Canada.

The size and behavior of the Eastern Coyote supports its claim to wolf ancestory. It is much larger and more massive than its western counterpart, which it terrorizes in captivity. At six weeks a pup can carry a cow's thigh bone in its mouth, that a western coyote couldn't lift and coy-dogs could not get their mouth around. Adult eastern males averaged 45 pounds in New York, 10 pounds heavier than the average western coyote.

The Eastern Coyote is more social, often reported in groups of from three to five, probably family groups. In 1970 a group of five was observed near Hope, Warren County. Unlike dogs or coy-dogs, the male Eastern Coyote helps take care of the pups, a wolf characteristic.

The most comprehensive study of Eastern Coyote behavior was done by biologists Walter and Hellenette Silver of the New Hampshire Fish and Game Department. They observed the "critter" in captivity over a period of several years. They noted that hybirds (coyote X dog) curled their tails which the Eastern Coyote never did, and no wild canid pup ever learned to bark. They also have only one breeding period per year, in February.

Its howl is also more wolf-like than coyote, being described as a long, clear howl rising gradually in pitch and volume then descending slowly.

However, though he howls like a wolf he eats like a coyote. Small mammals form the major portion of the diet, with snowshoe hare reported to be a staple in the Adirondacks. In New York the coyote population showed an increase as the hare population increased. He is not a fussy eater, however, and takes carrion when he can get it. In fact, both New York and Vermont report that part of the success of the coyote to establish itself and increase in their states was due to the availability of winter killed deer.

Though primarily a meat eater, at some times of the year its diet is almost totally composed of vegetable matter such as corn, apples, and beech nuts. In short, he is an opportunist who will eat what is available, be it grouse or grasshopper.

In June, 1975 the New Jersey Fish and Game Council placed the coyote on the protected list together with the wild turkey, bobcat, otter and black bear. To my knowledge, New Jersey is the first state to protect the coyote. This protection together with its demonstrated tenacity and adaptabilility should insure the survival and perpetuation of our "new wolf".

Obviously, the list of 13 specimens is hardly complete. We request anyone having information about coyotes in New Jersey to contact the Division's Clinton office by mail or telephone. We would be most interested in examining any available photographs, mounts, skins or skulls. Sightings of living animals should also be reported to: Clinton Wildlife Management Area, RD Hampton, New Jersey 08827, 201-735-8793.

LEONARD LEE RUE IV

Coyote hunting

Acknowledgement

The author wishes to express his thanks to Joseph Taylor, former wildlife control representative with the New Jersey Division of Fish, Game and Shellfisheries, for providing information and an opportunity to examine skulls, skins and photographs in his possession. Without his help, little would be known of the coyote in New Jersey.

I would also like to thank Leonard Lee Rue III, James Doolittle, Buddy Habruner, Joel Dilworth, Alex Monid, Dr. Frederick Ulmer, Nick Sierchio, and Division Conservation Officers Harold Chitwood and Carlton Smith for information and the opportunity to examine specimens. □

PHOTOS BY AUTHOR

SKYLAND SILHOUETTES

By Julia Ann Whelan

Tucked just south of Passaic County's New York border is the magnificent Ringwood State Park. History and nature have mingled here to present a panorama of manicured estates amidst twelve-hundred acres of upland forest. The park is a warm-month favorite of hikers, naturalists and summer theatre participants. Japanese Green Mountain pheasant and other ample game await the hunter who simultaneously enjoys the Park's wide variety of autumn hues. A different pace is observed in the winter however, with an occasional visitor seen wandering through the silent, leaf-less grounds. But for myself and others, the cold season at Ringwood is equally vibrant and filled with the energy and growth that accompanies anticipant beauty.

The Skyland section of the Park is an all-year haven for plant lovers, botanist and landscape designers. Winter months are abundant with the

Highbush Cranberry, loaded with Vitamin C, are as attractive to guests as they are to birds.

A Skyland Silhouette—The Golden Willow

activities and excitement belonging to an expectant spring. Horticulturalist Hans Bussink contends that there is always something blooming at Skyland. Preparations on the annual gardens have begun and plans for a two-acre rhododendron plot have been drawn.

The three hundred acre Botanical Garden profiles a majestic, yet graceful fragility against winter-toned colors. Giant yews and dwarf hemlocks are among the many unusual plants that have been styled to provoke interest and fascination. A stroll through the grounds could easily be (pleasantly) interrupted by a browsing deer (lion scent keeps them out of the azaleas) or a surprised grouse. Terraced patios and magnolia-lined walks invite close inspection of the meticulously groomed and relatively chemical-free care for the shrubs. A silent grove of wildflowers beneath tall sycamores and oaks provides a soothing contrast.

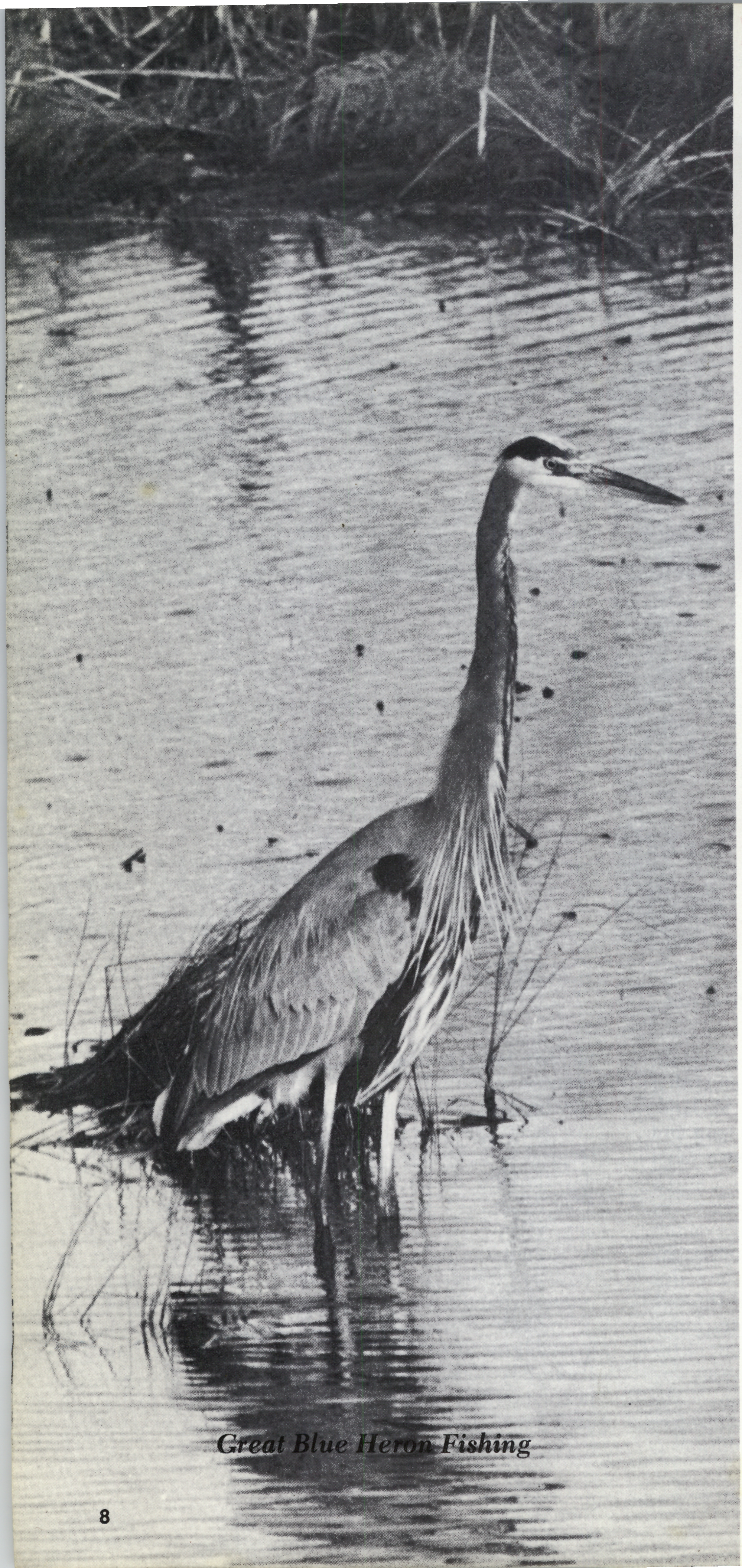
A trip to Skyland can be a delightful winter adventure for people with all types of interests. The annual, tropical and cuttings greenhouses remain open Monday through Friday and are a pleasure to explore. This Botanical Garden is one of the most spectacular and well-stocked of its type in the East and a visit to witness the preparations for Spring is both informative and beautiful. If tree and plant identification interest you, the winter challenge couldn't be greater. A specially prepared botanical guide will be made available to those who write to the Ringwood State Park, Box 1304, Ringwood, New Jersey. Fun and fascination are guaranteed when you share in the excitement that nature is planning. So visit Skyland in Ringwood Park this winter. □

Robin and young

Birding Bonanza at Assunpink

By Sharon Ann Brady and Wade Wander

Ever hear of a grasshopper sparrow? An orchard oriole? How about a pectoral sandpiper? Unfortunately, too many of the hunters who use the Assunpink Fish and Wildlife Management Area haven't heard of these birds—and too few of the birders who *do* know them haven't heard of Assunpink! Located in western Monmouth County, the 3900-acre Assunpink tract has proved to be such a magnet for central Jersey area hunters that it was one of the first public areas selected by the New Jersey Division of Fish, Game and Shellfisheries for controlled-access hunting. During the 10 long months between hunting seasons however, virtually no one aside from a few fishermen and foxhunters visits Assun-



Great Blue Heron Fishing

Canada Goose and young

Chipping Sparrow

PHOTOS BY LEONARD LEE RUE III

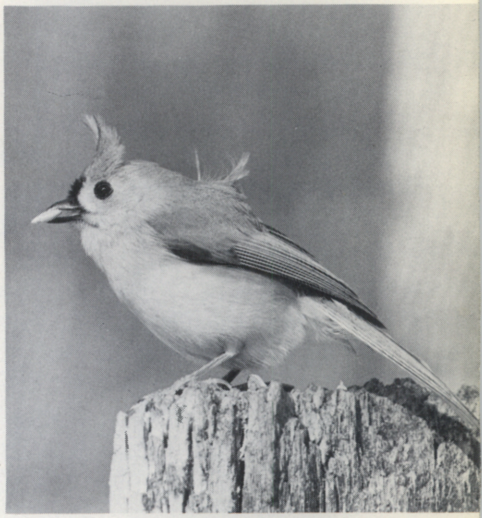
pink to enjoy its abundant wildlife resources.

Even as active birders familiar with birding habitats generally unknown to the public, we didn't suspect even the existence of Assunpink, much less its astounding birdlife. Then luckily we learned of the area in March 1974, when we became involved in a Cook College project investigating possible improvement of bank swallow habitat. Assunpink soon gave us all the swallows we could hope for (all six eastern species, including the fairly rare cliff swallow) and we soon found, much to our delight, an amazing variety of other species competing for our attention. Visiting twice a week, within a few short months we had seen well over 100 species on the area, and realized we had discovered a birding bonanza.

But why the good fortune, we asked ourselves? There could be but 4 reasons: (1) It was the year of the bird; (2) we were just plain lucky; (3) we were delirious with swallow fever; or (4) there was really something special about the place. We decided that it was a combination of reasons 2 and 4, in that we were just plain lucky to have something special growing right under our noses—Lake Assunpink.

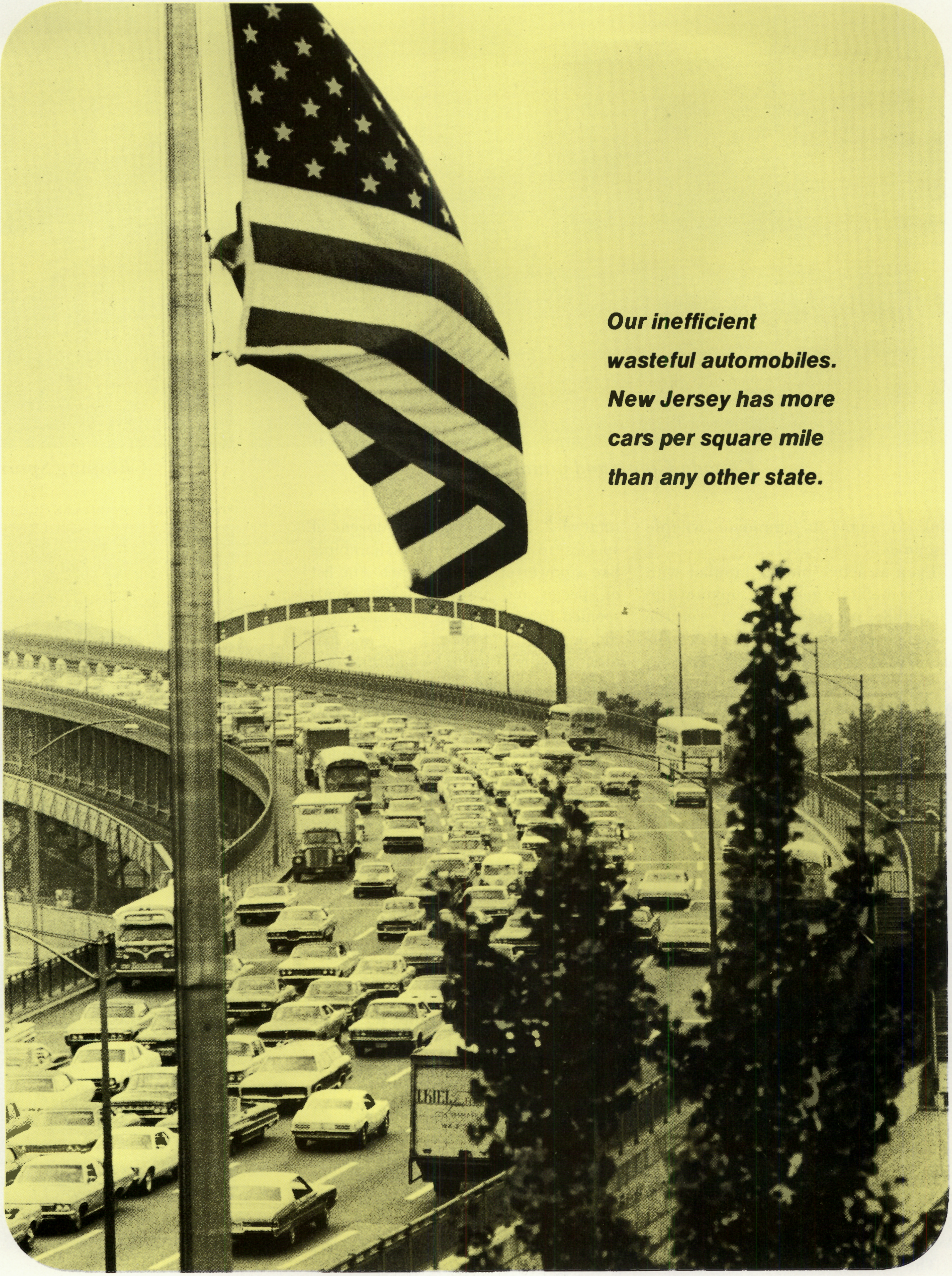
The lake, gradually filling in to a total of 235 acres, attracted dozens of species of waterfowl and shorebirds like a powerful liquid magnet. The list of species and number of individuals seemed to grow as the very lake itself did, leaving us in the pleasant predicament of which bird to look at first! Our early observations were of a few humble mallards and black ducks, great blue herons, and of course the swirling masses of swallows. But as the summer advanced we watched the mallard and black duck populations rise to an impressive 250 and 120, respectively, and then began recording some more noteworthy migrants—pied-billed and horned grebes, gadwall, american wigeon, green-winged and blue-winged teal, wood duck, greater and lesser scaup, ring-necked duck, bufflehead, common goldeneye, ruddy duck, and more than 500 Canada geese. A real surprise was the appearance of five oldsquaw on October 3. These ducks, though common at sea during winter, are rarely observed inland, especially at such an early date. In general, the lake was proving unusually attractive to many species normally associated with the seashore. Terns were a real highlight—we saw gull-billed, black, and common, all very unusual for an inland locality but the gull-billed a true rarity—the first in-

(*Continued on page 32*)



Tufted Titmouse

Black Duck

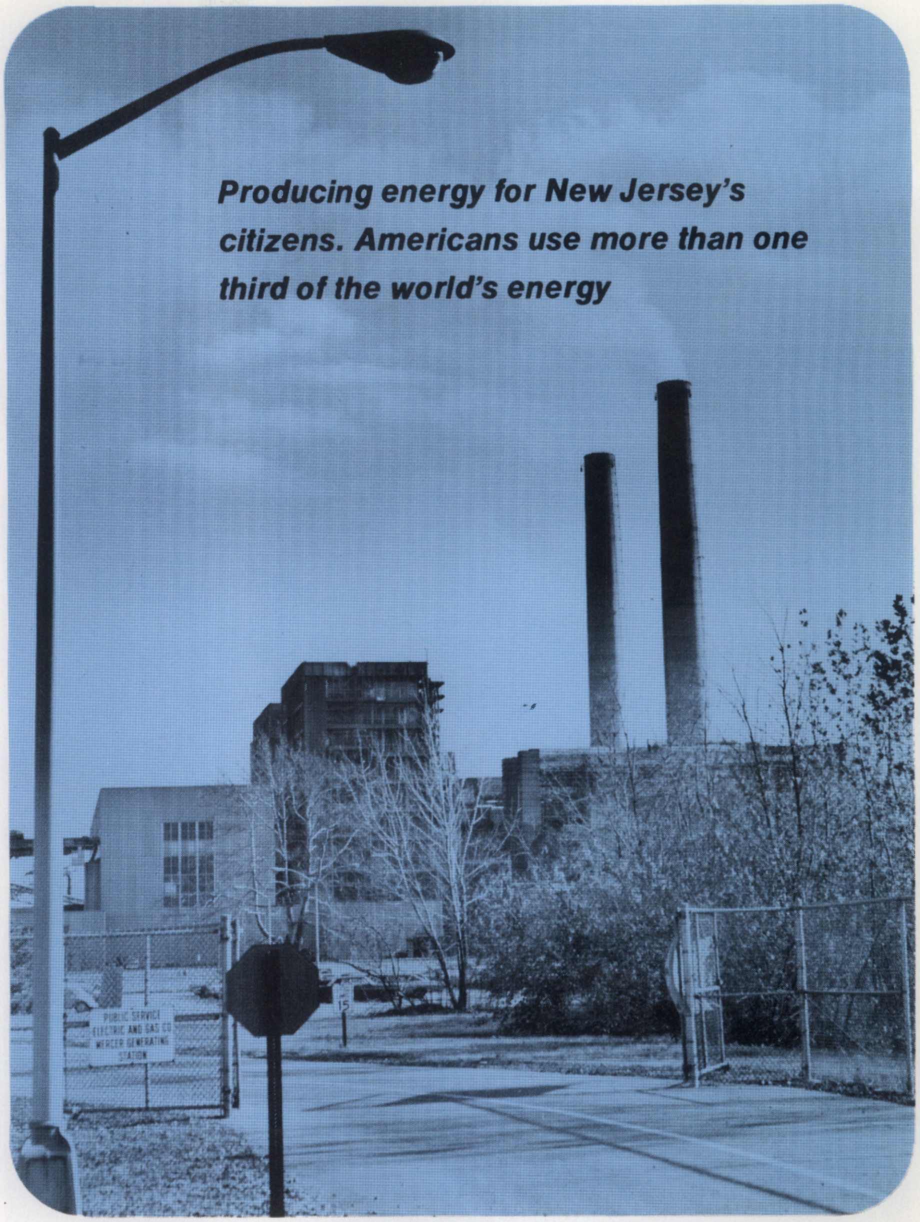


Our inefficient wasteful automobiles. New Jersey has more cars per square mile than any other state.

how much energy do we have left?

BY HERSCHEL H. HUTSINPILLER
Statistical data:
Oak Ridge
Associated Universities

PHOTOS BY JOE KLEIM



Producing energy for New Jersey's citizens. Americans use more than one third of the world's energy

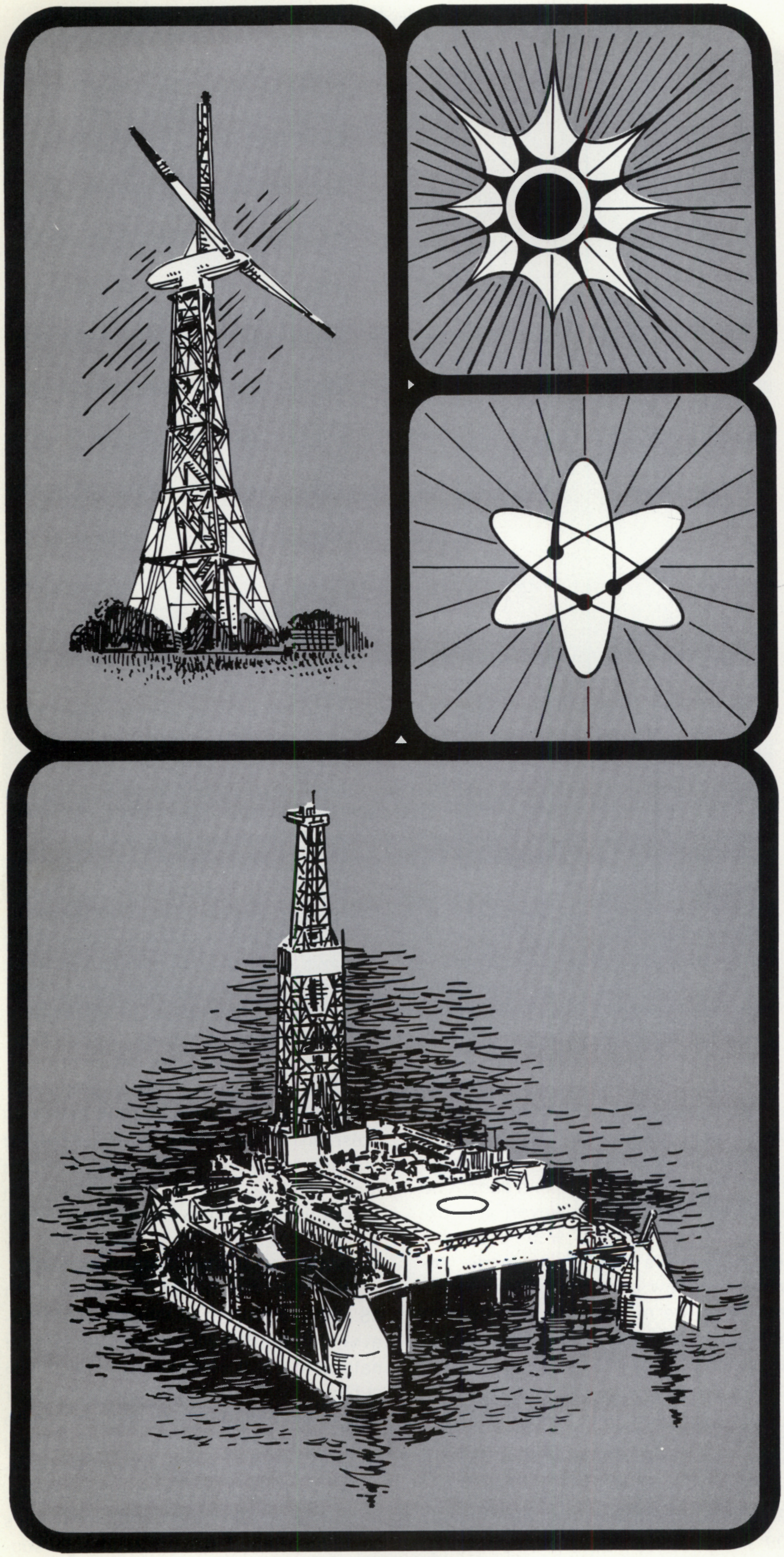
Not Much! That's because you (and I) are running full throttle with every source of energy, as though it was going out of style. Let's face it, there is only so much energy as we know it. When it goes, it's gone. It will be out of style and existence sooner than we think if we persist in our hoggish ways.

The picture is grim, but we can't just dress it up with half truths and make it pretty. The wisest course is for each of us to put forth some effort to better understand the problem, and then face up to the necessity for reducing our individual squandering of our remaining reserves. Since we all are in the same boat, or on the same planet adrift in space, we must pull together. This is not a case where we can sit back and "let Joe do it."

The first question is, "How much energy do we have left?" This cannot be answered precisely. However, the experts have come up with estimates which give us a kind of "ballpark" answer. Until new energy sources can be developed, we must make do with what we have. That is mainly coal, oil, natural gas, and hydroelectric and nuclear power.

Coal is our most plentiful energy source. If we continue our present rate of use and maintain our present rate of growth, our reserves of approximately 390 billion tons should last approximately 500 years. This may sound reassuring, but it must be remembered that coal presently satisfies only 18 percent of our total energy needs. We do have more coal, a total of about 3.2 trillion tons, but only approximately 12 percent can be recovered economically by presently known methods.

Oil and natural gas satisfy more than 75 percent of our energy needs. However, we are rapidly running out of natural gas. We use about 18 trillion cubic feet a year. We could deplete our native reserves of this precious resource within the next 25 years. The Federal government is attempting to ameliorate this situation by encouraging exploration for new reserves. Some utilities have contracted to import foreign sup-



plies. But, we still are using our natural gas at a faster rate than we are discovering new reserves.

The oil picture is not quite so clear. There is a greater spread between the estimates, and we have no real handle on what we can expect from intensified exploration. However, it appears that our reserves of economically recoverable petroleum would last from 10 or 12 to approximatey 75 years at present rates of consumption if we used only our own oil. It is easy to see why we are caught in the bind of importing foreign oil.

Hydroelectric power furnishes about four percent of our electricity, and this proportion is expected to remain stable for the next 25 years. By that time, all suitable river sites will have been dammed. Thus, even the amount of hydroelectric power available to us now is finite.

Nuclear energy, which now supplies about one percent of our total energy needs, holds the greatest promise. However, the leakage of low level radioactivity can be a hazard, and large quantities of radioactive wastes must be stored with tender loving care for thousands of years. Don't panic! There is no chance of a nuclear power plant exploding like a bomb. The large quantities of water which are heated during the operation will be a problem until we also put this energy to work.

Our dependence on nuclear energy should increase greatly during the next 25 years. We know that we have enough uranium-235 to last some 40 years at projected rates of consumption, and we expect to discover more. Breeder reactors, which produce more fuel than they consume, should be available within 10 years, and we have enough uranium-238 to feed them for about a thousand years.

So our supplies of energy are doing a fade out, but are we getting the most out of what we do use? NO WAY! On this score our report card is unspeakably bad. For example, we use only half the energy contained in fossil fuels. We could get much more mileage out of our remaining energy reserves if we would improve our performance.

Our automobiles are incredibly wasteful. Ninety-four percent of the energy in a barrel of oil is lost between the well and its passage through an automobile engine. When coal is employed in the production of light, we lose 90 percent of the energy contained in each ton in the ground.

Depletion of our energy reserves is not the only negative effect resulting from our greedy use of energy. We are raising havoc with our environment in the process. Even a hydroelectric plant causes environmental damage by flooding thousands of acres.

People and people-associated activities use energy, and the use of energy causes pollution. New Jersey wins a gold star on this one. We have more people per square mile than any state in the nation. Every day, each American uses the energy from 13.6 pounds of coal, 3.3 gallons of oil, 297 cubic feet of natural gas, 3.7 kilowatt hours of hydroelectric power and 0.7 kilowatt hours of nuclear power. Translated into terms of a population package equivalent to New Jersey's 7,500,000 this means the daily consumption of 51,000 tons of coal, 24,750,000 gallons of oil, 2,227,500,000 cubic feet of natural gas, 27,750,000 kilowatt hours of hydroelectric power and 5,250,000 kilowatt hours of nuclear power.

A few examples will serve to underscore the environmental damage we are incurring. Our automobiles form the greatest source category of air pollution in the United States. And New Jersey is blessed with more cars per square mile than any other state. Also associated with the automobile is water pollution from oil spills and refinery discharges and land disruption from pipelines and oil wells.

Without emission controls, a 1,000 megawatt coal-fired generating plant would pour 350,000 tons of pollutants into the atmosphere each year. Current control technology can reduce this to 50,000 tons per year, but at the same time large quantities of solid wastes are generated. A 1,000-megawatt nuclear plant emits small amounts of radioactivity, but produces approximately 100 cubic feet of radioactive waste annually, which must be carefully stored for thousands of years.

Scientists are working frantically to develop alternative sources of energy before we deplete our existing reserves of conventional energy. Although progress is being made, practicable alternatives have not yet been perfected to the extent required to afford any significant relief to the sources on which we now rely. A quick review of some of these alternatives, however, may shed

(*continued on page 30*)

TEST YOURSELF

If you think you're smart about energy, here's an opportunity to confirm it. Pick your answer to each of the following questions; then turn to page 17 for the answers, and grade yourself.

1. How much of the energy used in kitchen gas stoves supplies the pilot lights in average use?
   a. 10%
   b. 25%
   c. 50%
2. If an incandescent lamp and a fluorescent lamp have the same light output, which uses energy more efficiently?
   a. Fluorescent
   b. Incandescent
   c. Both about the same
3. How many average cans can be manufactured from recycled aluminum cans with the same amount of energy needed to make a single can from aluminum ore?
   a. Three
   b. Five
   c. Twenty
4. How long would a 100-watt light bulb burn on the energy required to manufacture one throw-away can or bottle?
   a. 10 minutes
   b. 5 hours
   c. 20 hours
5. How much of the energy in crude petroleum is lost between the oil well and the moving of a car from one place to another?
   a. 20%
   b. 60%
   c. 90%
6. How many man-days of labor equal the heat energy of a gallon of gasoline?
   a. 5
   b. 15
   c. 25
7. How many times their rate of formation are we consuming our fossil fuel (oil, coal, natural gas)?
   a. 10
   b. 1,000
   c. 1,000,000
8. Of all the energy consumed in the world, what percentage does the United States use?
   a. More than 10%
   b. More than 20%
   c. More than 30%
9. Which of the following fuels is in greatest danger of becoming an extinct species?
   a. Coal
   b. Petroleum
   c. Natural gas
10. Twenty-five years from now, total American energy demand will be:
    a. The same as today
    b. Twice as much as today
    c. Three times as much as today

(*continued on page 17*)

COLOR PHOTOS BY PATRICK BOFFO

EAST POINT LIGHT

the lone survivor

BY JEAN C. JONES

East Point Light, the lone survivor of the early lighthouses on the Delaware Bay, has had a tumultuous history. A beacon for the maritime industries of the area in the past, its cupola still serves as a marker for fishermen looking for the mouth of the Maurice River and as a survey marker for the oyster beds of the Delaware Bay, even though its light was extinguished in the 1940's.

Man has always been attracted to the area. Aboriginal man camped on the many cedar hummocks in the marsh during his annual trek to the bayshore to harvest fish and shellfish, leaving behind tools of stone and bone as evidence of his visits. Modern man leaves, as his contribution, empty bottles and cans, discarded bait, foam cups and sandwich wrappers.

The land, originally a part of John Fenwick's colony, changed hands many times before coming into possession of Joshua Brick, founder of Bricksboro, who, with his wife, Eliza, conveyed a five acre tract to the United States of America in April, 1849. The price was 250 dollars.

The lighthouse, a brick house with a cupola on the roof, was constructed by N. & S. Middleton, lighthouse builders, of Philadelphia. The original estimated cost was 3,465 dollars but the decision to add a second story brought the price to 4,565 dollars. It was commissioned in 1852 and, after more than 125 years, gives mute testimony to the integrity and skill of its builders. Time and weather have had little effect; only the hand of man has left its mark.

In its early years, the light was under the jurisdiction of the U.S. Lighthouse Service, a branch of the Treasury Department. In the 1940's, it was turned over to the U.S. Coast Guard, and later during the same decade, was decommissioned and abandoned. In 1956, it was deeded to the State of New Jersey, to be used by the Division of Fish, Game and Shellfisheries as a conservation area. By this time, the five acre tract had shrunk to a little over three acres, due to the eroding action of the bay.

The building also fell upon hard times. Its windows were broken and a wooden kitchen addition, large sunporch and a front stoop were all salvaged by local residents for the lumber. Any remaining scraps of wood were burned by cold-weather fishermen and picnickers. The outhouse, elegant for its time, had its plaster walls smashed, hinged lids torn off and louvered door broken in. Although the state boarded the main building and installed metal doors, with padlocks, it was continuously broken into and further vandalism inflicted.

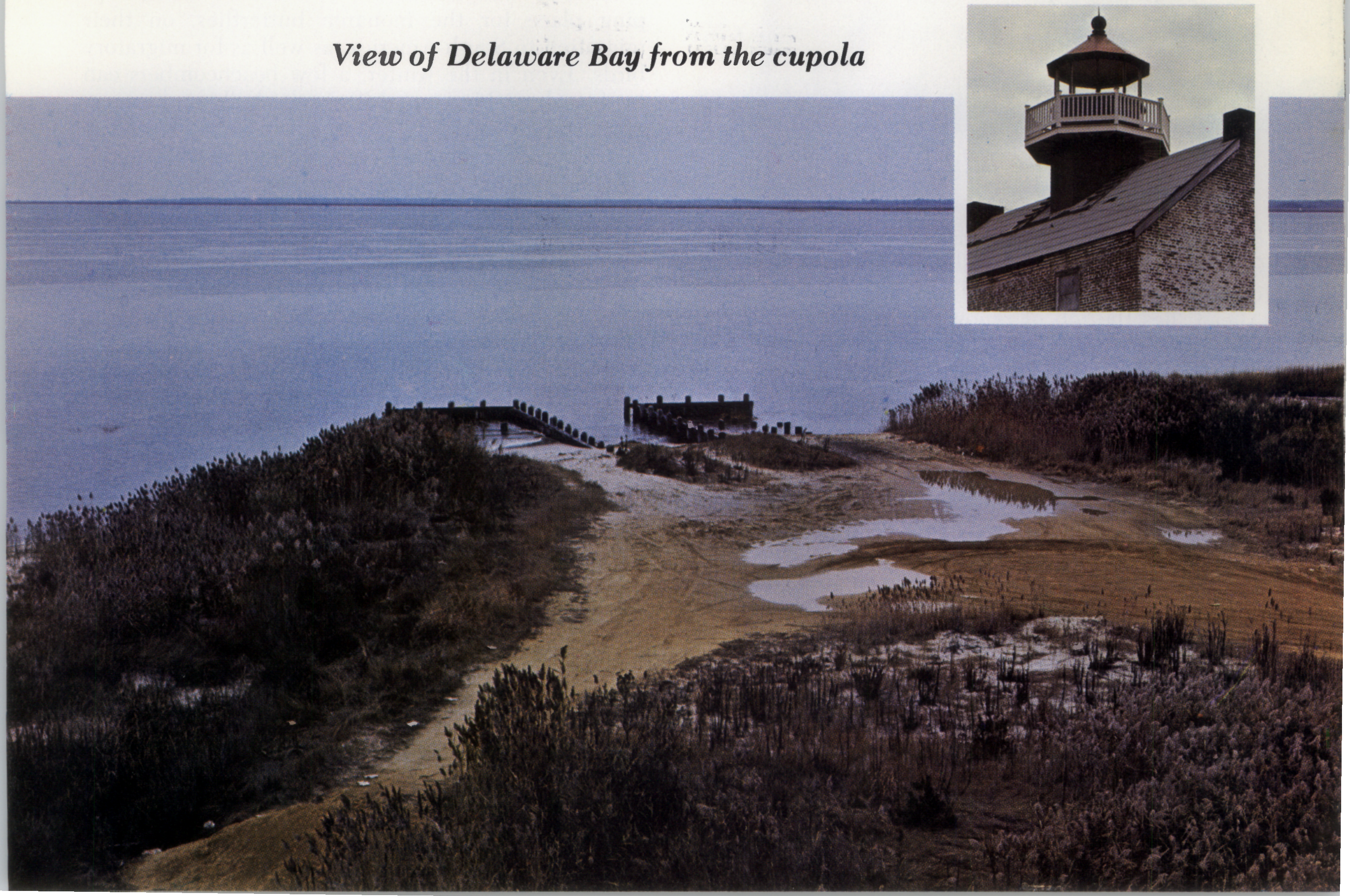
In 1971, an effort was begun by the newly formed Maurice River Historical Society to acquire use of the building and renovate it. In July of that year, before any agreement could be reached, the entire top portion of the building was destroyed by fire, started by a cigarette carelessly discarded by a trespasser.

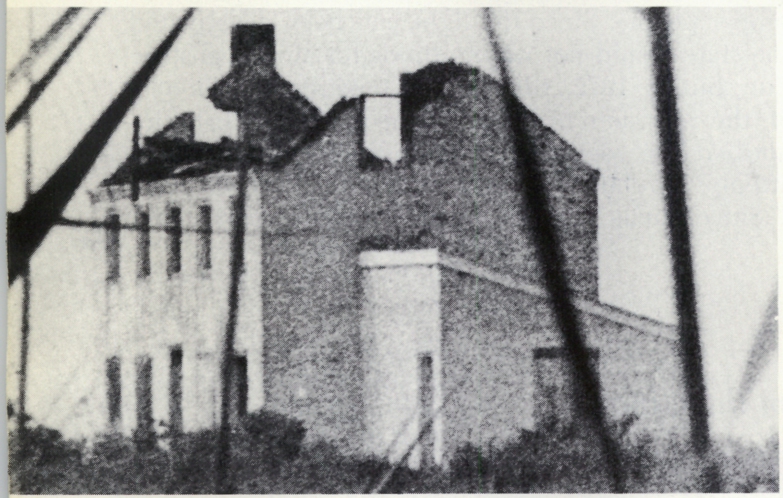
Tropical storm Agnes later blew down one unsupported gable and chimney, which crashed through the roof and floor of a one-story brick addition, leaving a cellar full of rubble and causing extensive damage to a section untouched by the fire.

Bleak as the situation looked, the Society decided to continue its efforts. One asset was the fact that the Society's president, John DuBois, and one trustee, L. Albertson Huber, were employees of DEP, and they were able to present the Society's case to the proper people. Since the light had been deactivated, the state would not use its funds for any reconstruction, but in 1972, Russell A. Cookingham, Director of the Division of Fish, Game and Shellfisheries, notified the society that if it still wished, it could attempt to rebuild the light.

Since then, without outside help or any major

View of Delaware Bay from the cupola





After the July 1971 fire

East Point Light in the 1920's

contributions, the Society has raised, and spent, over 9,000 dollars in rebuilding all the portions of the light destroyed by the fire and tropical storm Agnes. Ahead, lies the job of renovating the interior. Rain and snow that fell, while the light stood topless and exposed to the weather, ruined plaster, curled floor boards and caused paint to crack and peel.

The social amenities are also lacking. There are no bathrooms, electricity, well or pump, or heating system. The outhouse, even if usable, is now illegal, and the main power source was always kerosene. The beacon was operated by kerosene for some time, but was later changed to carbide gas and, yet later, propane. The artesian well which once provided a good water supply was ruined by a storm, leaving the lighthouse with only a huge cedar rain barrel as a water source.

Despite these obstacles, the Society is hoping to have at least one room of the light open to the public by the summer of 1976. An open house in June, 1975, brought out over 600 people; another in September drew over 1000. There is no lack of interest in the project.

The area is popular for a number of reasons. In the summer, a small, white sand beach offers swimming, fishing and a place to picnic. Shore birds and small animals abound, and in the fall, East Point is a stopping place for the monarch butterflies, on their migration to South America, as well as for migratory birds. Even in the winter, a few beachcombers can be found, picking up driftwood, shells and water-polished pebbles.

At any time of year, the view from the reconstructed cupola is magnificent. In fair weather, Cape May Point, 18 miles across the bay, is visible. Although the panorama of the oyster fleet, under sail, is gone, the vast salt marshes endure. Spotted with cedar hummocks, on which sassafras, persimmon, bayberry, and other scrubby growth thrive, they are interlaced with small creeks and ditches harboring crabs, small fish and the everpresent wading birds. The whole area, but especially the light, is beloved by artists and photographers.

Hopefully, if the Maurice River Historical Society continues on its present course, the lighthouse will one day house a museum with exhibits relating to wildlife and the maritime industries. A new beacon may be installed, and the exterior will have its porches, shutters and other accouterments restored. Instead of standing abandoned, vandalized and burned, it will endure proudly, a credit to the community and to those who cared enough to save it.

Membership in the Maurice River Historical Society is open to all. Mailing address is P.O. Box 161, Mauricetown, N.J. 08329. □

Environmental News

PHOTOS BY JOE KLEIM

BICENTENNIAL PROJECT. Plans to complete restoration of the historic Clarke House (below) on Princeton Battlefield grounds in time for the Bicentennial moved ahead in October when the state let contracts for various phases of the project. The contracts, which totaled $153,325, were awarded to area companies for general construction work, plumbing, heating, ventilating, air conditioning, and electrical work. While construction work is being completed, the Princeton Battlefield Area Preservation Society, a private organization functioning in cooperation with DEP's Historic Sites section, is obtaining furnishings for the interior of the house.

CLARKE HOUSE. General George Washington personally led the Revolutionary troops to victory over General Charles Cornwallis' British troops here on January 3, 1777 just 10 days after the defeat of the Hessians in Trenton on December 26, 1776 and one day after winning the second battle of Trenton on January 2, 1777. Clarke House is located along Mercer and Quaker Roads in Princeton Township (Mercer County). American General Hugh Mercer, mortally wounded by bayonet in the battle, died in this house. The photo above was taken from Mercer Road. Interestingly, this is not the front of the house even though it is what the visitor sees as he views the battlefield area from the road. The true entrance is on the opposite side where the original road from Trenton to Princeton passed. These publicly owned historic sites are administered by DEP.

Accelerated permit program

DEP IMPLEMENTS 90-DAY LAW

A self-sustaining program to speed the processing and review of construction permit applications began on December 22, 1975. On that day both the "90-day law"—Chapter 232, P.L. 1975—and the rules and regulations adopted by DEP to implement it became effective.

The measure, signed by Governor Brendan Byrne on October 23, applies to five categories of construction permits: stream encroachments, sewerage system hookups, riparian, wetlands and coastal area permits.

The new law requires DEP to take timely action on construction permit applications and to charge fees offsetting the cost of permit handling. The accelerated program will pay for itself: Developers' filing fees will be deposited in the State Environmental Services Fund. The state will draw on the fund to pay the costs of the program. The rules apply to applications filed on or after December 22. □

COASTAL ZONE MANAGEMENT OFFICE ESTABLISHED

A new Office of Coastal Zone Management was established in the Division of Marine Services on December 5. The change merges two separate aspects of the present coastal zone program—land use permit regulation and long-range planning.

Dr. David N. Kinsey, who has been in charge of the DEP coastal zone planning program since June 1975, was named chief of the combined program.

The new office will administer the permit program under the Coastal Area Facility Review Act (CAFRA) of 1973 and prepare the coastal management strategy mandated by the law. The office will also carry out the state's responsibilities under the federal Coastal Zone Management Act of 1972.

The consolidation of the regulating and planning functions into one office should help DEP fulfill the intent of the new "90-day law" by expediting decisions concerning New Jersey's valuable coastal region. □

TYLUTKI IS DIRECTOR OF NEW SOLID WASTE ADMINISTRATION

Beatrice S. Tylutki of Trenton is director of the new Solid Waste Administration, which has been established as a unit independent of all existing DEP divisions. Ms. Tylutki's responsibilities include landfills, facilities for recovering resources from solid waste, programs to recycle materials so as to prevent their entering the stream of solid waste, programs to deal safely with chemical and hazardous wastes, and guidance on legislation.

Ms. Tylutki, who joined DEP in October, came to the department from the New Jersey Lottery Commission where she had served as deputy director since 1974. A lawyer, Ms. Tylutki entered state government in 1961 as law clerk to Attorney General David Firman. In 1962 she became assistant counsel to Governor Richard J. Hughes and until 1969 concurrently served as a deputy attorney general. After a year in private practice, Ms. Tylutki returned to public service as chief of the New Jersey Administrative Office of the Courts (1972-1974).

Ms. Tylutki received her bachelor's degree from Temple University and her law degree from Georgetown Law School. □

FOR SOLID WASTE PROGRAMS: $75,000 FEDERAL GRANT TO DEP

The department recently received a $75,000 grant from the U.S. Environmental Protection Agency (EPA) for solid waste management planning. The funds will be used to staff and plan programs for hazardous waste management and resource recovery. The programs were established in 1974 under a similar grant from EPA. Proposed rules and regulations for the disposal of hazardous wastes in landfills are being developed by DEP. □

Local program:

URBAN AND SUBURBAN PROJECTS GET GREEN ACRES APPROVAL

Two recent Green Acres project approvals are good examples of the purpose and design of the local assistance program. One involves refurbishing and development of city playgrounds, the other involves the purchase of a suburban golf course.

The City of Trenton (Mercer County) in mid-November received approval of its $245,000 development application to refurbish and develop two urban recreation areas: Cooper Field and Chestnut Avenue Playground, both located in South Trenton. Cooper Field, at the juncture of Union Street with Route 29, will serve the adjacent James Kerney Homes public housing project. The Chestnut Avenue playground is located in a heavily populated, built-up area. Both playgrounds are easily accessible to users by foot or bicycle. Both will have a sitting area for senior citizens built as part of the improvements. The city will contribute a matching dollar amount to meet the total project cost of $500,000.

The Monmouth County Board of Chosen Freeholders received approval of its $1.3 million grant application to help the county purchase the 179.8-acre Hominy Hill Golf Course in Colts Neck Township for use as a public recreation facility. The site is on Mercer Road, south of County Route 537. The course is ready for conversion from a private facility to one for immediate public use. The county will match the state funds to meet the total cost of $2.6 million. □

CERTIFYING $600 MILLION IN SEWER PROJECTS 12-MONTH GOAL OF DEP

State approval of a sewer plant construction application is required before the federal government will consider awarding funds for the project. Once the application is certified by the department it is forwarded to the U.S. Environmental Protection Agency (EPA) for final action. The federal grant covers 75 percent of a project's cost.

DEP has embarked upon a 12-month program to certify $600 million in sewerage facility construction. Experience has shown that construction readiness has been the key to local success in getting project approval.

The first project certified since the goal was announced in late fall is a $25 million expansion of the wastewater treatment plant in Neptune Township, Monmouth County. The project will regionalize and upgrade sewer facilities for 41,000 persons in five shore communities served by the township sewerage authority: Avon, Bradley Beach, Neptune City, Ocean Grove, as well as Neptune Township.

The Neptune project is expected to create nearly 1,350 construction jobs and generate other supporting jobs, according to estimates of the state Department of Labor and Industry. □

First Deputy Commissioner

ROCCO D. RICCI PROMOTED

Rocco D. Ricci, 44, of East Brunswick, was recently promoted to the post of first deputy commissioner of the Department of Environmental Protection. Ricci joined DEP in June 1974 as assistant commissioner, and also as acting director of DEP's Division of Water Resources. He will continue temporarily in the latter capacity. □

DEP HAS ROLE IN CONSTRUCTION SITE EROSION/SEDIMENT CONTROL

The "Soil Erosion and Sediment Control Act," signed by Governor Byrne on November 12, 1975, sets statewide standards for controlling erosion at construction sites. The new law, Chapter 251, P.L. 1975, extends and strengthens existing guidelines (already in use in the state's agricultural areas and in the coastal zone) to include projects for which the state Standard Building Code would require a permit. It applies to projects in which more than 5,000 square feet of land surface is being distributed, with the exception of a single-family unit which is not part of a development.

The law also provides that the Soil Conservation Committee in the state Department of Agriculture is empowered, subject to the approval of the commissioners of Agriculture and Environmental Protection, to formulate, promulgate, amend and repeal standards for control of erosion and sedimentation.

The measure gives the responsibility for implementing a comprehensive statewide program to minimize pollution at construction sites to the Soil Conservation Committee and the Soil Conservation Districts, in cooperation with the counties, municipalities and DEP. The program will be designed to reduce the danger from storm water runoff, to retard nonpoint pollution from sediment and to conserve and protect the land, water, air and other environmental resources of the state. □

Flush toilets being installed

MODERNIZATION OF PARK FACILITIES ON SCHEDULE

Phase III of the department's comprehensive program to update sanitary facilities in state parks and forests is well underway. The entire project, which began in 1972, will cost $4.5 million and is being carried out with matching fund assistance from the U.S. Bureau of Outdoor Recreation's (BOR) Land and Water Conservation Fund program.

Emphasis in this phase of the work is placed on construction of new comfort stations with flush toilets and converting existing facilities into flush toilets. Water saver fixtures will be used. Because camping is no longer just a summer recreation, some of the sanitary facilities will be winterized.

Comfort station construction, conversions or renovations are scheduled for camping or picnic areas in the following state parks: High Point, Cheesequake, Swartswood and Ringwood. In addition, a new bathhouse will be built in Barnegat Lighthouse state park. All are targeted for completion in time for the summer session. The federal agency and the state are each contributing $429,697.50 to meet the total cost of $859,395 for Phase III.

During Phases I and II of the program, campsites in six state parks and two state forests were improved. Laundry-shower buildings, trailer dumping stations, comfort stations, and a bathhouse were built.

The plans and specifications are in accordance with Chapter II of the state Sanitary Code. They have been approved by the Commissioner's Advisory Council on Camping. □

GRADUATION DAY. The seventh class of marine police officers to graduate from the Marine Police Academy at North Wildwood is the first group to include women. Environmental Commissioner Bardin addressed the graduates at the December 5 exercises. Also participating in the ceremonies were Marine Services Director Donald Graham and chief of the Bureau of Marine Law Enforcement Captain B. Russell Henry. From left to right in the photo (above) are: Front row—Commissioner Bardin, Marine Police Officer John Blazich (academy commander) Captain B. Russell Henry, Sergeant Harry Newman, Director Graham, and Marine Police Officer George McDermott (instructor). Second row—Marine Police Officers William Albertson (instructor), Richard A. Ebbets of Iselin, Sue E. Kleinberg of Keyport, Patricia B. Roth of Brant Beach, and Kevin J. Kopet of Point Pleasant. Third row—Marine Police Officers John W. Mahieu of Netcong, Sandra O. Schauman of Indian Mills, and Mark P. Jackson of Pleasantville. Fourth row—Marine Police Officers George R. Jamison of Port Norris, William B. Berry of Millville, Robert Abbradi of Point Pleasant, and Clifford A. Rank of Manahawkin.

AMENDED OPEN BURNING RULES TO AID FARMING COMMUNITY

Amendments to the state's air pollution control regulations on open burning, which became effective on December 28, 1975, respond to the expressed needs of New Jersey's agricultural industry.

The rule changes establish two new permits for burning herbaceous, or foliage-type, material and/or hard prunings. The orchard pruning rule will stay in effect for only two years. (The two-year cut-off date for the latter regulation is intended to encourage development of new methods of re-using or disposing of such wood waste.) The changes will also shorten the time needed for processing infested-plant-life permits from three months to three days.

Environmental Protection Commissioner Bardin said, "We expect those amendments to have no significant effect on the state's air quality . . . It is one small step to restore the hospitality of the Garden State to agriculture. If we succeed in preserving farms as open land resources we will do much to benefit air quality."

(cont. on page 16D)

REGULATIONS TELL WHY SEWER CONNECTION BANS ARE IMPOSED, LIFTED, MODIFIED

More flexible procedures for modifying sewer connection bans are included in regulations adopted by DEP in mid-October relating to policy controlling sewer bans. At that time there were sewer bans imposed on 99 municipalities.

The regulations set forth the circumstances under which a sewer connection ban will be imposed, lifted or modified; and also spell out the criteria for exemption to a ban.

Under the regulations—

• DEP will initiate a ban on further connections to a sewerage system when a wastewater treatment plant is receiving flows in excess of its design capacity, since this causes the plant to create pollution by discharging inadequately treated wastes into the waters of the state.

• DEP will lift a ban when inflow to the sewerage facilities has been sufficiently reduced. DEP will also lift a ban if there has been enough expansion or replacement of the sewerage facilities, or improvement in treatment techniques to bring the quality of the effluent discharged into compliance with state water quality standards and the requirements stated in the system's permit to operate.

• A connection plan may also be modified if a sewerage system has begun construction of treatment facilities complying with a schedule specified in a DEP-approved plan.

• DEP has the discretionary responsibility to make exemptions to a sewerage connection ban when, in the opinion of the department, there is compelling public need for a proposed facility, or to parties suffering substantial harm due to imposition of the ban. □

News Capsules

CAFRA BOARD ADOPTS APPEALS PROCEDURES

The state's Coastal Area Review Board on November 18 adopted procedural rules for handling appeals from applicants whose construction projects have been denied by DEP under the Coastal Area Facility Review Act (CAFRA).

The board is an administrative appeals body created under the provisions of CAFRA. Serving on the board are Environmental Protection Commissioner David J. Bardin, Labor and Industry Commissioner Joseph A. Hoffman and Community Affairs Commissioner Patricia Q. Sheehan. □

SPECIAL MAPS COMPLETED

Draftsmen in DEP's Bureau of Geology and Topography have completed the mylar copies of two specialized maps: one showing locations of water supply facilities (i.e. service areas, water mains, wells), and one showing locations of sewerage facilities (i.e. service areas, treatment plants, sanitary landfills) within the area covered by each of nine State Topographic Atlas Sheets. Five of the Atlas sheets (Nos. 21-25 inclusive) are of northern metropolitan New Jersey, excluding the Newark area; the other sheets (Nos. 34-37 inclusive) cover southern New Jersey. Contact Bureau of Geology and Topography, P.O. Box 2809, Trenton 08625. Phone: 609-292-2576. □

UHF/FM VESSEL DISTRESS CALL RADIO BAND ACTIVATED

Vessels in distress, needing assistance or urgent information, will now be located faster and receive speedier assistance from New Jersey Marine Police through the recent installation of UHF ship-to-shore FM radio equipment in all Marine Police stations on the state's tidal waters. Before this only boats equipped with AM ship-to-shore radio could communicate directly with the stations.

Marine Police stations at Monmouth Beach, Point Pleasant, Ship Bottom, Atlantic City and North Wildwood (all on the Atlantic Coastline), and the Bivalve station on Delaware Bay, now communicate on UHF and constantly monitor UHF FM channel 16, the emergency and calling frequency. They also have state vessel control channel 17 and ship-to-shore working channel 68 for communication.

The Marine Law Enforcement unit is part of DEP's Division of Marine Services. □

HUNTERS, PLEASE NOTE: TROPHY DEER PROGRAM DEADLINE NEAR

March 10 is the cut-off date for entries in the annual state record deer program sponsored by DEP's Division of Fish, Game and Shellfisheries, in cooperation with the New Jersey State Federation of Sportsmen's Clubs. The competition is divided into two divisions: the 200-pound club and the antler club. Entry blanks are available from the division office or wildlife management area offices. Address all correspondence to the Division of Fish, Game and Shellfisheries, P.O. Box 1809, Trenton 08625. And remember, all entries must be submitted *not later than March 10.* □

DIG WE MUST. Ground was broken for the initial section of the Round Valley Reservoir (Hunterdon County) outlet release pipeline on October 17—just three months after Governor Brendan Byrne signed legislation authorizing the use of Water Conservation Fund money for the project. The pipeline, nine feet in diameter and running 3.6 miles, will carry water from the North dam to the South branch of Rockaway Creek near White House Station. Ceremonial shovels full of earth are lifted by (left to right) Environmental Protection Commissioner David J. Bardin; DEP First Deputy Commissioner Rocco Ricci, who also serves as acting director of Water Resources; Joseph D. Imperio, business representative of Construction Laborers Local 472 of Newark; Mrs. Hermia Lechner, member of the state Water Policy and Supply Council; and John Connor, chairman of Concerned Citizens for Clean Water.

Open House Program

STATE HOUSE TO OPEN FOR TOURS ON MAY 1

If you've been wanting to see New Jersey's capitol building from the inside, but couldn't get to Trenton on a weekday, here's some good news—beginning May 1 the State House will be open every weekend through September 25/26. Yes, that includes the holiday weekends of Memorial Day, Fourth of July and Labor Day.

Governor Byrne announced the Open House program during special ceremonies on November 13, 1975 in which he officially accepted a bronze plaque from the Trenton Bicentennial Committee designating the State House as a "Bicentennial Commemorative Site." The governor noted that "New Jersey is a state rich in heritage, and much of that history was written in the executive offices and legislative chambers of the beautiful building which traces its origins back to 1791."

Here is the specific information: Beginning May 1 of this bicentennial year, the State House will be open on Saturdays from 10 a.m. to 5 p.m. and on Sundays from noon to 5 p.m. Visitors tours will be conducted. Each weekend will focus on one county, beginning with Atlantic on May 1/2 and continuing in alphabetical order. The only exception is the weekend of July 3/4 which is designated for the State of New Jersey. The schedule is as follows: **May** 1/2, 8/9, 15/16, 22/23, 29/30. **June** 5/6, 12/13, 19/20, 26/27. **July** 3/4, 10/11, 17/18, 24/25, 31/1 August. **August** 7/8, 14/15, 21/22, 28/29. **September** 4/5, 11/12, 18/19, 25/26.

Note: The Old Barracks, which housed the Hessian soldiers who were defeated by General Washington's troops in the Battle of Trenton, is just around the corner from the State House; the State Museum and Planetarium are about a half block away; and Washington Crossing State Park is within a half hour's drive. So make a day of it! □

(cont. from page 16c)

AMENDED OPEN BURNING RULES

As a result of a public hearing held last July 10 and consultation with the state Department of Agriculture and the New Jersey Farm Bureau, the effective duration of the new agricultural permits was extended from the 14 days originally proposed to 60 days. In the same action, the effective time period for permits to dispose of hazardous industrial wastes was reduced from six months to 60 days, thus equalizing the permitted disposal time for both agricultural and industrial interests. □

(continued from page 13)

HOW MUCH ENERGY DO WE HAVE LEFT?

GRADE YOURSELF

Score one point for each answer.
0-5 Shame on you, and you're probably an energy waster.
6-7 Fair, but you still should know more about energy.
8-10 Good, go to the head of the class.

1. (c) Because the pilot light burns continuously, it consumes approximately half of the gas used in a standard kitchen stove.
2. (a) Fluorescent lights win hands down, giving off three to four times as much light as incandescent bulbs per watt used. One 40-watt fluorescent lamp gives more light than three 60-watt incandescent bulbs. In addition to the electricity conserved, this means a saving of as much as $10 in a year.
3. (c) It takes a lot of electricity to produce aluminum, but most of it is used to process the ore. This step is eliminated when aluminum cans are recycled. If we were smart enough to recycle all of our aluminum cans, we would save the amount of electricity produced by approximately 10 large nuclear power plants.
4. (b) When you dispose of a throwaway, the electricity needed to manufacture its replacement would light a 100-watt incandescent bulb for five hours.
5. (c) When you motor down the highway, you are using only six percent of the energy which was in the crude oil used to produce your gasoline. In other words, 94 percent of the energy is lost. Efficiencies of the most important steps are:

producing the crude oil	96%
refining	87%
gasoline transport	97%
engine thermal efficiency	29%
engine mechanical efficiency	71%
rolling efficiency	30%

6. (b) You would have to labor for 15 days.
7. (c) Mother Nature would have to increase her formation of fossil fuels one million times to keep up with our rate of consumption. In less than 500 years, man will have used all the coal, oil and gas Mother started forming 500 million years ago. This is like saying that we use in 30 seconds all of the energy which nature was able to form in one year.
8. (c) We Americans use energy like it is going out of style. With only six percent of the world's population, we use more than a third of the world's energy. Small wonder, then, that our traditional energy sources are going out of style. We use twice as much as a citizen of Great Britain, three times as much as the average Frenchman, and 10 to 100 times as much as the citizen of a developing country.
9. (c) If you are under 30, you can expect that the natural gas reserves in the U.S. will be depleted during your lifetime. We have enough for only approximately 40 years. Our petroleum should last a little longer, about 100 years, and our coal should do for about 500 years. Our greed seems destined to empty the energy bin for our descendents.
10. (b) For the past 100 years, we have hoggishly doubled our energy demand every 20-25 years.

WILDLIFE MANAGEMENT GUIDE

The revised and expanded edition of the "Guide to Wildlife Management Areas" can be ordered by writing to the address given below. This revised three-color, 112-page guide is published by the Division of Fish, Game and Shellfisheries of New Jersey's Department of Environmental Protection.

Descriptions of the 53 wildlife management areas include locations, hunting and fishing information, as well as data on parking, camping and access roads.

The Wildlife Management Area maps illustrate the boundaries, wooded areas, fields, lakes, streams and marshlands. Also depicted are the roads and highways leading into each management area.

The guides may be purchased by sending a check or money order for $3.00 to:

Wildlife Management Guide
Division of Fish, Game and Shellfisheries
P.O. Box 1809
Trenton, N.J. 08625

PATRICK BOFFO

NEW JERSEY 1975 Portraits...people..

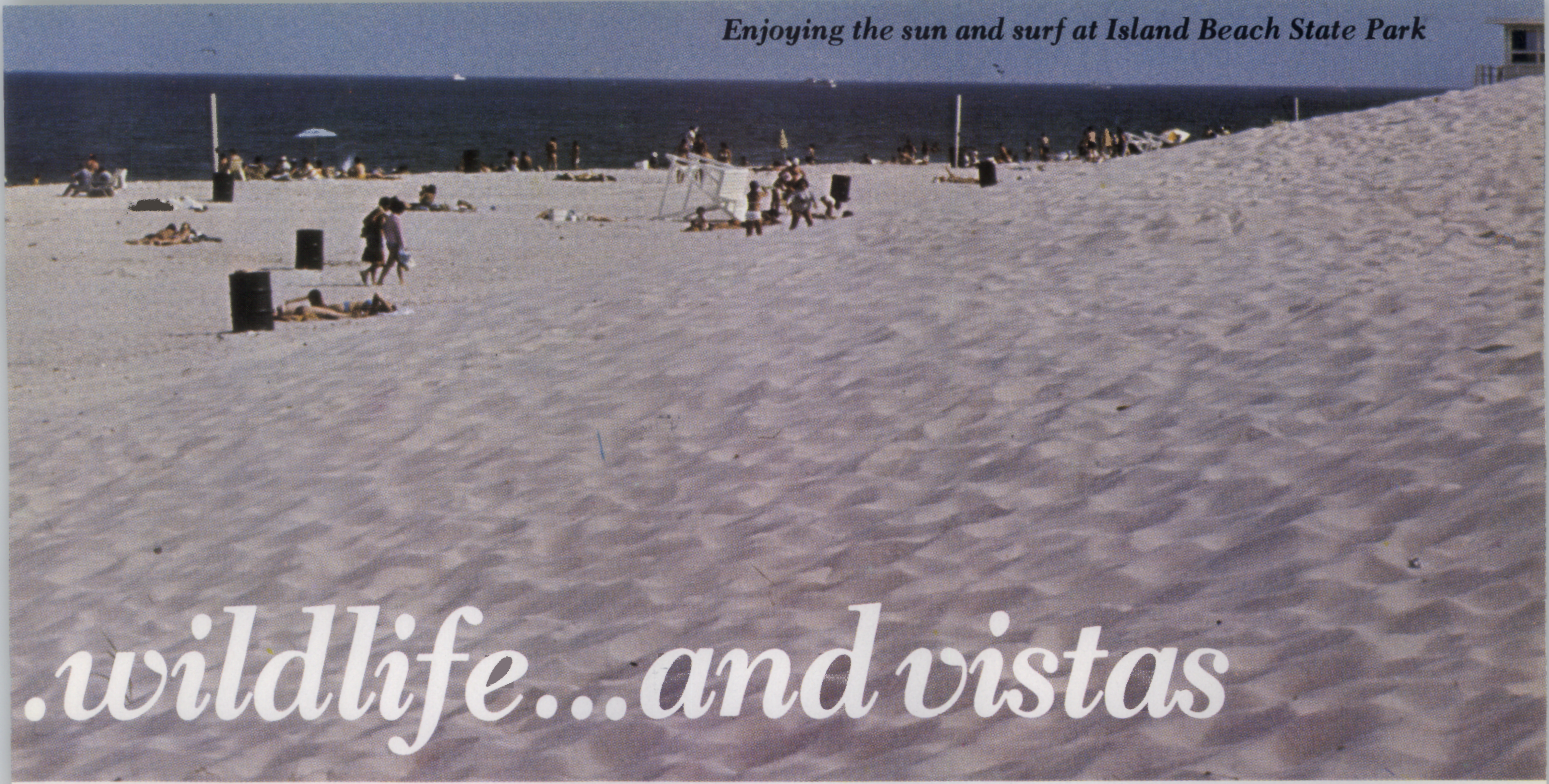
JIM FITZSIMMONS

A deer in the Great Swamp National Wildlife Refuge

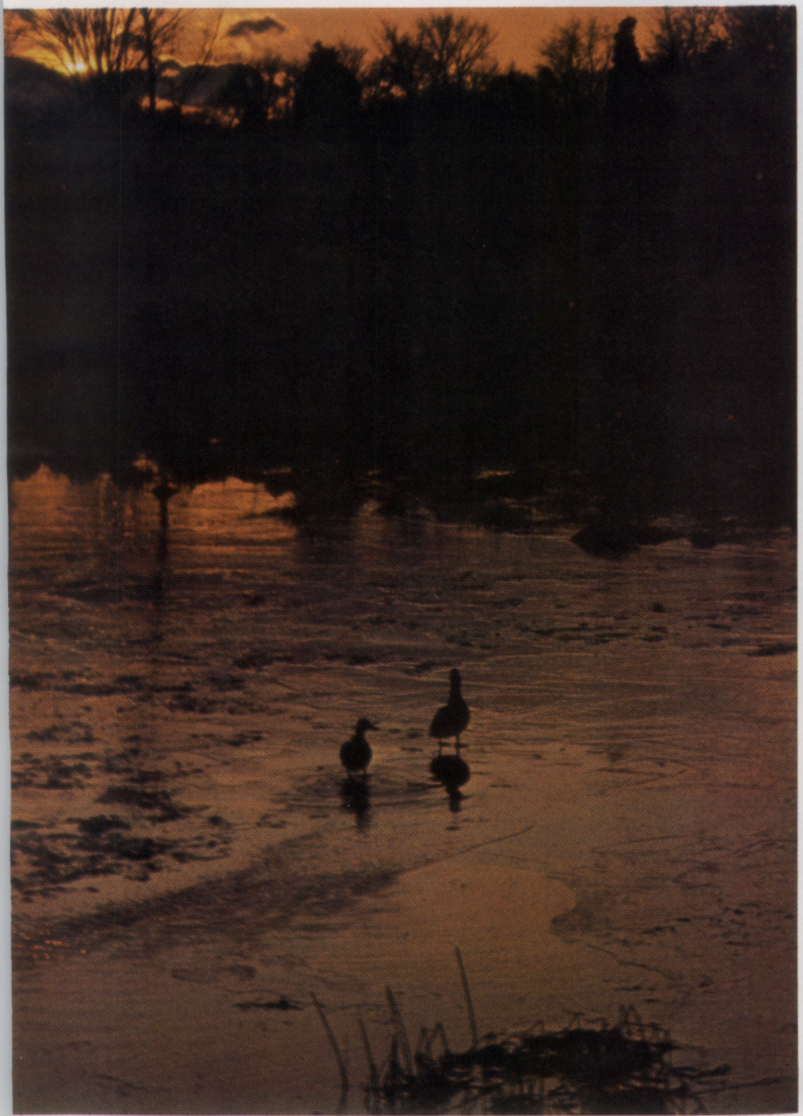
PATRICK BOFFO

Opening Day Trout at Saxton Fall
Richard Coffey of East Brunswick

Enjoying the sun and surf at Island Beach State Park



.wildlife…and vistas



BOB MCDOWELL

Waterfowl on a ice-covered lake in Sussex County

HARRY GROSCH

Autumn Gold

My eyes snapped open . . . "Huh, . . . whatsa matter . . .?" My wife was tugging on my shoulder . . . "C'mon it's six o'clock."

"Oh no", I mumbled. I'd set the alarm (a short time earlier it seemed) for five A.M., but hadn't pulled the stem out far enough and it had been sitting there quietly humming for the past hour.

I had planned to drive the thirty odd miles to the Pasadena Wildlife Management Area and prowl about hoping to intercept a buck. The area borders the 27,000 acre Lebanon State Forest where for the past half dozen years our family has spent summer vacations. I'm somewhat familiar with the area and because of the heavy pressure from the many deer clubs that drive the woodlands, I felt the odds for getting a shot at a buck would be in my favor. And here it was six o'clock and I was still in bed! Off to a great start!

As I breakfasted on pancakes and eggs (my wife knows the way to a man's heart), the sky grew light. Whether it's psychological or just tradition or a measure of both, I'm not sure, but no matter if it be opening day of trout season or small game or deer season, every dyed-in-the-wool outdoorsman knows he must be ready and waiting at his "favorite spot" at the precise opening moment, and it was drawing nigh.

I finally decided upon an alternate choice. Barely six miles from my home there is a large expanse of

right in your own backyard

by C. Peidl

PHOTO SUPPLIED BY AUTHOR

mixed pine and scrub-oak woodland in Voorhees Township in densely populated Camden County. A poor choice at best, but there are a few deer in the area and it only takes one deer and one hunter to make a deer hunt. I reasoned after all, nothing ventured, nothing gained. Anyway, I had built a tree stand at this location sometime ago.

Seven o'clock found me quietly walking an old sand road through the silent woodland. Some distance ahead was a small brook with a game trail that twisted and turned with the little stream. This tiny brook at one point is flanked by two gently sloping knolls that rise perhaps twenty feet or so above the stream. Interestingly there is a well worn deer trail that comes over one slope, down and across the creek and its companion game trail, and continues up the adjoining slope. It was to this point I made my way. I was carrying a Remington 870 slide-action with a 30-inch barrel. In addition to the three rounds of #4 buck-shot in my gun I had another three in my pocket.

I felt confident six shells would be sufficient. In fact, they had been loaded and unloaded so often over the years, they were quite scratched. I'd had seven, but the previous evening I removed the pellets from one shell and fired it in my basement to be certain they wouldn't fail me. At this point I'd like to pass this tip along to any deer hunter who has never test-patterned his shot gun with buck-shot, by all means do it. Obtain several rounds in various buck-shot loads and test fire on a large piece of paper or cardboard at forty yards. You may be surprised. Using #4 buck-shot with my full-choke 30-inch barrel gives me an extremely tight pattern at 40 yards, whereas 00 buck is so badly spread out I simply will not use it. You owe it to yourself to check it out.

I arrived at my tree stand a few minutes after seven. I cleared away the leaves from around the base of a white oak on the knoll that would give away my presence. I unlimbered my 35mm camera, uncapped the lens and set the shutter speed for 1/60th second. The early morning grey still cloaked the woods as the sun had not yet topped the tree-lined horizon. If nothing else, I hoped to get a photo of the tiny black-capped chickadees as they flitted about calling dit-dit-dit-dit as they gathered breakfast. The sun began to climb above the tree line directly before me. With its appearance the initial predawn chill began to dissipate, or so it seemed. It was going to be a nice day.

Waiting on a stand for any length of time has never been my cup of tea, and I was pondering the wisdom of perhaps quietly stalking along one of the deer trails, when below to my left I caught a sudden glimpse of movement. Slipping silently along quite unmindful of my presence, not fifty feet away, came a deer along the base of knoll. I peered through the partially obscuring brush for some hint of a spike, and much to my delight I saw nice symmetrical fork-horns. Slipping off the safety I raised the shotgun to an opening in the brush that the buck's line of travel would bring it to. In a moment he was there, I settled the front bead on the half-way mark on his neck, as I began to squeeze the trigger, a grateful thought flashed to my mind for having test fired a round the evening before. The shotgun roared and my first buck collapsed to the ground, quite dead. I glanced at my watch, 7:50 A.M. "Thank You Lord", I breathed.

A perfect day and indeed a perfect kill. Less than an hour in the woods, only minutes from home, within one of New Jersey's most densely populated areas . . . almost unbelieveable. And right in my own backyard— well, almost. □

Delaware River from top of Mt. Tamney, Pennsylvania may be seen in background

A HIKE UP

BY JUDITH D. MOSLEY

New Jersey has many natural beauties to be proud of. It is usually just a matter of finding these places and letting you—the New Jersey resident—know where they are and what they offer. Most of these places are within easy driving distance no matter where you live in New Jersey. State and National parks are scattered throughout the state and usually cost very little to use as they are administered by government agencies. One such place is the Delaware Water Gap Area which offers picnicking, camping, and two hiking trails—one up to Sun Fish Pond—the other to the top of Mt. Tamney.

One Sunday this past spring some of my friends and I enjoyed the natural wonders of this area. Spring was just beginning to make an appearance and the day was almost warm with only an occasional cool breeze to remind us that winter wasn't really far behind. Our car wound along Highway #46 heading west through low lying hills in the direction of the Delaware Water Gap. To our left a stream overflowing with this past winter's melted snow led us ever closer to the mighty Delaware. We rounded a bend and the Gap revealed itself to us fully for the first time. Two huge rounded mountains split open to let the Delaware River slide easily through this mountainous country. We exited off Highway #46 into a picnic area and walked a short distance to a sign that read "Entrance to Appalachian Trail".

Thus began this early Spring hike to kick off the new season. The first half mile sloped greatly uphill, a mountain stream tumbled swiftly by and overhead pine trees formed a canopy for us to walk beneath. Suddenly the trail forked, one branch leading up to Sun Fish Pond the other leading to Mt. Tamney. We decided to follow the trail marked for Mt. Tamney. The trail ambled on for a few hundred yards and then cut across the creek. For us to get on the other side we either had to jump stones or shinny across a fallen tree. We jumped stone to stone. After crossing the creek the trail immediately became steeper and more difficult to climb. But the trail is well marked and strewn with many stones and before long we were

Water rushes down rocks along trail to Mt. Tamney

MT. TAMNEY

PHOTOS BY AUTHOR

all huffing and puffing with each step. Perspiration began trickling down our backs and the cool breeze chilled us as we stopped to take a rest.

As we were catching our breath we looked around us to see what Mother Nature was up to at this time of year. The leaves were not yet out in all their green splendor, but their soft, delicate, fuzzy buds were beginning to show. The rhododendron had a full stem of leaves and the flower buds were beginning to show promise of beautiful days ahead. Overhead and under bushes we could hear the flitting and scrambling of birds and other small creatures. Soon, however, it was time to continue our hike.

Up we went one agonizing step after the other. We were out of shape for such a hike but we were determined to make it to the top of Mt. Tamney. The trail got steeper and every muscle in our bodies ached. Hikers coming back down the mountain encouraged us to keep climbing as the view from the top was well worth the effort. We scrambled and strained for what seemed like another hour and finally we reached the top. Lucky for us it was a clear day and we could see many miles into Pennsylvania. We watched the Delaware River as it flowed north and south of our high perch. Far below a hawk glided gracefully between the mountains with an ease we envied after our long hard climb to the top. Our eyes were bombarded with fantastic scenes near at hand and as far as the eye and binoculars could take us.

Far below the cars hustled down the highway reminding us we too must return to our own vehicle and head for home.

Reluctantly we started back down moving somewhat faster than we had gone up the trail. All too soon we were crossing the creek again and we slowed our pace to prolong the outdoor experience. We were tired but fulfilled, each of us interpreting what the other had to say about what we had seen that day. And we all agreed that New Jersey has many natural areas we all can enjoy and, today, all it had cost us was our physical efforts and a tank of gas. □

Deer in New Jersey

Wildlife Management as a Homeostatic Process

BY ROBERT R. FALES

Ecology Program, Department of Zoology, Rutgers University

The usually stated main objective of wildlife management is the provision of the maximum number of hours of quality recreation while maintaining the population at or slightly below the carrying capacity of the land. The last part of this objective is the key, for if population numbers should become too large, serious damage to the habitat may occur and the quality of individual animals and their populations degenerates. Conversely, should population numbers fall too low, the wildlife manager must face the ire of a displeased public.

Homeostasis may be defined as "steady-state" regulation or the tendency of a system to maintain itself with relative constancy and within limits appropriate for continued existence. This type of regulation enables the system to remain functional in the face of various environmental stresses. The concept of homeostasis applies as much to the wildlife field as it does to physiology, medicine, or other scientific disciplines. In this case the system is not an organ or an individual, but a complex of wildlife managers and legislators, the environment, the plant and animal populations, and the public.

A simple diagram of the system will serve to point out some of the mechanisms involved in the management routine. Figure 1 shows a variation of the typical "input-process-output-feedback" example often used to illustrate a homeostatic process. The weak point in the circuit is the feedback aspect. Occasionally, there are not enough trained biologists to cover the vast areas being managed, thus, significant feedback through direct manager observation may be difficult to obtain. Feedback via the public serves to convey their desires and opinions which may or may not be compatible with the optimum management of the wildlife resource. This is because opinions may be formed using incomplete or unintegrated data. An example will illustrate the problem.

Suppose that the number of turkeys observed in a certain area this year is only two-thirds of the number observed last year. Sportsmen, upon learning this, may recall seeing only

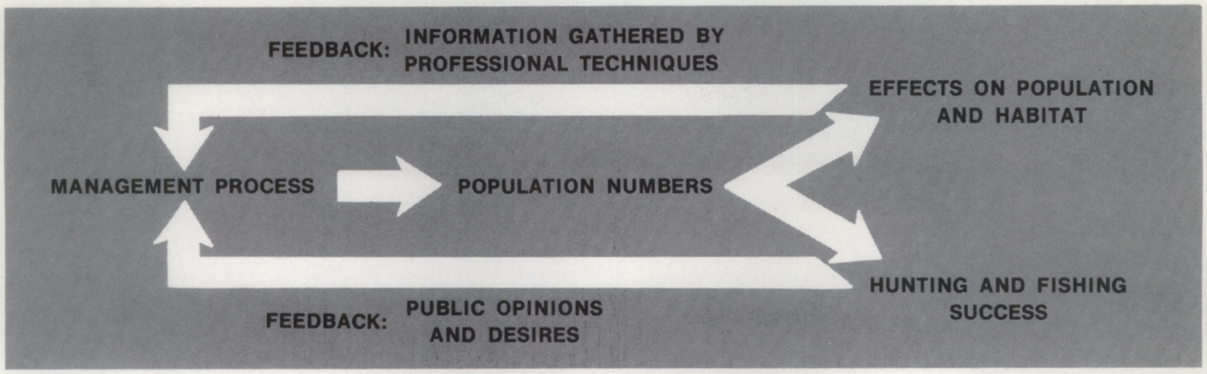


Figure 1. Illustration of a wildlife management system.

a few small flocks and conclude that the turkey population is declining. This opinion may be passed along to those who affect the management process (wildlife managers, legislators) urging that changes be made in that process. Consideration of weather and mast data (mast is defined as the fruit of oak and beech or other forest trees) might have allowed another conclusion.

In years of a poor mast crop, turkeys tend to congregate in areas of available food providing sportsmen with the sight of large flocks. On the other hand, a good mast crop will scatter the turkeys since they can find food almost anywhere. Combine a good mast year with bad weather during the hunting season (a time when many sportsmen are in the field) and a situation arises where the turkeys are scattered and remaining close to roosting cover. The inclement weather also tends to reduce the number of sportsmen abroad which, in itself, could result in reduced observations. The turkey population may have actually increased, but the feedback is of disaster because not all factors were considered.

The management of wildlife has been practiced since the time of the first settlements in this country. Many methods have been tried in the attempt to increase and stabilize populations including hunting controls, restocking, predator control, the establishment of refuges, and habitat manipulation. The regulation of hunting is probably the oldest tool of those listed. Around early settlements, heavy shooting soon brought the white-tailed deer to a point of local scarcity and the first closed season was declared in Rhode Island in 1646. The westward migration of our civilization led to cleared land, extensive fires, market hunting, and further declines in deer populations. In an effort to bolster the sagging herds, season lengths were reduced and bag limits were cut. Then came the most effective and controversial response of the management system—the buck laws. In many areas they worked; so well in fact, that in the late fifties legal "doe days" had to be incorporated into many hunting seasons in order to prevent the expanding populations from stripping their habitats. The buck laws turned out to be an overcompensating mechanism in many instances.

Unfortunately, hunting controls alone proved to be a poor homeostatic mechanism. The white-tailed deer disappeared from Yellowstone Park where no hunting was allowed. The whooping crane is protected, yet it may become an extinct species. Ruffed grouse populations undergo cyclic periods of high and low density and no form of hunting control has ever been able to change these cycles. Obviously, there is something more complex involved in these cases than just the number of animals taken by hunters.

Another tool which found favor in previous years was that of game stocking in the attempt to maintain slipping populations. It is certainly one of the more "homeostatic-looking"

Photos by Harry Grosch

Deer starve when allowed to multiply beyond available food supplies

methods. As a game population decreases, the hunter begins to grumble and this feedback signals the manager to release more animals on the area in question. The use of stocking to introduce species into suitable but unoccupied range or for strictly put-and-take hunting may be legitimate practices; however, the use of stocking to maintain a sagging population cannot be justified ecologically since it is obvious that something is limiting the population size. The cost of this type of program has also contributed to its fall from favor. In 1964 and 1965, New Jersey tried to bolster its quail populations by releasing raised birds at various times from early spring to early fall. Based on the total cost of the program, it was determined that each stocked bird taken by hunters was costing the state anywhere from $25 to more than $55 apiece. Negative results also led to an end to New Jersey's rabbit stocking program. Other states have fared little better. Indiana discovered that each male pheasant shot was costing the state $20 and each quail $40. Many states now resort to put-and-take stocking with the game being released only several days before the season opens.

Another approach was tried and it sprang from a common misconception. Since sportsmen were not taking as much game as they felt that they should, it was presumed that something else was and a simple formula was derived:

predator + game = more predators or bigger predators.

One might try to liken predator control to the body's homeostatic mechanism in the face of infection—to maintain a state of health the invader must be destroyed. It was thought that by eliminating the predators that "infested" the woods and forests that game populations could be kept at a high level. The bounty system was instituted and extension demonstrations were begun to inform the public of the best ways of removing this "threat." Many states employed professional trappers to spend full time in the "bush" exercising their talents. In short, every available method was used in the attempt to reduce the number of predators in the hope of increasing game populations. The pattern was set; if sportsmen saw less rabbits this year than last or one more fox than they thought should be present, the management system responded with a barrage of anti-predator techniques.

In certain instances, this method proves useful. Under conditions which are highly favorable to the predator or unfavorable to the prey, the predator can be a real problem and its control may be warranted. For example, in 1920 there existed a small herd of pronghorn antelope in the area of the common border of California, Nevada, and Oregon. The herd had been cut to about 500 animals by disease and other factors and although no hunting was allowed, the population had remained stationary for several years. Between 1921 and 1934 a predator control program was instituted which removed large numbers of coyotes and bobcats. The antelope herd slowly increased and continued to do so even after 1934 in the face of resumed predator pressure until it reached about 8,000 animals in 1962.

Predator control is not feasible over a wide area as a wildlife management practice, however, because in most cases it just does not work. The surplus of animals above the carrying capacity of the land will be lost to predators, starvation, exposure, disease or some other factor. The manager, knowing this, would do better to spend his time, labor, and money improving the habitat rather than fruitlessly trying to destroy predators.

According to Aldo Leopold, one of the fathers of American wildlife management, a wildlife refuge is an area closed to hunting so that the excess population may flow out and restock adjoining areas. Today we know that, for various reasons, this simply does not happen. Refuges and national parks do serve as sanctuaries for the preservation of endangered species and as areas where migratory game may

mproving habitat for quail

rest without the pressure of man's influence. Were it not for the existence of these lands, species like the American crocodile, black-footed ferret, buffalo, trumpeter swan, California condor, and Everglades kite might well be extinct and our migratory game in serious trouble. Although the management value of refuges has been found to be more limited than originally hoped, the stability of a few species today is directly dependent upon the habitat which is preserved in these lands.

One of the more recently accepted and significant tools of the wildlife manager is habitat manipulation. The general needs of all animals are much alike in that each must have a sufficient quantity and variety of food, protective cover, and other basic requirements in order to meet its physiological needs for maintenance, growth, and reproduction throughout its life. This statement implies that one of the most important things that can be done toward maintaining an acceptable level of wildlife is to adjust the habitat. As Durward Allen so aptly states in his 1962 edition of *Our Wildlife Legacy:*

> To the wildlife scientist, the range quality phenomenon is a book of revelation. It unlocks a vast realm of possibilities; for if he can make good range out of poor range—then he has done it. He has increased the crop by manipulating those factors which, for a given species, permit its tremendous inborn breeding productivity to be expressed.

This method seems to be the one to which populations are most sensitive. If the environment places pressure on a population through such factors as disease or predation, the manager may respond with habitat alteration techniques that provide for greater natural production of food for improved physical condition or more cover making predation difficult.

In certain areas, for instance, deer declines are due to plant succession which lowers the quantity of buds and young twigs (browse) available by turning young bushy woods into older tree-stage forests. In this case, the manager may use techniques such as controlled burning or selective cutting to set back plant succession and provide more food for the deer.

One of the more spectacular examples of habitat improvement causing an increased and stable population came out of the arid portions of California in the mid-forties. Biologists found that valley quail needed drinking water every day in order to bring the birds through the summer drought and into the hunting season. If a permanent water supply could be provided, increased coveys of birds could be maintained. The result was "Glading's gallinaceous guzzler," a device which became the difference between quail and no quail in the dry foothills and desert brushlands. In essence, the guzzler is a large subterranean waterhole with a low roof to reduce evaporation. Ramps lead down to the water and the birds can move freely in and out. The guzzler fills with water every winter (the 8-10 inches of rain fall from October to April) and lasts through the entire dry season. So successful is this device that coveys of up to 200 quail have resulted in formerly dry and birdless areas. The guzzler is a good example of a portion of a homeostatic system. Its presence provides for the maintenance of high quail numbers in the face of environmental stress and the removal of the devices would surely result in decimated populations.

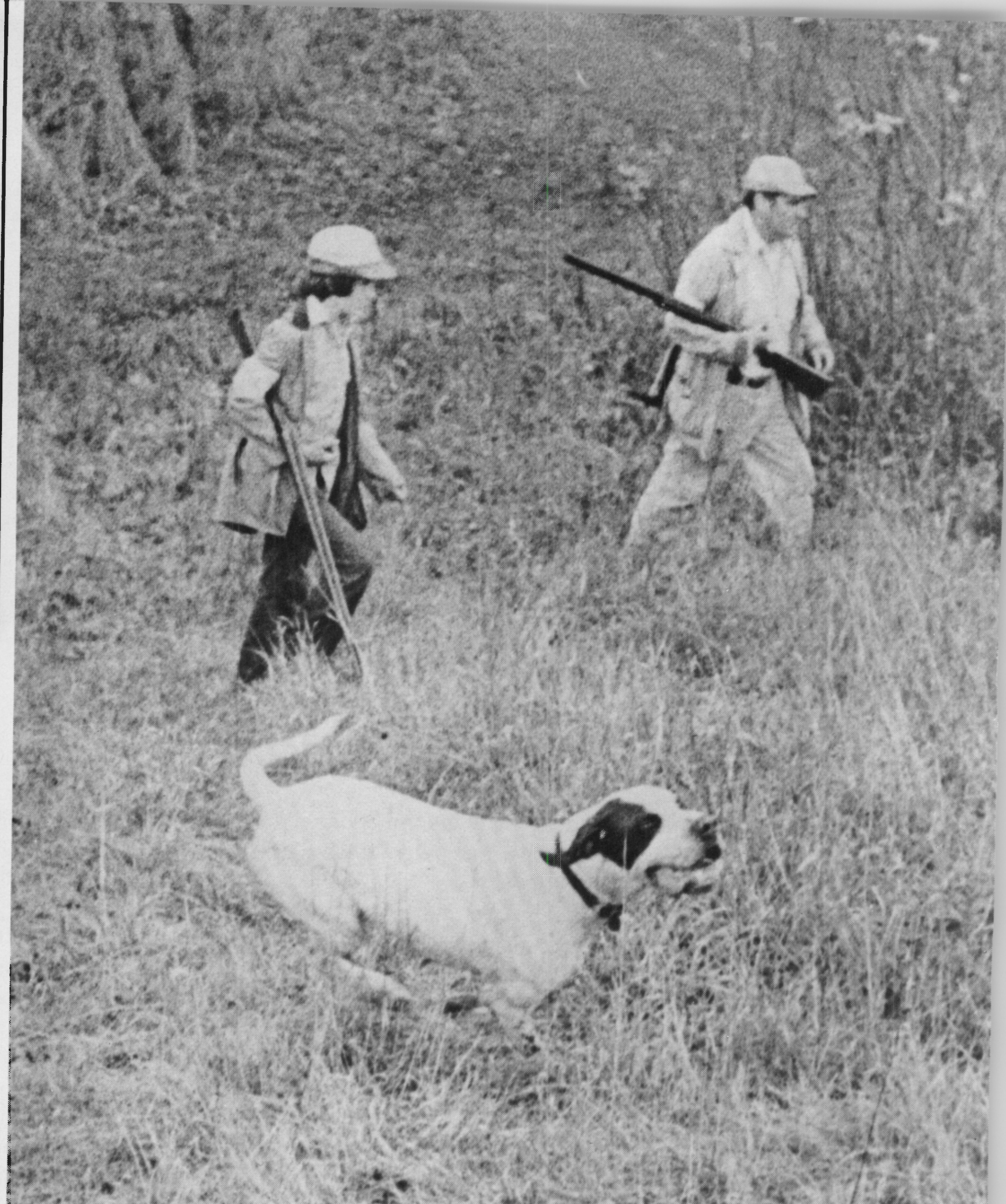
One of the problems which has arisen in wildlife management is the occasional failure of people to look at the whole spectrum of management practices. Each different method has its own merits and deficiencies and none can stand alone as the whole program. Although environmental manipulation and harvest regulation are the principal tools in use today, it is recognized that contributions can also be made by other techniques in order to achieve the best results. □

Opening Day-Upland Game

WHITTINGHAM WILDLIFE MANAGEMENT AREA

On a beautiful, crisp autumn morning- a boy, his dad, a fine bird dog . . . and maybe a pheasant or a rabbit, or both . . .

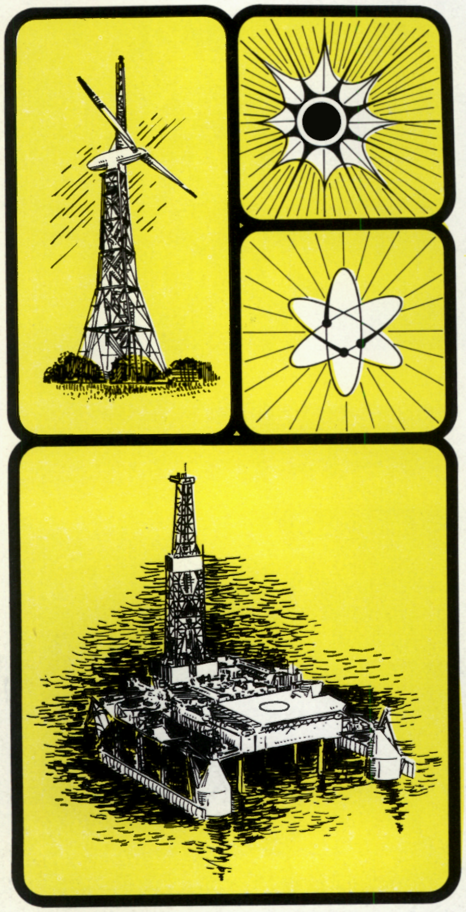
Photos by Harry Grosch





(continued from page 13)

how much energy do we have left?



some light on what we can expect in the future.

DIRECT CONVERSION

We all are familiar with one conversion device, the battery which converts chemical energy directly into electricity. Solar cells, widely used in the space program, convert sunlight into electricity. If their cost can be reduced, we might install them on our roofs to provide energy. Another department is the fuel cell. It is a relative to the battery, but requires a continuous supply of fuel, such as readily-available hydrogen and oxygen. These cells, however, also still are too expensive for general use.

The most promising direct conversion method goes under the tongue-twisting designation of magnetohydrodynamics. Fortunately, it also is known as MHD. Electricity is generated by passing hot gases from the combustion of fossil fuels through a magnetic fields at high speed. A major advantage would be that MHD plants probably would operate at 50 to 60 percent efficiency, far greater than that of the conventional plants now in use. However, problems resulting from the extremely high temperatures required must be solved before MHD can come into general use.

WASTE UTILIZATION

Several experiments are underway to generate energy by burning shredded garbage mixed with coal or oil in specially designed plants. Some work also is being done on producing methane, the primary ingredient of natural gas, from agricultural wastes and sewage. Although these methods are not economically feasible at present for large scale operations, they may have application in individual situations.

OIL SHALE AND COAL

We have about two trillion barrels of oil locked in oil shale in this country. It's there, but getting it presents problems. Mining it causes great damage to the land. Processing it releases large quantities of pollutants and requires enormous quantities of water. Unfortunately, where the shale is, the water isn't. Greater use of coal is another possibility. Before we discovered the cheaper natural gas, we did manufacture gas from coal. The technology still is available. Also, we know how to liquify coal so that it can be moved through existing oil pipelines for refining into many products, but the process still is too expensive.

GEOTHERMAL ENERGY

Geothermal plants take energy from the interior of the earth, either as steam or superheated water, or from heated rock in the earth's crust. Although there is only one commercial geothermal plant in this country, some believe we have enough sites in the West to supply an important share of our energy. Unfortunately, such plants emit large amounts of sulfur into the air, and the water discharged contains harmful salts and other chemicals.

SOLAR ENERGY

We read more and more about the installation in homes and buildings of systems which use the sun's rays to heat a fluid which is stored for continuing use. Such systems are widely used in Japan, Israel and Australia, and they probably will become an important source of energy in this country.

WINDS AND OCEANS

Windmills can be used to harness the winds for small scale applications, but they do not appear to offer much potential for large scale generation of electricity. The oceans seem to hold greater promise. The tides theoretically can be harnessed to generate power. However, exploitation of the temperature differences between surface and deeper waters appears much more promising. Heat engines operating across these temperature differences could provide a large share of our requirements for electricity.

NUCLEAR ENERGY

Nuclear energy is expected to fill much of the gap as our energy resources dwindle. Development is underway on breeder reactors. These will actually produce more nuclear fuel than they consume. The present conventional reactors convert less than one percent of the energy in the uranium they utilize. However, breeder reactors will convert up to 90 percent of the useable uranium into plutonium, which can be used to fuel other reactors. Of all the possible alternative energy sources, nuclear fusion may hold the greatest potential. This is the same reaction as occurs in the sun. If we can learn how to control the reaction, fusion will supply us with a safe, cheap, non-polluting, virtually inexhaustible source of energy.

It should be obvious that we must conserve our existing reserves of energy. The question is not "will we run out", but "when will we run out." This must not be allowed to happen before we develop practicable alternative sources to pick up the load. Much developmental work remains to be done on alternative sources, and the shift to them will be expensive and time-consuming.

Remember, we are mutually accountable to each other for reducing our individual wastage of precious energy.

SOME ENERGY-STRETCHING, MONEY-SAVING TIPS

- Use public transportation
- Be sociable, form carpools
- Drive sensibly, not like a lead-footed jackass
- Keep engine and furnace well tuned
- Don't dissipate, weatherstrip and insulate
- Don't overheat or overcool
- Turn off lights not in use
- Use fluorescent lamps where practicable
- Do as much laundry as possible in cold water
- Recycle

Waiting for ducks to stool in

Heading out for duck hunt

young waterfowlers

■ N.J. Waterfowlers Association, in cooperation with the U.S. Fish and Wildlife Service and the New Jersey Division of Fish, Game and Shellfisheries, sponsors a young waterfowlers training program. This program is designed to teach young waterfowlers, ages 10 to 16, proper hunting ethics, conservation practices, and weapon safety procedures.

Photographs by Harry Grosch

Waiting in sneak box

Stacking decoys

Bagged green winged teal

LEONARD LEE RUE III

Male and Female Wood Duck

(*Continued from page 9*)

BIRDING BONANZA AT ASSUNPINK

land record we know of for New Jersey.

Shorebirds were as challenging to identify as ever, but we managed to record a total of 14 species by the fall of 1974. The commonest were greater and lesser yellowlegs, pectoral, spotted, solitary, least, and semipalmated sandpipers. Sanderlings, birds almost synonymous with coastal beaches but practically unheard of inland, also found Assunpink to their liking, while the sod farms surrounding the area produced golden plover and upland and buff-breasted sandpipers, some of the birdwatcher's most sought-after shorebirds.

Although both the lake and the surrounding uplands appear to offer excellent raptor habitat, only kestrels (sparrow hawks), ospreys, marsh hawks, and turkey vultures were commonly seen, with the kestrel a common breeder as well. In general, migratory raptors were sparse, but on September 19, 1974, we did see a bald eagle, a species previously reported to winter at Assunpink.

Even the brief time we were able to spend checking Assunpink's land birds yielded some exciting discoveries, and hopefully some more intensive birding in the next few years will prove even more productive. Assunpink's weed and grain fields for example, provided havens for many different species of sparrows. A large breeding population of the very secretive grasshopper sparrow trilled insect-like from abandoned weedy fields everywhere. A vesper sparrow, which is now a rare breeder over most of New Jersey, and a large colony of swamp sparrows were also notable. Even the extremely timid Lincoln's sparrow was seen, along with the handsome white-crowned, while winter brought flocks of tree sparrows.

But sparrows weren't the only unusual breeders; at least three pairs of the uncommon and extremely local orchard oriole bred on the tract. We also discovered an immature male blue grosbeak in July of 1974 and three adult males in June of 1975—and although this is not conclusive proof of breeding, it is possible that this species, which is currently extending its range northward, has already established an outpost at Assunpink.

Our list of perching birds, especially warblers, is the one we really hope to lengthen with another season's birding. Following the springs of both 1974 and 1975, our records list a rather anemic total of 17 species of warblers in a geographical area which should yield 30 or more. But while 1975 was bringing few warblers it more than made up for it by ushering in some spectacular waterfowl, even better than the previous fall. Along with some 1200 pintail and 225 ring-necked ducks, both of which are very high counts, came three exciting new species: redhead, canvasback, and snow goose.

All three species were observed in late March and early April and all are very unusual inland. The redhead has been declining drastically within the past 50 years and is now fairly rare, so it was particularly rewarding to see it here, especially with its striking saltwater friend, the canvasback. And the choice by some 55 snow geese to alight on Lake Assunpink certainly speaks well for the lake, since these birds are rarely reported from inland New Jersey on spring migration; they choose their spots carefully and they choose them well. In one year, then, our list of ducks and geese stands at 21, more than the Great Swamp National Wildlife Refuge can boast. Perhaps this remarkable record is related to the often-noted phenomenon of high but short-lived productivity on newly created bodies of water, but we hope that Lake Assunpink, like Lake Parsippany to the north, can maintain its unique attactiveness.

This will not only benefit the birds themselves, but will also encourage the use of Assunpink by an ever-wider range of outdoor enthusiasts. We have been publicizing the area's potential to New Jersey birders both by word of mouth and by publication of our field notes in the N.J. Audubon Society's *Nature News*. Classes from Cook College have been brought here by their instructors and a future field trip is planned by the Montclair Bird Club—obviously the area has educational potential!

Such a fabulous place like this should be publicized. Maybe DEP's Division of Fish, Game and Shellfisheries should put up a sign on Route 539 saying "This way to Assunpink!" □

FRONT COVER

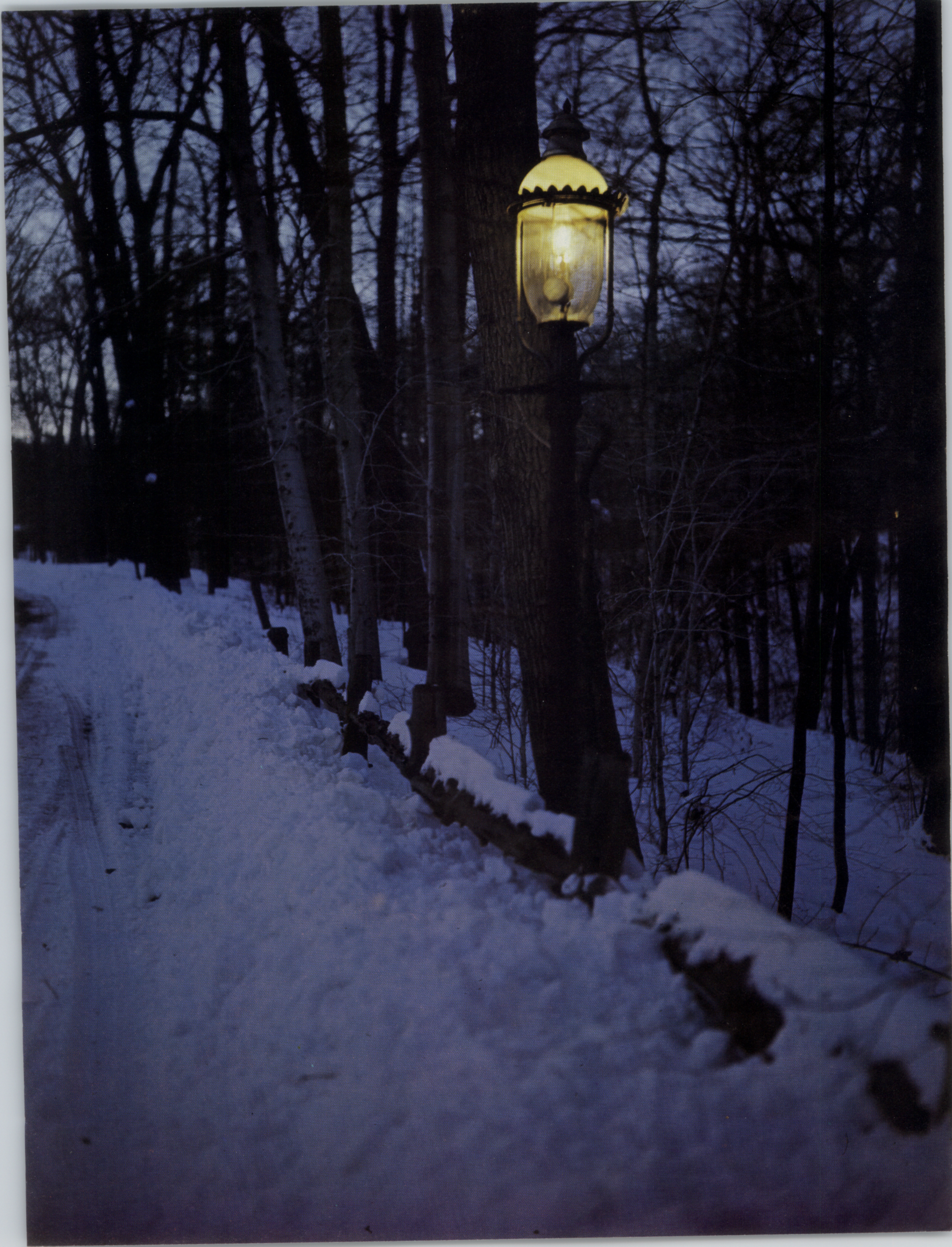
Eastern coyote in the snow—by Leonard Lee Rue III, Ektachrome Professional

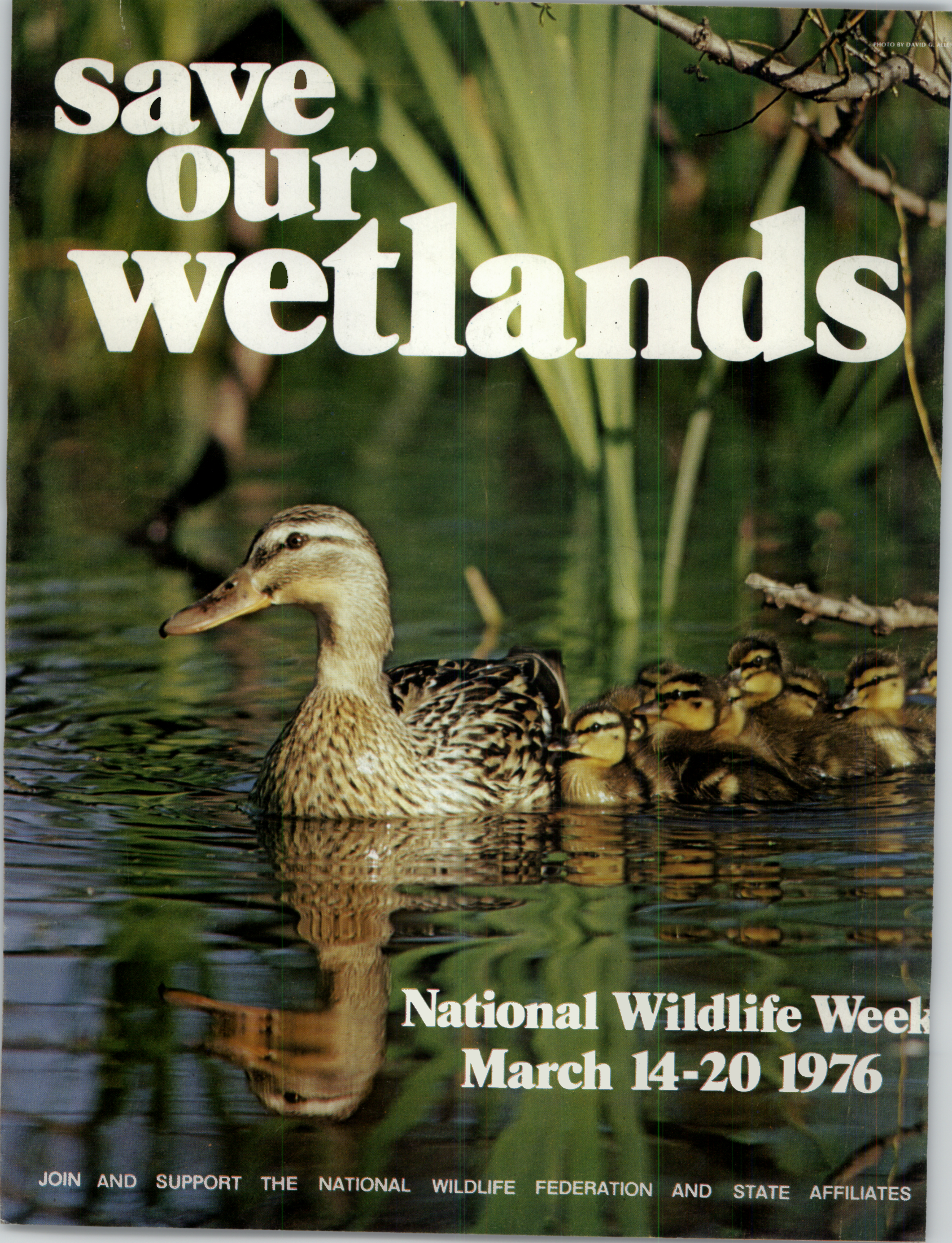
INSIDE BACK COVER

Winter Evening in Northern New Jersey—by David A. Bast photographed with a 4 x 5 view camera.

BACK COVER

1976 National Wildlife Week poster "Save Our Wetlands" stars a hen mallard and her young, gliding along in typical wetland habitat. Picture provided by National Wildlife Federation.




save
our
wetlands
National Wildlife Week
March 14-20 1976
JOIN AND SUPPORT THE NATIONAL WILDLIFE FEDERATION AND STATE AFFILIATES