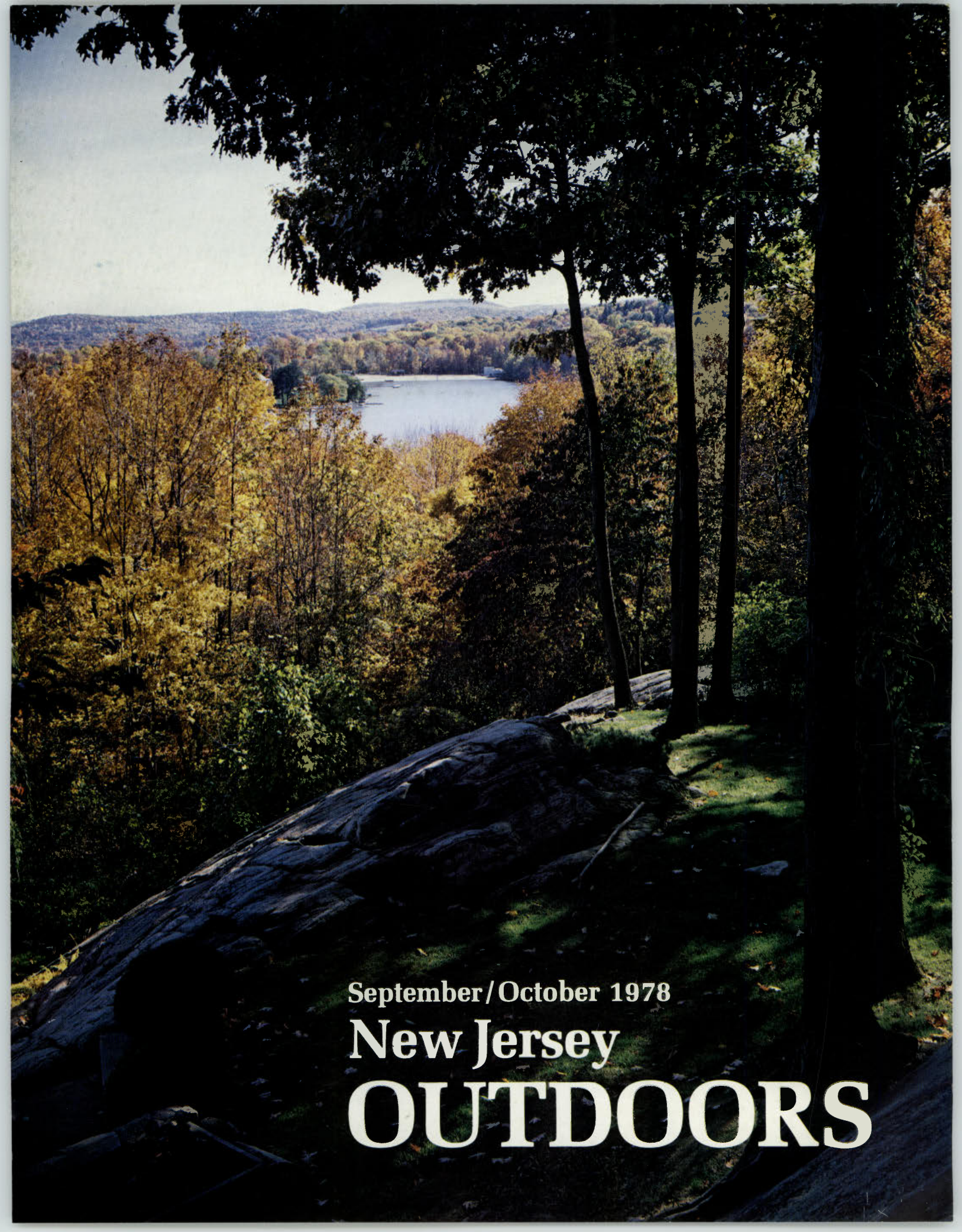


September/October 1978

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.)

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

Second-class postage is paid at Trenton, N.J. and additional mailing offices. Subscriptions are $4.00 for one year, $7.00 for two years, and $10.00 for three years payable by check or money order to New Jersey Outdoors Mailing Office, P.O. Box 1390, Trenton, N.J. 08625. Single copies, if available, cost 80c. 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 to eight weeks for new subscriptions and change of address to take effect. New Jersey Outdoors welcomes photographs and articles, but will not be responsible for loss or damage. Permission granted to reprint with credit to New Jersey Outdoors. Publication office at 3885 Quaker Bridge RD, Mercerville, N.J. 08619.

September/October 1978
VOL. 5 NO.5

New Jersey OUTDOORS

from the editor

of myths and movies

The motion picture industry has given us the thriller-chillers "Jaws" and "Jaws 2" and has created what *Time* magazine called "Jawsmania." This phenomenon was at its peak in 1975 when "Jaws" was breaking attendance records at most movie houses, but it was revived somewhat by release of "Jaws 2" this year. Both these motion pictures have created a legend-induced fear of sharks which labels them all as cruel, crafty, revengeful man-eaters . . . . Bad guys . . . . Perfect killing machines! Sharks represent an evil force—something that should be destroyed. Not so—sharks are *not* a major threat to bathers at the beaches in this country.

As noted in *The Cult of the Wild,* a book by Boyce Rensberger (reviewed in the March/April 1978 *New Jersey Outdoors),* The Shark Research Panel receives notice of an average of 50 shark attacks each year (worldwide). In one five-year period, there were 161 attacks on ocean bathers near shore. In this period, 32 attacks occurred in the United States, an average of less than seven per year. And only a few of these were fatal. So it would seem that sharks are not the "bad guys" that some of our literature and movies have led us to believe.

Many of us have been inculcated by our educational systems, literature, and the media with false images of our wildlife populations. Such emotional images as that hyenas are cowardly, weasels are sneaky and vicious, bears are cuddly, lions are noble, snakes are slimy and wicked, gorillas are ferocious monsters a la King Kong, and many more. . . .

Myths—all of them. And they warp our thinking about our real world and prevent us from developing a better understanding of our wildlife so that we can evolve realistic and effective conservation policies—based on facts and scientific observations, not sentimental false images, myths, or emotional ploys.

We might start by reading the book mentioned in the second paragraph of this piece.

IN THIS ISSUE

We welcome seven authors not previously published in our magazine. The first, Dr. Paul Phillip Sher, directs us to the ten best birdwatching areas in the state in the article, *New Jersey is for the Birds.*

Back for an encore is biology teacher Stephen J. Zipko with the article titled: *Gauging Student Attitudes Toward Wildlife Populations: A Technique for Teachers.* The author was named Outstanding Biology Teacher of America in 1977, and received an Outstanding Achievement Award in Conservation Education. He is first runner-up in the 1978 New Jersey "Teacher-of-the-Year" contest sponsored by the State Department of Education.

New Jersey's Wildlife Resource Farms by Arthur Harvey is an introduction to wildlife management as it is practiced on one of DEP's Division of Fish, Game and Shellfisheries Wildlife Management Areas.

My Brother the Hawk by Ron Raleigh is the story of a lasting friendship? between two predators—a man and a marsh hawk.

A continuation of our Wildlife in New Jersey series—*The Red Squirrel,* the article by Bruce Hawkinson and the illustration by Robert Pierro. This article is introduced by the full color illustration by Carol Decker on the inside back cover, suitable for framing.

Elizabeth M. Morgan got curious about an article she read in the "Way Back When" column of the *New Egypt Press* and her subsequent investigations resulted in a *Tall Turtle Tale.*

The *New Jersey Environmental Directory 1978-79* is available from the Youth Environmental Society (YES). New editions will be published every two years.

If you're into field trials for pointing-breed dogs, read *A Field Trialer Looks at his Sport* by Bob Bublitz. Photographs were provided by Dave Campione.

New Jersey/Viewed Through the Artist's Eye by Carleton V. Brairton is an article about outdoors photographer David Bast. Ms. Brairton, a frequent contributor, interviewed Mr. Bast and she shares with us his photographic tips and techniques. Photographs in the article and the front cover were provided by Mr. Bast.

Staffer Edi Joseph reports on the *Reenactment of the Battle of Monmouth* at the recent Monmouth Battlefield State Park Dedication.

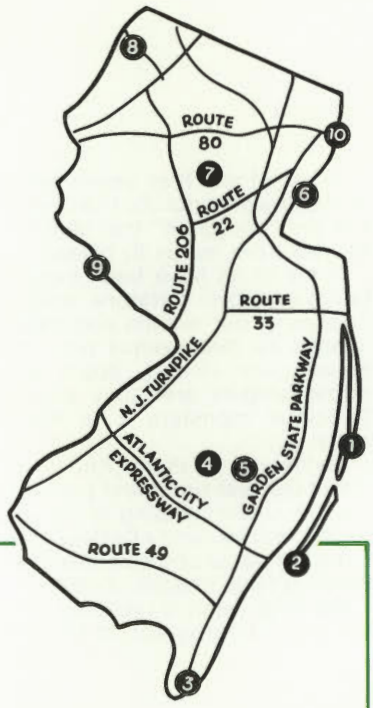
In Search of the Morris Canal by Eileen M. Van Kirk is just that—a search for evidence that the canal where "ships sailed mountains" really existed. Photographs were provided by the New Jersey Historical Society.

Steve Perrone

New Jersey is for the Birds

Ten Best Birdwatching Areas in New Jersey

By
Dr. Paul Phillip Sher



NEW JERSEY BIRDING AREAS

1. Island Beach State Park
2. Brigantine National Wildlife Refuge
3. Cape May, New Jersey
4. Wharton State Forest
5. The Pine Barrens Region
6. Hackensack Meadowlands
7. Great Swamp National Wildlife Refuge
8. High Point State Park & Stokes Forest
9. Bull's Island Recreation Area
10. Palisades Interstate Park

Year-round throughout the state, bands of people of all ages are getting up before dawn to trek through local parks, sanctuaries, woods, fields, around reservoirs and ponds, or along the nearest beach. They are involved in one of the fastest-growing sports in America —birdwatching. Birders, as they are called, are attracted by the pleasures of the outdoors and the common desire to see birds and learn to identify them.

New Jerseyans are fortunate to live in an ornithologically rich environment. Situated on the Atlantic coast, the state offers some of the best birding in the country, with more than 400 species recorded throughout the state. The diverse habitats include fresh and saltwater marshes, ocean beaches, a variety of coniferous and deciduous forests, fields, lakes, rivers and streams (with associated swamps and bogs), as well as mountain ridges.

Scarlet Tanager PHOTOS BY AUTHOR

No special skills are required to be a birder. A pair of prism binoculars (6-8 power) and a field guide are the only prerequisites to start on a lifelong adventure with birds. Each species of bird has distinctive physical features and/or unique color patterns, which provide "field marks" for identification. Several excellent field guides are available to aid in this identification; Peterson's *A Field Guide to the Birds* (Houghton Mifflin Co., 1947—a new revision in process) and Robbins, Bruun, and Zim's *Birds of North America* (Golden Press, 1966).

For the beginner, joining a local bird club or Audubon Society offers the best opportunity to develop skills in birding. These organizations have regular meetings, lectures, courses, and numerous field trips throughout the state. The National Audubon Society (950 Third Avenue, New York City, 10022) has numerous local chapters, and membership includes a subscription to *Audubon,* one of the most beautiful nature magazines available. The New Jersey Audubon Society (790 Ewing Avenue, Franklin Lakes, New Jersey 07417) also has an extensive program of activities, including some family weekend trips.

The diversity of habitats available to New Jerseyans makes a selection of "best" areas most difficult. My selections are based on the natural beauty of the area, as well as its birding potential. Every birder has a favorite area and if I have neglected anyone's, I offer an apology. However, when I go afield in search of birds, the time, the place, and even the act of birdwatching becomes secondary to the exhilaration of the natural environment—which is available most everywhere in New Jersey, if we just open our eyes and look around.

ISLAND BEACH STATE PARK (1)

This 10-mile barrier beach is one of the State's richest birding areas, with more than 270 species recorded. Bounded by the Atlantic Ocean and Barnegat Bay, it is best during fall migration, but offers excellent year-round birding. In late September and early October, the water, dunes, and shrubby vegetation are alive with everything from waterfowl to sparrows. Along the dunes, look for migrating raptors (Peregrine Falcon, American Kestrel and Merlin). There is a well marked

Black-capped Chickadee

Red-winged Blackbird

nature trail, which helps reduce damage to the fragile environment of the dunes. The ocean beaches are excellent all year-round. In winter, look for Red-Throated Loons and scoters along the bay.
Getting There: Take the Garden State Parkway to Exit 82. Follow Route 37 to Route 35 and head south to the park entrance. Parking areas are available approximately 3 miles from the entrance adjacent to the beach. An entrance fee is charged.

BRIGANTINE NATIONAL WILDLIFE REFUGE (2)
This 20,000-acre area is located 11 miles north of Atlantic City and provides some of the best birding in the state. A road built along the dikes separating the freshwater pools and the saltwater marshes winds through the refuge. This forms an 11-mile interpretive auto trail with easy access to parking for both observation and photography. Included on the trail are 2 observation towers and several photographic blinds (reservations required in advance from refuge manager). Aquatic birdlife is no better anywhere in the state. Eleven species of heron and seven species of duck nest in the refuge. A spectacular summer sight are the hundreds of Glossy Ibis that descend upon the refuge. In all nearly 300 species have been recorded here. The fall migration (peak in November) is spectacular, with thousands of birds congregating in the pools. Two sparrows unique to saltmarsh areas should be looked for—Seaside and Sharp-Tailed. Of course, shorebirds are present throughout the season. In winter, the migration of Snow Geese can be seen in February, and any day is good for Rough-Legged Hawks, Short-Eared Owls and a variety of waterfowl. Rarely reported but always anticipated are sightings of Bald Eagle and Snowy Owl.
Getting There: Take the Garden State Parkway to Exit 48. Follow Route 9 south to Oceanville and look for the refuge markers. A small sign opposite the Oceanville Post Office indicates the entrance.

CAPE MAY, NEW JERSEY (3)
Situated at the southern tip of New Jersey, this mecca of fall migration is best visited in mid-September. Birds congregate here on their southern migration before crossing the Delaware Bay. This 18-mile flight over open water can be extremely hazardous, if weather conditions are not right, because birds can be swept out to sea. One never knows what will be seen on any given day, but the hope of every birder is the "ultimate" day, with weather and migration conditions perfect, to yield 100 species or more. The residents of Cape May continue to tolerate the yearly invasion of birders, who walk along the residential streets around Lily Pond. There are numerous places to visit—Cape May Point, Lily Pond, Lighthouse Marsh, and Higbee Beach. North of Cape May are Stone Harbor Bird Sanctuary, in the heart of this picturesque fishing village,and Seven Mile Beach. Cape May Point State Park, near the Coast Guard Station, is one of the best hawk-watching areas. The salt marshes along the coast road—Ocean Drive—are also rewarding.
Getting There: Take either the Garden State Parkway or Route 9. Both end in Cape May. Cape May Point Sanctuary is located off Sunset Blvd. around Cape, Sea Grove, and Lighthouse avenues.

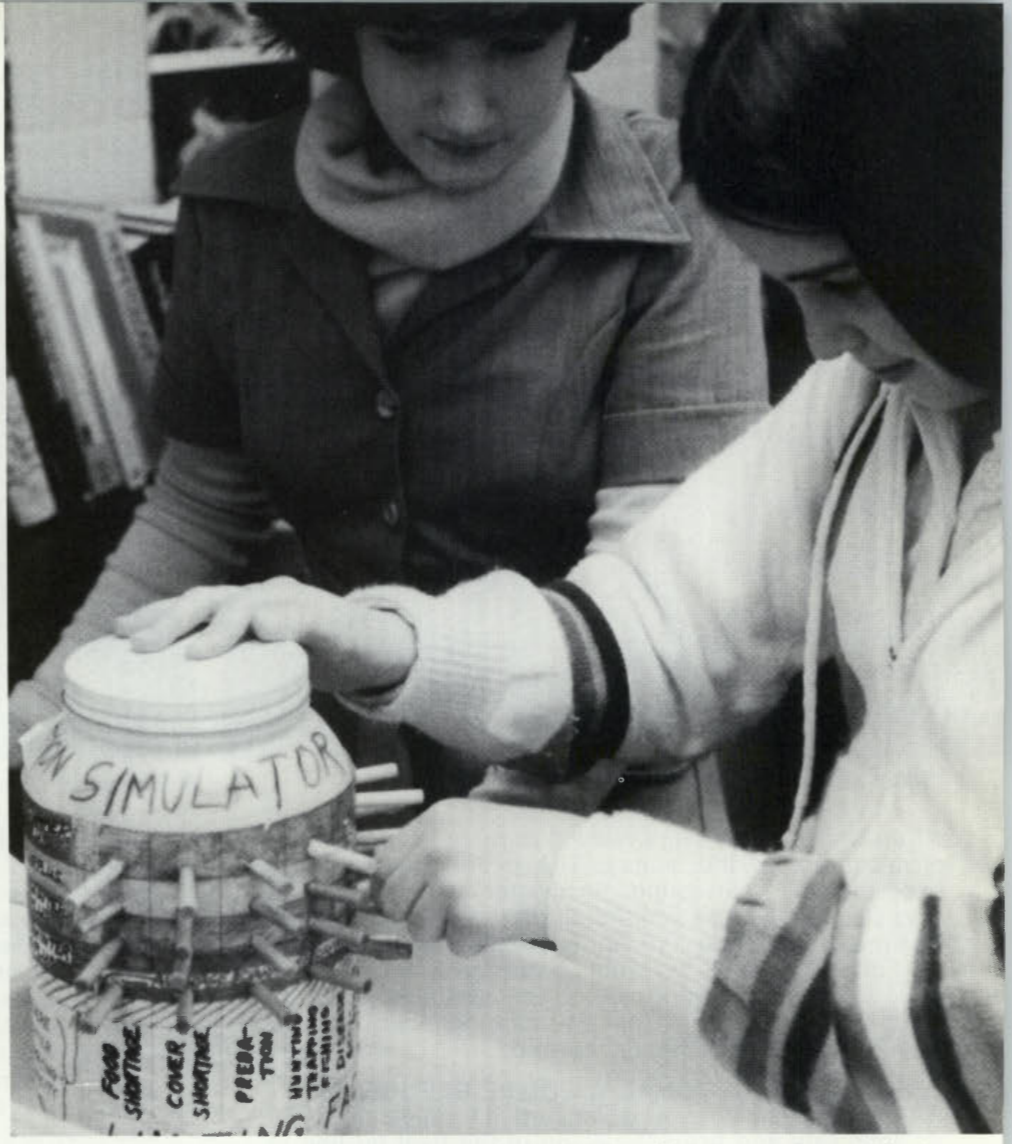
WHARTON STATE FOREST (4) & THE PINE BARRENS (5)
Wharton State Forest offers some of the finest streams and lakes for recreation as well as birding.The Mullica and Batsto rivers traverse the area and provide a rich habitat. Stained brown from the cedar trees, these river areas contain nesting Yellow and Prothonotory warblers, Yellowthroats and Redstarts. The insect life along these waters attracts swallows in addition to the insect-eaters of the pine forests (vireos and warblers).

The Pine Barrens is the largest (970,00 acres) wilderness area of the mid-Atlantic states. It contains a variety of unique habitats which include pine-oak forests and white cedar swamps and bogs. Certain of the flora and fauna are found nowwhere else in the state. The pitch pine forests offer a variety of game birds (Ruffed Grouse, Bobwhite and Woodcock), owls (Screech and Great Horned), Turkey Vultures, Red-Tailed Hawks and the usual forest dwellers (woodpeckers, flycatchers and thrushes). The southern border of the region recorded the only pair of Bald

Continued on page 30

Gauging Student Attitudes Toward Wildlife Populations: A Technique for Teachers

BY STEPHEN ZIPKO
PHOTOS BY AUTHOR



Youngsters use wildlife population simulator to learn first-hand how a natural population is regulated. As specific wooden dowels are removed in certain combinations from holes in plastic one-gallon container, a "population" of water decreases in response to simulated limiting factors.

INTRODUCTION

Fall is a good time for teachers and youth leaders to educate youngsters about wildlife conservation. Field trips, camping experiences, nature walks, and other outdoor studies certainly have their value.

But until now few teachers have bothered to evaluate, then act on, the feelings children harbor toward wildlife, particularly prior to and after conducting outdoor work. Too many adults blindly go through the actions of teaching field study methods without first evaluating certain student opinions, then devising studies specifically designed to overcome attitude deficiencies. It makes sense to find out how youngsters perceive the natural world, *then* teach them about it, *then* determine any differences (positive or negative) in their attitudes as a result of the teaching experiences.

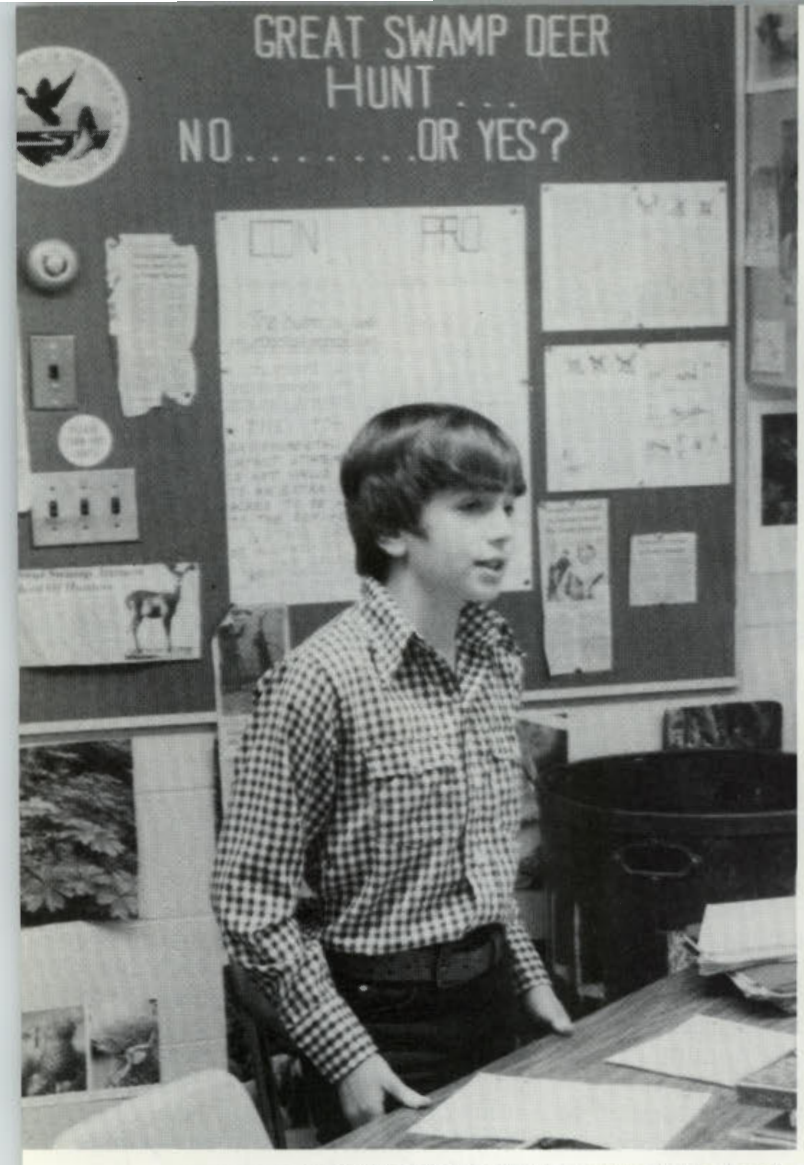
The next problem inherent in all this is how best to test student attitudes. Teachers with whom I have discussed this express a desire to formulate and use some measurement technique which will cover all possible feelings youngsters may have. To do this is admittedly difficult; but in the past I have successfully utilized a multiple-choice questionnaire before and after sponsoring certain indoor and/or outdoor wildlife experiences at the seventh-grade level. It is my opinion that, with slight modification, this questionnaire is equally applicable for high school and college students as well as for those in elementary grades. Moreover, it can and should be used not only in schools but in any youth organization oriented even in part toward conservation and wildlife appreciation. The survey would likewise be a valuable addition to public education programs in county, state, and federal wildlife preserves.

THE QUESTIONNAIRE AND ITS RATIONALE

The survey (Fig. 1) has been used in conjunction with a minicourse on wildlife populations which I have taught at Randolph. Prior to beginning the three-week course this year, I distributed the 21-question survey to 69 pupils in three of my four classes. At the end of the course the same survey was administered to 93 youngsters in all four classes. On both occasions, students were not informed about the survey prior to its implementation.

In formulating the questionnaire I attempted to ask questions pertaining to eight conceptual areas which were considered relevant to understanding seventh-grade attitudes. These were:

1. the "ugh" complex present in many people
2. what makes some plants and animals interesting
3. prior experiences with plants and animals
4. knowledge of wildlife issues
5. hunting experience
6. influence of friends and relatives



Some pupils prepared bulletin-board display in preparation for imminent courtroom debate on animal populations.

. . . . students cast their votes regarding their feelings about the deer hunt. Results indicated support of wildlife management programs in general, but not the deer hunt program at Great Swamp.

7. awareness of conservation groups
8. aesthetic pleasure derived from wildlife

Statements number 1 and 6 are inextricably related because the development of the "ugh" complex depends to a great extent on parental, sibling, and others' views. This complex, defined as fear and/or hate for a wild thing, characteristically pervades the thinking of too many people. In many families the complex has been handed down for several generations. Poaching may ultimately stem from this philosophy although most youngsters, even those who have this complex, don't grow up to be poachers. But the tendencies to wildlife destruction in such people are real, especially toward insects, spiders, and reptiles. Many of these people quite ironically are attracted to birds and mammals. The fishes and amphibians appear to be the only vertebrate groups that people are undecided about. Thus, while reptiles are the most universally hated and feared vertebrate group, arthropods (insects, spiders, centipedes, etc.) are the most despised invertebrates.

Statement number 2 reflects my desire to elucidate a pattern of wildlife characteristics which interest (or even excite) pupils. Do they like house plants as opposed to garden varieties? Large rather than small teeth in animals? Tall, straight trees compared to short, spindly ones? Furry creatures compared to smooth-skinned types? Plants exhibiting rapid movement or those which don't move except for growth responses? You can use personal experiences in the planning of such questions, particularly feelings you or your friends may have shared about plants and animals as a youngster. But much of the material develops from a simple knowledge of human behavior. Observing children at a zoo provides one with a continuous flow of ideas regarding their attraction to or disdain of animals.

Observing in these ways also gives the teacher an insight into students' prior wildlife experiences (statement number 3). But such observation allows only some pupils to express their views; others may be naturally reticent to do so in the presence of the group. This reti-

Continued on page 6

Continued from page 5

Student Attitudes

cence, however, is virtually eliminated by the written survey because all students can give me the necessary insight without fear of ridicule. And, to prevent any possibility of individual student responses influencing teacher-based prejudices (which can happen sometimes inadvertently with any adult, no matter how unbiased), I have pupils refrain from placing their names on the questionnaire.

Statement number 3 is sometimes closely associated with number 4 (hunting experiences), especially if your youngsters are from a rural area. Questions about hunting, therefore, are sure to evoke definite feelings and give you some indication of deficiencies in student perception of wildlife management. Also provocative is to correlate such deficiencies (or lack of them) with student background (rural vs. suburban vs. urban).

Statements 4 and 7 are mutually dependent. Student awareness of environmental issues should be developed at an early age, definitely by the time they reach sixth grade. After all, within just several years they will vote to determine the fate of state bond issues in addition to local conservation measures. But, since many people of voting age don't bother to do so, it is most important to promote in youngsters a sense of duty rather than complacency, action rather than apathy. This should not be done solely to stimulate a desire to vote, but likewise to act upon environmental concerns as they occur—by writing letters to local, state, and federal legislators, and by being aware of possible solutions to problems. Most folks have little idea of how influential they can be with their letters. Only several addressed to a congressman concerning an issue are sufficient for him to desire further information from his staff members. Several hundred letters usually cause him to think not twice but a few times before deciding how to vote on the issue.

For these reasons I believe student awareness of issues and conservation groups is especially important. Of course, I don't require pupils to subscribe to these organizations, but rather attempt to encourage a desire in them to know more about harmful human effects on wildlife, and to be aware of the work being done by various groups in the interest of conservation. Thus, the survey contains some questions designed to measure student awareness and opinion of conservation groups and issues.

Wildlife artist visited the classes to reinforce the development in students of aesthetic appreciation of wildlife.

Finally, questions pertaining to statement 8 (aesthetic pleasure) are included. It is shameful that more schools don't incorporate aesthetic appreciation of wild things in their outdoor education programs. Some teachers don't because they are afraid they will promote a "sissy" image. Others say that wildlife poetry and art should be taught by art and English teachers. Such excuses are ridiculous. Since when is education so isolated and specialized that one teacher can't stimulate some interdisciplinary talent in himself and his pupils? After all, we only learn a concept through repetition and integration of skills associated with that concept. Such skills should always encompass history, social studies, economics, geography, math, English, art—even music.

QUESTIONNAIRE ANALYSIS

Naturally, the whole idea of utilizing the survey before and after teaching a wildlife unit is to compare results and thereby make tentative conclusions regarding the effectiveness of what has been taught. In this way, more efficient methods of instruction and content can be retained.

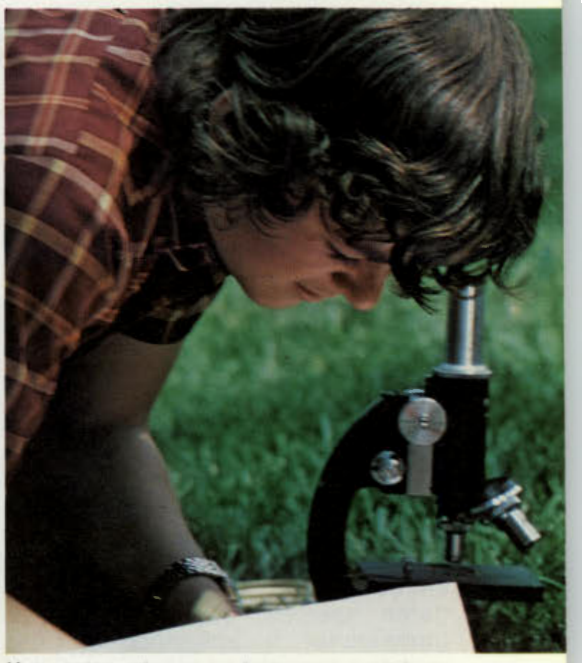
Although students don't place their names on the survey, they are requested to indicate which class they belong to. This enables me to analyze questionnaire results for each class as well as total results for all classes. Pupils are told that, with some questions, none of the choices may be applicable to their feelings or situation. In such cases they should still select that choice which best fits.

Note that many questions are constructed with several choices, two of which represent a simple positive or negative selection. The other choices usually represent finer, more detailed aspects of positivism or negativism. An example is question #17, where clear choices (A) and (B) are subdivided into one other positive choice (C) and two negative ones (D and E).

For reasons of brevity I have only included the combined analyses of all classes rather than the class-by-class breakdown of results. Copies of these are available upon request. As Tables 1 and 2 show, 15 of the 21 most popular choices increased in percent. Analysis of the other 6 questions is both revealing and disappointing. Results of question #2 don't differ significantly; but questions 4 and 5 indicate that fewer youngsters think

Continued on page 20

Pond-profile measurements are taken. Pond depths are obtained every few meters with a meter stick, while other students record water temperatures at the surface, middle, and bottom of pond.



Youngsters also use microscopes outdoors as part of aquatic study. They record and draw what is observed, then submit lab reports based on these observations.

Youngsters plot locations of leafhopper nests during a quadrat population study of this insect. Note the string stretched across the study area at different locations.

Students plot locations of trees and shrubs during woodland quadrat experience.

New Jersey's Wildlife Resource Farms

BY ARTHUR HARVEY

Russell Spinks and son with woodcock bag HARRY GROSCH

Russell Spinks is a large, husky man, with the brown and weathered skin of someone who spends a lot of time outdoors. A hunter born and raised, he grew up on a farm and has hunted all his life, and now manages state-owned public hunting grounds for northern New Jersey. Early in the fall I drove up to Sussex County in northwestern New Jersey to call on Mr. Spinks at his headquarters at the Flatbrook Wildlife Management Area, to see at first hand what a wildlife management area is, and what the state does to attract and encourage the growth of wildlife and game species. Being primarily a birdwatcher, I am uncomfortable with the thought of killing anything, particularly wild animals, and after talking with Mr. Spinks for a few minutes I could tell that our backgrounds were quite different. But beneath the surface differences I could sense that we shared a common affection for the out-of-doors, and a similar interest in the natural world.

New Jersey's Wildlife Management Areas (WMA) are essentially public hunting and fishing grounds. If you look on the Official State Map, you will see these areas sprinkled here and there around the state; New Jersey has 54 of them, totaling roughly 145,000 acres. They are administered by the Division of Fish and Game's Bureau of Wildlife Management, with money obtained from the sale of hunting and fishing licenses. Most of the land which makes up WMA's in New Jersey was purchased with money from the same source, although in recent years some funding has come from the Green Acres Program.

The Flatbrook WMA lies on a strip of land between the Delaware River and the Kittatinny Mountains, along the northwestern border of the state. It was a part of New Jersey I hadn't seen before, and it seemed comparatively untouched by the development taking place in other parts of the state. After crossing the Kittatinny Mountains I saw no more housing developments or shopping centers, only old farms, barns, stone walls. It looked a little like rural New England.

We took a tour of the Flatbrook area in Mr. Spinks' pick-up truck. As we drove he told me that New Jersey is often regarded as a testing ground for adapting wildlife management techniques to urbanized areas, because it is the most densely populated state, with a growing population and a shrinking amount of open land. The success of its programs is closely followed by other states with large urban populations. He added that so far, New Jersey has met the demands of increasing hunter pressure, for in recent years record takes of deer and other game have been reported, yet the Bureau's monitoring of herds and animal populations show that the supply is not yet endangered.

He also explained, by way of introduction to the subject of wildlife management, that in any wild area, nature works out a balance between the amount of territory, the animal population, and the available food supply. Small animals like rabbits or mice have natural predators, and their populations are kept in check both by the limits of the food supply and by predators—hawks, owls, foxes, and other large animals that eat them. But since wolves and mountain lions have long since disappeared from New Jersey, an animal the size of a deer has no natural predators other than man. In a woodland area where there is no hunting, therefore, the deer population multi-

plies to the point where there is no longer food to go around, and the animals become malnourished and weakened, and die from sickness and starvation as well as old age. In a game-managed, hunted area, the food supply and the shelter are maximized, while the population is thinned out each year by hunting. In this way the game species are kept both abundant and in good condition.

As this point Mr. Spinks pulled his truck over and stopped in front of a forest of pine trees.

"You see that pine forest?" he asked. The trees were tall, straight, and bare on the bottom half of the trunks, while high up the branches formed a roof that let in very little light. The undergrowth was very sparse.

"From a wildlife point of view, that's a biological desert," he said. "There's no undergrowth, nothing for the animals to eat." He explained that animals need low-growing shrubs and small, tender young trees and grasses to feed on.

"Most of your so-called 'forest animals' are actually 'edge' animals," Mr. Spinks said. "They don't live in the deep forest as much as at the edge of it, using the woods for shelter but seeking their food in the open."

For this reason, wildlife management practices utilize a good deal of open space. The basic pattern is one of open fields alternating with hedgerows and patches of woods where the animals can seek shelter. It is the open areas which produce most of the food supply.

As we drove on, Mr. Spinks said that in a game-managed forest, tall, close woods like the one we had just seen were cut in selected spots to create open spaces to let in light and allow the undergrowth to grow back. He turned onto a dirt road that led into a woods of maple, oak, tulip and dogwood, and stopped at a clearing where the big trees had been cut and left lying on the ground. Here the morning sunlight came streaming down into the forest, and all around the trunks of the fallen trees, and in between their branches, small saplings and low bushes were growing up. We got out and went over for a closer look, and Mr. Spinks pointed to where the tips of a young oak tree had been nibbled off.

"Deer are great browsers," he said. "The tips of these young oaks are one of their staples."

Then we left the woods and drove down to some of the Flatbrook area's open fields and meadows. There Mr. Spinks showed me fields of soybeans and corn and said that in addition to these, the Bureau plants oats, rye, timothy, clover, and various "pasture mixes." These crops are not harvested but left for the wild animals to feed on. This sort of modified farming raises the area's food supply considerably above what it would be naturally, and enables it to support larger animal populations. Fields which are not planted, and not all of them are, may be mowed every year or two to keep the wild vegetation young and more edible. Even the hedgerows between the fields, he pointed out, are largely man-made, and include evergreens to provide winter cover, and other trees and shrubs which provide both shelter and fruit: dogwood, wild rose, honeysuckle, autumm olive, hickory, apple, and oak. The hedgerows were wide, 30 feet or so, and I could see that they were full of birds feeding on the berries and seeds.

Wildlife management thus resembles farming in certain ways, the most obvious of these being that the land and natural resources are manipulated by man to produce a crop. At the Flatbrook area the main crops, or game species, concentrated on are deer, rabbit, and grouse, with smaller numbers of woodcock and squirrel. A second similarity to farming is that the crop produced—wild animals—is regarded, like ordinary farm crops or timber, as a renewable resource. The idea of management is to produce an optimum crop of wild game and to control the take so you have enough left for seed for the following year.

"Of course all this food and shelter attracts nongame species too," Mr. Spinks said, "and that makes a wildlife management area a good place to take a nature walk or watch birds." He explained that when wildlife management areas began to be set aside in New Jersey in the 1930's and '40's their original purpose had been to cultivate wild game for hunting and fishing. That is still their main fuction, although in recent years more and more nonhunters, like birdwatchers, hikers, and nature clubs, have begun to use them in the off-season.

I had gathered from reading Division of Fish and Game reports that as of late the Bureau of Wildlife Management has been the target of mounting criticism from certain conservation groups and individuals who are opposed to killing wild animals and who object to the Bureau's philosophy of raising wildlife for hunting. Wanting to hear Mr. Spinks' side of this, I asked him about it.

He replied that it was so, mentioning that Cleveland Amory was one of those people who, though very articulate and highly vocal, was dabbling in a field that he had probably had no experience with and knew very little about. The problem, Mr. Spinks felt, is that people don't grow up on farms much anymore, and they aren't used to the idea of death or to seeing animals killed or butchered.

"If you grow up on a farm you see death all the time—have to kill something in order to eat—and you grow used to the idea. It's part of the cycle of life," he said. The critics of hunting, he felt, do not stop to think that all the meat they eat comes from butchered animals. He added that lately the Division of Fish and Game had had to spend quite a bit of time and effort defending its work. One of the "exhibits" it has acquired to show public groups in defense of its work is a movie of the commercial slaughter of animals for market.

"You should see it; it's not very humane," he remarked.

At this point I mentioned the world's generally vanishing wildlife and the growing number of endangered species, and asked if there was any connection between this and over-hunting.

"That's another confused notion," he replied. "In New Jersey no endangered species are being hunted. They're protected. Animals in this part of the country are in danger of extinction because of pollution and vanishing habitat, not from hunting." He mentioned the Peregrine Falcon as an example, a species which disappeared from New Jersey about 20 years ago because the birds had so much DDT in their systems that their eggs would not hatch. The Division of Fish and Game is currently trying to reintroduce the Peregrine Falcon into the state. The Division also reintroduced Wild Turkeys into New Jersey, in an attempt to reestablish a native population of a game bird which disappeared from this state early in this century, both from overhunting and from the disappearance of their woodland habitat with the spread of farming. Following the decline of farming in New Jersey, some of Sussex County's woodlands have

Continued on page 17

My Brother the Hawk

BY RON RALEIGH

PHILLIP SHER

My hawk is dead! I do not mean to suggest that I actually owned him, that anyone could in fact possess that elusive, free-spirited creature of the skies! Oh, I suppose someone with a great deal of cunning and determination could capture one and cage him. But who could capture and hold that free spirit? Who has seen the wind, or held a beam of sunlight in their hands, or reached out and touched the sky? Incarceration and suppression of that spirit would be a most cruel and unnatural act, preventing this super hunter-predator from fulfilling his true destiny.

But he is gone! The circumstance of his demise is not so shocking as the very fact that he is no more; but perhaps it being a grim reminder of the mortality of both man and beast makes it so unbelievable.

I remember well the first time I saw him. I was crouched in a thicket of sassafras and laurel, bow in hand, waiting on a deer that had approached from behind me to step out into the open. I had spent a great deal of time blending my form with the surrounding flora. I was outfitted in a camouflage suit of various shades of green, black, and brown similar to the clothing our soldiers wore in Viet Nam; my face and hands were painted the same colors. Obviously I blended in perfectly, for it had not been more than half an hour earlier that another hunter had passed within a few feet of me and failed to notice me.

The hawk was hunting also—on the prowl. He approached from perhaps 500 yards away, slightly above the tree line. He appeared at first as a faint speck not unlike a single-celled paramecium viewed under a microscope, darting in and out, up and down. As he drew closer his resemblance to that creature faded—movements were not helter skelter but rather determinedly systematic and methodical. What perfection! What control! The ultimate manifestation of the evolutionary process. I held my breath, rigid, unmoving save for my eyes that remained glued to that elusive form flowing over the landscape. He passed directly over, close enough that I felt the air part as he sliced through. It was obvious he had seen or sensed something; maybe the blink of an eyelash or the heaving of my chest. His continuity interrupted, with several light strokes of his wings, he rose higher into the evening sky. When reaching an altitude at which he almost faded from my view, an imperceptible motion of his wingtips held him frozen in repose. Suddenly I had the uncomfortable feeling that I was to become his next meal. Could it be that I was so well hidden that the vertical movement of my eyeballs was being mistaken for some tiny rodent moving through the underbrush? I was hypnotized. Would he attempt to pluck my eyeballs from their sockets? I had my weapon in hand but not the slightest inclination to use it. He drew his wings to his body and began his descent. I stood up, removed my hat from my head and waved it violently. Still he came—his speed increased until he looked as a meteor falling from the heavens. I started to throw myself to the ground yet I was frozen to the scene unfolding before me. He was closing fast; I closed my eyes and awaited impact. The air around was shattered as he blasted past but I held my position for a few moments more. Finally I opened my eyes and to my surprise he was leaving the scene as he had entered, diligently pursuing the hunt back across the meadow and over the woods. But this was the first of many such meetings.

October 10, 1972—that was his date of birth as far as I was concerned. It was on that day that I first observed him. It was apparent that hunting in the area had been good for he was large and robust. He had taken many a meal from these beautiful New Jersey meadowlands. There is an unwritten law of the tiny creatures inhabiting this area—never be caught in the shadow of the hawk above ground. The reason is obvious.

It would be impossible to estimate the number of times I watched him appear with the morning sun rising out of the mists, yet it is precisely that scene that I'll hold forever in my mind. A still frame burned within my memory.

As I observed him in his daily routine it occurred to me how very much alike we were. If there was a

profound difference between us it would be that his need to hunt was a matter of survival and mine purely psychological. Yet, I am not so sure that if he became incapable of hunting but had his every physical need fulfilled, he still might cease to exist. With his nomadic and predatory soul shackled he might still mourn himself into oblivion.

The territories that we hunted overlapped and the fact that we both consumed the flesh of living creatures from a common hunting ground made us blood brothers. In him I was no longer an earthbound prisoner chained by man's limitations. In him my soul was set free. In him I too rode the winds and hovered above the landscape and in him I saw for the first time in my life the pure grace and beauty the Creator bestowed upon his animals.

I am not sure whether he accepted my daily intrusions or rather just learned to tolerate them. In the beginning he may have even considered me somewhat contemptible. After all, here I was invading his sacred domain, hanging from a large gum tree, bow in hand, waiting for a deer to pass. He often avoided me, yet as time passed, his flights drew closer. I knew that we were not in competition, but did he? And even if we were, how could a primitive weapon such as a bow and arrow compete with the deadly accuracy and the relentless pursuit of my brother in the sky?

One particular evening while sitting in my favorite gum tree, I was enveloped in an unusual stillness in the autumn air. My thoughts were interrupted by the distinctive sound of a large animal moving toward my position. It was one of those farmland-fattened does so common to the area. I dispatched her with a deadly shot entering behind the fifth rib angling forward, deflating both lungs and decimating the heart. Exploding from the scene in full flight, yet barely making 50 yards in a straight line, she collapsed. Her agony, if there was any, lasted no more than five seconds. We should all die so quickly when our time comes. Some people would consider the taking of a doe a somewhat less than honorable act. But if hunters are truly agents of game management, and I think we are, it was a necessary act given the fact that the deer herd was growing so rapidly in the area that they were beginning to cause serious damage to valuable crops; also, the potential for disease among them was growing daily, not to mention the possibility of starvation in winter.

Having dressed the animal and undertaking the task of removing it from the woods, I was interrupted by a shrill cry from above. The hawk circling overhead, dove, circled, dove again, tipping his wings as if to salute my success and finally flew off. I think from that day forward I was accepted. Even though that success ended my hunting for the year, I continued to journey to my tree in the meadows, but the hawk seemed confused that I no longer carried my bow.

The following fall rolled around quickly and again I was on the prowl. Because of increased hunting pressures the deer were becoming much more difficult to get close to. Day after day I would go to my tree and day after day I would return empty-handed. The hawk would always fly over to see if I was having any luck. I thought: "If I could fly like you, my brother, and had your skill as a hunter, success could not possibly elude me for so long." I had aslo thought of moving to another area but quickly discarded that idea. There wasn't an area around that provided the panoramic view to which I was accustomed. Surrounded by the raw and natural beauty of the Jersey meadowlands, the tall stands of oak, pine, and cedar, the rolling farmland with fields of corn and wheat—for me it was pure heaven.

It was obvious that my friend was becoming increasingly alarmed at my lack of success. He probably was more concerned than I was. His hunts increased in the area around me and he often flew by to show his many trophies. He had a great variety to choose from, and never ceased to amaze me in his ability to get what he wanted. I saw him with snakes, frogs and toads, fish, large insects, and even other birds and small rodents. One afternoon I observed him at an altitude quite uncommon to him. It was a ploy, for he was hunting other birds. I watched as a mourning dove rose from a thicket and flew over my tree angling towards the forest. He never made it. As by a bolt of lightning, he was struck from above as the powerful vise-like grip crushed him instantly. The big bird glided across the meadow with his prize and with a sweeping motion of his wings, tilted, banked, changed course, and returned to my position. His method of flight was curious, a kind of comical, half-loping gait. As he approached, he dropped a portion of the dove at my feet and disappeared. Was he offering part of his meal? Or was he taunting me as if to say, "That is how it should be done?" I was too enthralled to answer my own questions.

The hunting season passed without my filling my deer tag, but could it have been termed unsuccessful? Fresh air, peace and quiet, the daily revelations of nature's intricacies; what more could I ask?

The years passed by all too quickly, yet I and my hawk maintained our relationship. However, this past year a new element was added to that relationship. My wife, Joyce, finally decided after all these years that if she wanted to see me at all during October and early November, it would have to be in the tree I was so fond of, in the place so close to my heart. We made many trips together to that place, but the sight of my mate caused no great concern to my friend. I know he sensed that my wife enjoyed watching him as much as I did. What more could be asked of the hunting experience? An abundance of game. Quiet observance of the works of the Creator and through that a better understanding of my plan in nature, a hunter friend in the sky above, and the love of my life at my side.

It is human nature to want the good things in life to continue, that this partnership could remain forever, but the Creator did not make provisions for eternal life in the flesh. Only within the spirit and the evolution of the soul is that possible. Life and death are the inseparable companions of existence, and as man must die so must all the creations of God, even the marsh hawk.

Continued on page 25

Wildlife in New Jersey —

BY BRUCE HAWKINSON

The Red Squirrel *(Tamiasciurus Hudsonicus)* both in New Jersey and in other regions of North America, inhabits primarily coniferous forest consisting of spruce, hemlock, and various pines. For this reason, many of New Jersey red squirrels are found in the Pine Barrens. This small squirrel can also be found in hardwood forests, however.

— The Red Squirrel

DRAWING BY ROBERT PIERRO

In appearance the sexes are alike, but there is variation between the summer and winter coats. (Red squirrels molt twice a year, once in spring and again in winter.) Summer red squirrels have a rusty red back with a wide black stripe along the sides bordering a white belly. In winter, they change to a chestnut color without a black band, and the ears grow tufts of hair.

Red squirrels may nest in an interesting variety of locations. These imaginative animals will take over abandoned hawks' or crows' nests and roof them over with moss, strips of bark, and pine needles. The finished product has the entrance on the side facing the trunk. Other potential nest sites include hollow tree trunks, the deserted holes of the common Flicker, crevices of stone walls, and burrows. One individual may have three nest sites: a loosely constructed shelter for summer use; a secure winter nest, such as a tree hollow; and a weatherproof tree nest used as an alternate shelter in winter. Red squirrels may also burrow in the ground around tree roots. Generally, these nests are surprisingly clean of dirt and scats, but usually contain many parasites.

A red squirrel's life is a hazardous one because many creatures find them tasty. These predators include mink, bobcat, house cats, foxes, weasels, and large hawks and owls. Tree-climbing snakes will eat nestling red squirrels, and snapping turtles, pickerel, and largemouth bass will feast on those unfortunate enough to be caught swimming. Red squirrels may contract rabies and tularemia; otherwise, they are remarkably disease free.

Unlike the gray squirrel, which burries small amounts of food throughout its territory, the red squirrel concentrates most of its food for the winter in large underground caches. The *Tamias* in the species scientific name means "storer"—they always stash away much more than they will eat. These "middens", containing at times more than a bushel of food, become the animal's main winter feeding area.

Red squirrels hide food beneath logs and flat stones (sometimes burrowing to do so) and store other items, such as mushrooms, in the forks of branches and the cracks of tree trunks. Apples will be "squirreled" away in hollow areas. The squirrels later find the stored food with relative ease using their keen sense of smell.

The diet of the red squirrel is extensive, a behavioral adaptation developed in the course of evolution to prevent starvation if one food source became threatened. It includes items such as seeds of the various pines, larches, spruces, firs, and hemlocks, and berries of the Northern White Cedar. In a hardwood forest they feed on berries, nuts, seeds, buds, tender leaves, and the inner bark of just about every tree available. Red squirrels have been observed stripping away the bark of maples in the spring, in order to feast on the flowing sap; they will sometimes hang upside down while doing so. Other foods include grasses, insects, snails, small buds, eggs, the young of gray squirrels and cottontail rabbits, and fungi (including the deadly *Amanita muscaria* fly agaric mushroom which does not affect them). They will wash their food down with water and will even eat snow.

The red squirrel is highly promiscuous and has two main breeding periods per year: one from mid-February through March and the other in June and July. One female may raise two litters in one season. The gestation period lasts approximately 40 days. The young number 4 or 5 and stay with the mother until fall.

Although the density of red squirrels may reach 10 per acre, the average is about 1 per acre. These appear to be two types of territories utilized by red squirrels, the defended winter food caches and the "prime" territories which are defended the year 'round.

By far the most interesting characteristic of red squirrels is their behavior. They are extremely curious, mischievous, and talkative. They are active from dawn till dusk and even on moonlit nights, at all times of the year. They are very sociable and will play in groups and can often be seen chasing each other through the trees. However, when they sense danger they scatter, each one squirrel on his own.

It is easy to see why the red squirrel has picked up various nicknames such as "chatterbox" and "boomer", because they have an extensive vocabulary which includes chatters, clucks, and grunts; their warning call is a "churr-churr". The red squirrel will start altercations with neighbors by stealing food and being obnoxious in other ways. He guards his own property zealously and if an unwelcome individual invades his territory he will display his feelings by stamping his feet, jerking his tail frantically, and angrily "churring". In a better mood he will chatter cheerfully or remain silent by relaxing in a forked limb used as his lounge chair. The red squirrel is very suspicious of people, but will befriend them if treated properly; however, red squirrels cannot be tamed and kept confined as pets.

Red squirrels use surprising methods to move about. They have been found swimming offshore in lakes and can dive a foot or two below the surface. Their forte, however, is their leaping ability. Such leaps are always on a descent and the distance depends on the kiting action of the squirrels flat-spread body and tail. The tail is valuable in this respect because it increases the animal's power and coordination. The tail is fragile, however, and can break off; undoubtedly tailless squirrels have trouble surviving in the wild.

Although adventurous red squirrels will sometimes become a problem by trying to set up housekeeping in human habitations, their aesthetic value as delightful and free-spirited members of New Jersey's wildlife community more than makes up for their mischief. □

The Author at Brindletown Lake DOROTHY L. HALE

Tall Turtle Tale

By Elizabeth M. Morgan with the help of A. Morton Cooper

The article on the bog turtle in *New Jersey Outdoors* (March/April 1978) reminded me of a paragraph on terrapin which I had just read in the "Way Back When" column of the *New Egypt Press.* On March 21, 1913, an astounding catch of terrapin was reported as follows:

"Aaron Warner, of Mount Holly, recently arrived at Burlington with 19 dozen terrapin caught in Brindletown Pond, below New Egypt, which he peddled out to various hotels about Burlington at the rate of 65 cents a dozen. The terrapin were caught by being raked out of the muddy bottom of the pond, where they bury themselves at the near approach of winter."

Mr. Warner caught the 228 terrapin 65 years ago, which was the year of my birth in New Egypt. I wondered why I had no childhood memories of terrapin catches and began to review my meager knowledge of the order of *Chelonia* (turtles, tortoises and terrapins) with no thought that my musings would have the consequences they did. I remembered that we used to catch stinkpots (musk turtles) on hook and line and toss them back in Oakford Lake, a part of Crosswicks Creek downstream from Brindle Lake. We also caught box turtles, which make good pets. When I grew up and moved away, I learned that box turtles were placed in cellars to clean out snails and other undesirables —they were even sold in Philadelphia for this purpose. It was easy for me to spot a hundred turtles any fine summer day on an hour's row up Oakford Lake. Some were as big as dinner plates, but they all plopped off logs into the water before I got a close look at them. The good old days were not so good—no "binocs" and no pocket reptile guidebooks. There were lots of snappers then and now, but dire tales about a snapper's jaws made me steer clear of them. There is a pond near Waretown today so full of snappers that there are no ducks about, for snappers drown and eat them.

In any case, I was confused about terrapin. The only terrapin I knew was perhaps the best known of all, the famous diamond-back that commanded a price of a dollar an inch in the New York markets. Were Mr. Warner's "terrapin" diamond-backs? If so, why did he pass many ponds to go deep into the state to obtain such a large catch? Also, if they were diamond-backs, why did my guidebook say they were usually found in brackish or tidal waters? If they were not diamond-backs, what were they? Was the box turtle or the stinkpot a terrapin? What about the snapping turtle? The more I delved into these questions, the more interested I became and the more perplexed.

I consulted an old New Egypt neighbor, Mr. Theodore Robbins, aged 87, who by coincidence had moved near me in Forked River. Yes, he had eaten terrapin once—the natives called them "tarpin." He often found them in the meadow near his duck pond. They were about the size of the crown of a man's hat. I observed that he did not call

them "diamond-back" and he only ate them once.

He switched the conversation to snappers. He ran a 190 acre farm on fertile marl land and kept a boarding house in summer. He used to put snappers in a large swill barrel until ready for use. His family ate the snapper soup—the 75 boarders didn't get any. Furthermore, he emptied the swill in the hog pen daily—a fitting solution then for recycling and garbage disposal. He added that Bossy Dunfee was New Egypt's champion snapper catcher, for he knew just where to place his bowed fyke nets in the lake with great success.

After this conversation, I thought there was still something odd about the terrapin. Intuition told me that the terrapin named in the 1913 news story were not just a species. I checked on this in the Ocean County Library in Toms River and all I learned was that they were not diamond-backs. I decided I had come to a dead end, but it turned out I had not.

I had been on a merry-go-round of good works and just happened to pick up Weygandt's *Down Jersey* to get away from it all. I could hardly believe my eyes when I read that a woodjin complained he could not eat terrapin since his burst appendix was removed together with 18 inches of intestines. He went on to explain that he could not digest the redleg terrapin which was not the same as the diamond-back which he used to catch in the Delaware Bay salt marshes. Perhaps I was on the right track.

Then came still another coincidence. I was talking on the phone to Mr. David Parris, Assistant Curator of the New Jersey State Museum, concerning an early plant list of the Pine Barrens. My unsolved problem surfaced and I asked if he had ever heard of the redleg terrapin. This knowledgeable and obliging young man replied this was a vernacular name for the wood turtle. Before I could make another trip to the library, he wrote: "Also enclosed is a photocopy from Roger Conant's Second Edition (1975) of *A Field Guide to Reptiles and Amphibians,* which may shed some light on the redleg terrapin matter. It should be noted, however, that wood turtles were not abundant in southern New Jersey in historic time, and few (if any) have been seen there during the last decade."

I read the photocopy about the wood turtle, *Clemmys insculpta,* "orange on neck and limbs led to the vernacular name of "redleg" when this turtle was sold for human food during the early years of the century."

Still confused by names, I turned for help to Mr. A. Morton Cooper of Toms River who is well known throughout the state for his environmental work. He pointed out that my curiosity about the 1913 terrapin catch had landed me in the middle of an age old argument addressed by scientists and laymen alike. Raymond L. Ditmars, who was Curator of Mammals and Reptiles at New York Zoological Park and one of the world's best known herpitologists, noted that the words "tortoise," "turtle" and "terrapin" had been used indiscriminately for years. To end the confusion caused by this tangle of names, he divided the species as follows:

Tortoises—the strictly terrestrial or land species.
Turtles—the semi-aquatic and marines species.
Terrapins—the hard-shelled fresh water species that are edible and have a recognized market value.

Under this classification, there are 4 genera of terrapins in eastern North America.

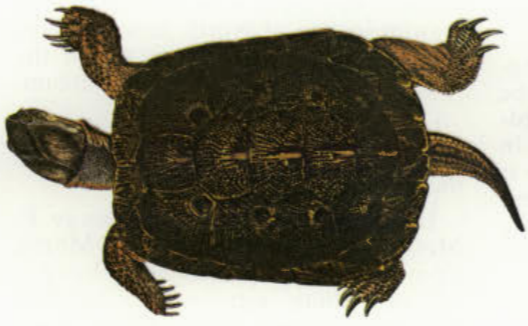
1. *Malaclemys*—the best known in this genus is the diamond-back, the most relished by the gourmets and commanding the higest market price until now it is protected by law. It prefers brackish water.
2. *Chrysemys*—the best known of this genus is the painted terrapin of our area.
3. *Pseudmys*—included in this genus is the red-bellied terrapin and several others marketed under the general grouping of sliders or cooters. They probably constituted the bulk of Mr. Warner's catch.
4. *Graptemys*—the map terrapin sold in the larger cities as the red-bellied terrapin, under the trade name of slider as a substitute for the more expensive diamond-back.

Finally, it all seems to fit into place. The snapper, being semi-aquatic is a turtle and so is the stinkpot as well as the mud turtle. The woodjin's "redleg" is a land animal and is actually the wood-tortoise. The box turtle is also a land animal and is correctly a box tortoise. It all becomes clear now. Mr. Warner caught and sold slider terrapins. Mr. Robbins ate sliders once and sometimes furnished his family with snapping turtle soup. The woodjin could not digest wood tortoises after his operation.

In conclusion, although an article in this magazine and a 1913 news item sparked another interest for me in the outdoors, it is more important to note the little known uses of the turtle family in New Jersey's past and ponder what the future might hold. □

Reproduced from ***"Turtles of the North-Eastern United States"*** by Harold L. Babcock. Dover Publications, Inc.

DIAMOND BACK TERRAPIN,
Malaclemys centrata concentrica (Shaw)



WOOD TORTOISE,
Clemmys insculpta (LeConte)

RED BELLIED TERRAPIN
Psuedemys rubriventris (LeConte)

IN SEARCH OF THE MORRIS CANAL

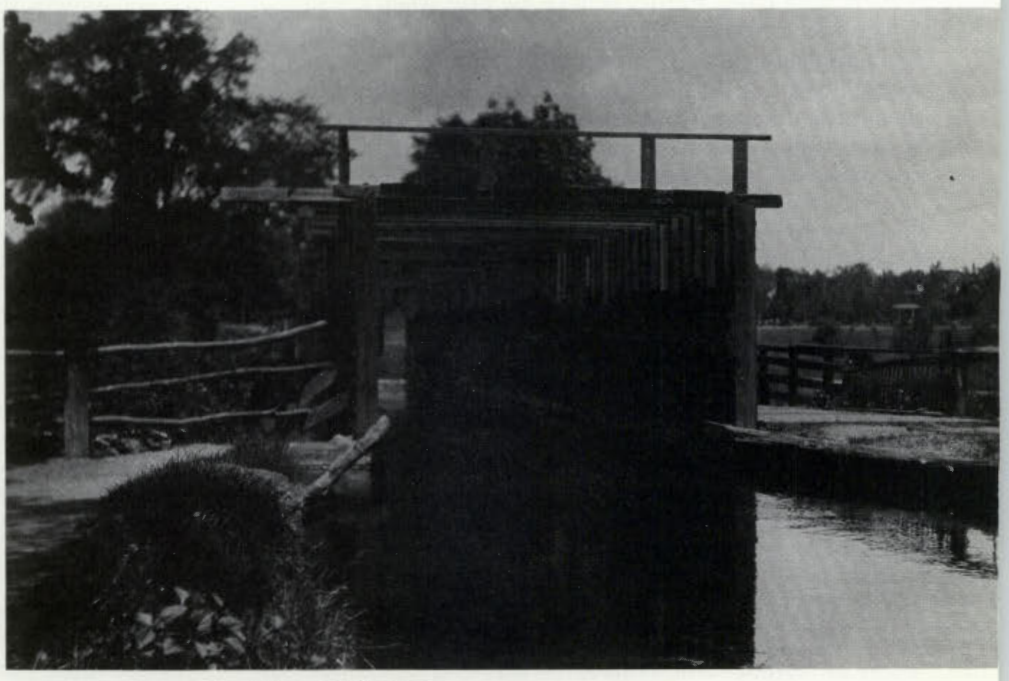
BY EILEEN M. VAN KIRK

"Old Bill Miller
Ridin' on the tiller
Steering round the Browertown Bend;
Old Davy Ross
With a ten dollar hoss
Comin' up the Pompton Plane"

Old Morris Canal Song

Inclined Plane at Bloomfield

Photos supplied by the New Jersey Historical Society



Aqueduct over Passaic River at Little Falls

Amid the rolling farmlands of Warren County there are three ports—Rockport, Port Murray, and Port Colden. It is hard to realize that these quiet little country towns were once flourishing centers of commerce, complete with docks and boats. But they were, and their names remind us of a long-forgotten shipping lane that made an incredible journey across the state—the Morris Canal.

The Morris Canal was drained in the Spring of 1924 for the very simple reason that it was no longer profitable. But because we never seem to realize that ordinary, everyday things are the stuff of tomorrow's history, no attempt was made to preserve for future canal buffs any of the features of this marvelous enterprise. Locks, viaducts, and inclined planes have all crumbled away, and the canal bed itself has been reclaimed by grass and vetch, bramble and briar, or covered over with concrete. Fast-growing willow and swamp maples line the once broad towpaths where the mules plodded at a slow, steady pace pulling the heavily laden barges, and cries of "Gee" and "Haw" echoed along the placid waterway.

But although the canal itself no longer exists, traces of its path can still be found, and the search is both rewarding and exciting. There is a thrill in coming face to face with the past; it unites us with all those men and women who have traveled this road before us, and whose legacy of vision and hard work we have inherited.

And there are unexpected rewards too, such as glimpses of old towns, almost untouched by time, plus the lovely, rich and varied New Jersey countryside with its wooded hills and valleys of fertile farmland. On a hot summer day there is the extra bonus of a swim in one of North Jersey's deep, cool lakes, or a chance to sit on the bank, fishing rod in hand, and dream.

It was a fishing trip to one of New Jersey's best-known lakes that led to the birth of the Morris Canal.

In the summer of 1820, George P. McCulloch, President of the Morris County Agricultural Society, hung a "Gone Fishing" sign on his office door and took himself off to Great Pond (now known as Lake Hopatcong). While casting on the waters of this beautiful lake, set in the heart of the New Jersey Highlands, McCullough reflected, as do all good fishermen, on a number of weighty subjects. Among them was the diminishing output of the local iron industry, the bountiful crops that could be raised if only there was a reliable way of getting them to market in Paterson or Newark, and, perhaps above all, the general deplorable condition of the roads. Then with the swiftness of a bass leaping to the bait an idea came to him that could help to solve all of these problems—a canal.

With a fine American disregard for obstacles, such as the Highlands, the Appalachian range, and the Kittatiny

Continued on page 28

Environmental News

CAMDEN COMPOSTING FACILITY DEDICATION

CAMDEN ENDS OCEAN DUMPING. No longer do barges laden with sewage sludge leave Camden to dump thier cargoes into the Atlantic Ocean. Instead, the sludge is being processed into compost—an odorless, dirt-like material which is valuable as a soil conditioner and nutrient source. Camden is the first major city on the East Coast —and, according to the federal Environmental Protection Agency (EPA), the first in the nation—to use cost-effective composting as an alternative to ocean dumping of its wastes. The Camden project is an important step forward in New Jersey's determination to end pollution of the seas, and brings the state closer to phasing out ocean dumping by the December 31, 1981 deadline mandated by Congress as a national goal.

In the photo above, Camden Mayor Angelo J. Errichetti shows the wood chips used in the composting process to Environmental Protection Commissioner Daniel J. O'Hern (center) and to Judge Stanley Brotman, U.S. District Court, Camden, who ordered EPA to issue the city a permit to go to the ocean until May when the composting plant would become operational.

Dedication of the $2.2 million facility, located adjacent to the Central Camden Wastewater Treatment Plant, was held on June 16. Commissioner O'Hern, EPA Region II Administrator Richard T. Dewling and Mayor Errichetti, who participated in the program, said that the project is the product of cooperation among the federal, state and local governments. The Camden facility was funded 75 percent by EPA, 17 percent by Camden and 8 percent by DEP.

National smog control needed

NORTHEAST GOVERNORS SUPPORT BYRNE IN SUIT AGAINST EPA'S DISCRIMINATORY CLEAN AIR POLICY

The Coalition of Northeast Governors has given its unanimous support to Governor Byrne's suit against the federal Environmental Protection Agency (EPA) to change that agency's policy regarding air pollution control. In a July letter to EPA Administrator Douglas Costle, the governors of New York, Pennsylvania, Connecticut, Massachusetts, Rhode Island and Vermont said they supported Byrne's petition to the EPA and the court "to develop a national control strategy, due to the widespread nature of smog pollution, which will require most of the United States to prepare smog control plans." (Massachusetts has already petitioned the Circuit Court of Appeals in the District of Columbia to join New Jersey's suit.)

The federal Clean Air Act of 1977 mandates the states which violate the federal public health standards for certain air pollutants, including smog, must develop control plans to achieve those standards by 1982. Byrne and the other governors contend that the EPA has ignored available scientific evidence, especially related to the pervasive nature of oxidant (smog) pollutants, which would lead them to require most states to develop controls. (Prevailing winds and the path of weather patterns have been shown to carry smog and its ingredients into the Northeastern states from the midwest and the south.)

The governors said that to impose controls on only the Northeastern states, many of which are included on the EPA list as violating the Clean Air Act, could have "potential for a discriminatory effect on the economy of the Northeast, and, in our opinion, would not achieve the environomental goals desired . . . Controls in the Northeast alone would not achieve public health standards in these jurisdictions, and the monies and resources expended on the controls will be wasted unless a comprehensive national control effort is undertaken."

The governors urged the EPA to "require that all areas that contribute to smog public health standards violations curtail contributing pollutants. In this way, the chances for meeting public health standards will be increased and the economic discrimination under the proposed EPA Clean Air program will be decreased. □

Energy source search

GEOTHERMAL TEST HOLES DRILLED IN NEW JERSEY

The search for an alternate source of energy produced by hot waters thousands of feet below ground—geothermal (heat-flow) energy—began on the East Coast this summer with the drilling of the first geothermal test hole at Fort Monmouth the end of June. This was the first of five 1,000-foot deep holes to be drilled at selected sites in the state over the summer, and the first of approximately 60 that will be drilled in the sedimentary rocks of an eight-state area extending southward from New Jersey to Florida by the U.S. Department of Energy (DOE) at a cost of $1.9 million.

The temperatures in the test holes (or wells) will be recorded after a three-month cooling off period. The heat flow will be charted to determine the best underground reservoir site possibilities. Later this year, deeper drilling—in excess of 5,000 feet—will begin at the most promising locations. If sufficient hot waters are tapped at easily accessible depths, the energy contained could be used to heat buildings or to run various industrial processes.

DEP's Bureau of Geology and Topography was consulted by the federal agency prior to drilling and both selected state and federal lands in New Jersey which were geologically satisfactory on which to do the test drills. The state Department of Energy was advised of the geologic testing. □

***YOU* can help shape environmental policy . . .**
The Department of Environmental Protection is preparing a new Public Participation policy through which you will be asked to get actively involved in the shaping of various department regulations and programs. This will be an opportunity to have your say early in the planning process. Full information will be announced in the news media and these pages in the fall.

DEP APPROVES FIRST STAGE OF CHEMICAL WASTE PLANT

The department's Solid Waste Administration (SWA) recently approved the engineering design for the first phase of a new $6.5 million chemical waste treatment and recovery facility at 100 Lister Place in Newark (Essex County). The approval permits the Earthline Company, a subsidiary of SCA Services in Boston, Mass., to use one specific industrial waste treatment process. In addition, Earthline must meet 14 other conditions including compliance with noise and air pollution standards, a spill prevention plan and procedures for on-site emergencies.

SWA Director Beatrice S. Tylutki said DEP welcomes Earthline because it will provide the state with a greatly needed industrial waste treatment facility. The SWA will review the engineering design for each treatment or recovery process before it becomes operational. □

DR. PETER W. PREUSS, head of DEP's Program on Environmental Cancer and Toxic Substances, recently was named Chairman of the Administrator's Toxic Substances Advisory Committee of the U.S. Environmental Protection Agency (EPA). Preuss, who has served on the national committee since its creation in 1976, was appointed to the chairmanship by EPA Administrator Douglas Costle. Preuss will serve through June 30, 1981.

The 16-member committee, made up of representatives from industry, agriculture, labor, research organizations and environmental groups, is the only national committee to advise EPA on implementation of the 1976 federal Toxic Substance Control Act. □

ROLLINS CHEMICAL WASTE TREATMENT PLANT NOW PARTLY OPERATIONAL

DEP in early July issued construction permits to the Rollins Environmental Services chemical waste treatment plant in Logan Township (Gloucester County) for the building of a small interim tank farm to replace facilities destroyed by an explosion in December 1977. The facilities will consist of two 20,000-gallon tanks and two 8,000-gallon tanks which are part of the storage and blending operation. The permits do not allow actual resumption of incinerator operations. Rollins must complete a fire-and-explosion-hazards analysis before DEP will allow temporary use of the incinerator. DEP's Bureau of Air Pollution Control issued the permits.

The Rollins plant was closed by DEP shortly after the December fire and in early June was allowed to resume partial operations—those involving the physical, chemical and biological treatment systems designed to treat contaminated water. A DEP task force, under the chairmanship of Dr. Glenn Paulson, DEP's assistant commissioner for science, was charged with investigating the plant and making recommendations concerning the plant's future operations. The partial reopening was conditioned by water monitoring requirements, phasing out of open lagoons, compliance with DEP's new manifest system for hazardous wastes and posting of a $100,000 performance bond, among others. In addition, DEP generally committed itself to inspecting the facility at least once a week. □

22,000 acres designated

DEP ESTABLISHES NATURAL AREAS SYSTEM

The department in mid July established a New Jersey Natural Areas System and designated 39 state-owned areas to be preserved and managed as natural environments under newly adopted regulations. The purposes of the system established under the Natural Areas Systems Act of 1976, is to preserve a cross-section of New Jersey's natural habitats for wilderness recreation, nature study and research.

Deputy Environmental Protection Commissioner Betty Wilson said, "More than 22,000 acres have been named to the system, preserving some of the state's most unique and well-known natural environments." Wilson noted that the regulations adopted on July 13 apply only to state-owned lands. The 39 designated areas were selected from more than 150,000 acres of state parks, forests, wildlife areas and other DEP-regulated lands.

The designated lands are grouped under their geologic locations: Appalachian Ridge and Valley Section, 8 areas, 2,895.56 acres; Highlands, 8 areas, 11,235 acres; Piedmont, 5 areas, 278.41 acres; Glacial, one area, 294.1 acres; Atlantic Coastal Plain (ACP)-Inner, 3 areas, 637.7 acres; ACP-Pinelands, 5 areas, 2,250 acres; and ACP-Coastal, 9 areas, 5,114.79 acres. Total acreage: 22,705.56.

The Natural Areas System Act also calls for the establishment of a New Jersey Register of Natural Areas—an inventory of valuable lands around the state, both public and private. The work on the register is well under way.

The regulations were the result of public hearings held in February of this year and the recommendations of a 40-member task force made up of conservationists, sportsmen, local officials and other interested groups. Copies of the regulations are available from Curt Hubert, Green Acres Program Administrator, Box 1390, Trenton 08625. □

CAFRA PERMIT ACTIONS

- **Two approvals**
- **One denial**

Three recent Coastal Area Facility Review Act (CAFRA) permit actions are good examples of the program's efforts toward proper development of the coastal zone. Two were approved (industrial campus, housing project); one was denied (landfill).

Industrial park: DEP conditionally approved a CAFRA permit to construct a 645-acre industrial park in Lakewood Township (Ocean County). The project, to be located on Route 528, is designed for light manufacturing and will serve about 120 industries. The project will provide jobs for approximately 10,600 persons when it is fully completed within the next 10 years. The Lakewood Industrial Commission is donating an 86-acre flood plain recreation area to the county park system and will perserve other open areas on the site including an historic cranberry bog.

Housing project: An application by Cushing Heights, Inc. to build a 444-unit senior citizen housing project in Brick Township (Ocean County) was conditionally approved by the department in July. The project will include facilities for recreation and medical care. It also will offer an extensive walkway and wooded landscaping. The applicant re-

Continued on page 16D

President Cleveland's Birthplace

BIRTHPLACE OF OUR 22ND AND 24TH PRESIDENT. Grover Cleveland (inset), the only native New Jerseyan to become president of the United States, was born in the Old Manse of the First Presbyterian Church in Caldwell on March 18, 1837 during his father's service as minister. Cleveland, the only chief executive to serve two non-successive terms, was both the 22nd (1885-89) and 24th (1893-97) President of the United States.* (His picture is on the $1,000 bill, U.S. currency.) Though Cleveland rose politically while a resident of New York State (he ascended to the presidency from the governorship of that state), he returned with this family to New Jersey for his last years and is buried in Princeton.

The Old Manse (above), which is on both the State and Federal registers of historic places, was built in 1832 and is a fine example of the folk architecture of the period. It reflects the way simple residences were treated with touches of Greek or Federal styling. In 1913 the house was purchased by the Grover Cleveland Birthplace Memorial Association and it remained in its care until 1934 when it was donated to the state. The Old Manse, located at 207 Bloomfield Avenue in Caldwell (Essex County), is administered by DEP's Bureau of Parks. It is open to the public as a house museum.

***Benjamin Harrison was the 23rd President (1889-93).**

Interstate commerce

U.S. HIGH COURT KO'S STATE LAW BANNING TRASH FROM OUT-OF-STATE SOURCES

In a strong defense of the free flow of commerce between states, the U.S. Supreme Court on June 23 struck down as unconstitutional New Jersey's 1973 law banning the dumping of wastes from out-of-state sources in its landfills.

The majority (7-to-2 decision) contended that the law represented "an attempt by one state to isolate itself from a problem common to many by erecting a barrier against the movement of interstate commodity." The court said that New Jersey could limit the amount of waste dumped, but could not discriminate between local trash and that hauled in from neighboring states. Associate Justice Potter Stewart wrote the opinion.

Associate Justice William H. Rhenquist, declared in the minority opinion that "the physical fact of life that New Jersey must somehow dispose of its own noxious items does not mean that it must serve as a depository for those of every other state." Chief Justice Warren E. Burger also dissented. □

New program

URBAN GREENING AIM OF FORESTRY PROJECT

Many communities in the state do not have the ability to provide professional supervision of their urban forestry program, so maximum benefits are not obtained from the funds available for tree care and the tree resource does not provide the benefits that it should. DEP's Bureau of Forestry hopes to help cities and smaller communities become greener and get full value for money spent in the process of providing needed technical expertise through its new Urban and Community (U&CF) Forestry Program.

The bureau recently received an $80,000 U.S. Forestry grant to initiate the U&CF program scheduled to begin sometime this fall. Plans include establishing an "outreach" program to help cities in preparing tree ordinances, spring and fall planting projects, tree maintenance and insect and disease management. For further information, write to DEP, Bureau of Forestry, Box 2808, Trenton 08618. □

NATURE'S PAINTBRUSH AT WORK

. . . It's leaf-turning time

In October, the annual glorious display of fall foliage unfolds in New Jersey drawing thousands of tourists to see and photograph the brillance of leaves turning yellow, gold, red, orange and purple. Whether one drives or bikes through the countryside or walks along one of the many hiking and nature trails in our state parks/forests or the Appalchian Trail, the splendor of nature's autumn show of flaming foliage cannot fail to please.

Far to the north in the High Point-Stokes Forest area, as the days grow shorter and the nights grow colder, the trees change quickly, with gold, scarlet and orange leaves usually approaching maximum intensity early in the month. Farther south the color change—the yellow of the ash trees, the reddish purple of the sumac, the bright red of the swamp maple —usually peaks in mid-October.

A word of caution to foliage followers—because location and weather conditions play an important role in nature's leaf-turning timetable, DEP's state park and forest rangers recommend that a phone call be placed to a nature area in the vicinity of choice before taking to the road with family and camera. Given below are four state areas representative of the regions:

Northwest Region: Stokes State Forest, Phone 201-948-3820
Northeast Region: Ringwood State Park, Phone 201-962-7031
Central Region: Washington Crossing State Park, Phone 609-737-0623
Southern Region: Wharton State Forest, Phone 609-561-0024

Don't forget the film for the camera—and remember to remove the lens cap! □

At 12 State Parks

CUT YOUR OWN FIREWOOD

There are 12 state parks and forests in New Jersey where individuals may secure a permit to collect or cut dead firewood for the use in home stoves or fireplaces. The fee is $5 per cord (a cord of wood measures 4 feet by 4 feet x 8 feet). The wood is for private use only and the volume per family is limited to two cords per calendar year. Wood cutting is permitted from mid-September through March in designated areas. The permit must be secured in person from the park or forest superintendent.

State parks and forests which have designated wood cutting areas are: Allamuchy, Jenny Jump and Worthington (Warren County); Ringwood, Stokes and Wawayanda (Sussex); Bass River, Lebanon and Wharton (Burlington); Washington Crossing (Mercer); Voorhees (Hunterdon) and Belleplain (Cape May). □

TO REPORT ABUSES OF THE ENVIRONMENT CALL ACTION LINE 609-292-7172

News Capsules

ENVIRONMENTAL BOND PROPOSALS SLATED FOR NOVEMBER BALLOT

The Legislature and the governor in mid July approved a $25 million bond issue proposal for flood control projects, including $22 million for grants to local flood control projects and $3 million for development of a state plan for flood control, for voter referendum in the general elections this fall.

A $200 million bond issue proposal to extend the Green Acres program was expected to be approved in late summer for inclusion on the November 7 ballot. □

Local program

GREEN ACRES PROCEDURAL GUIDE

A revised Green Acres Procedural Guide which gives step-by-step instructions for participating in the local grant program has been published by DEP. Each local government in the state has been sent a single, working copy free of charge. The copies were mailed to municipal/county clerks. Reference copies of the manual have been filed with the N.J. State Library system and are available through local libraries. Additional copies, at $5 each, may be purchased from DEP's Green Acres Local Program, Box 1390, Trenton 08625. Please make checks payable to "Treasurer, State of New Jersey". □

EPA CHANGES SMOG TO OZONE

The federal Environmental Protection Agency (EPA) in mid-June retired the word "smog" from its lexicon of terms. Instead, "ozone", the component of smog measured by scientists to determine air quality, will be used by the agency. The words "ozone levels" will replace "smog levels" in EPA studies, reports, press releases and the like. N.J. is pushing for a substantive change in federal smog control policy. What we have gotten thus far, according to DEP officials, is more federal rhetoric—which leaves us no closer to cleaner air. □

Good news for clammers

MORE THAN 4,200 ACRES OK'D FOR SHELLFISHING

Water quality investigation by DEP's Shellfish control program this past summer resulted in the upgrading of 4,272 acres to approved harvesting waters while 1,640 acres were downgraded, for a net gain of 2,632 acres. This continuing trend towards improved water quality reflects the state's efforts to reduce bay and ocean pollution by upgrading and regionalizing sewerage systems in the shore areas. Three years ago, before the construction of major county facilities and the upgrading of many municipal treatment plants, the annual reclassification showed a net loss. □

Award winning movie Available to the public:

RETURN OF THE PEREGRINE

"The Return of the Peregrine", a movie made by DEP's Division of Fish, Game and Shellfisheries, in cooperation with the N.J. Public Broadcasting Corp., was named "Best Conservation Film in the Professional Category" at the annual International Wildlife Film Festival held in Montana this past spring. The film, one of 34 reviewed, was called "an excellent portrayal of the decline of the peregrine falcon, the collecting of young in Alaska to their artificial propagation at Cornell University, the construction of hacking sites in New Jersey, the eventual rearing of young birds to fledglings, their hunting, migrations, and return to the site."

The 15-minute movie is available for public use. For further information contact the division's Information and Education section by phone: 609-292-9450, or letter: DEP, Division of Fish, Game and Shellfisheries, I & E Section, Box 1809, Trenton 08625. □

NEW JERSEY POSTERS A HIT!

The first two posters in the New Jersey Environmental Awareness series (one of "Old Barney," the Barnegat Lighthouse, and the other of the Pine Barrens Tree Frog) have proved very popular with visitors to state parks and forests where they are sold over the counter for $1 each. There will eventually be 12 posters in all, using the theme, NEW JERSEY OUTDOORS. Each will highlight a different aspect of the natural and man-made wonders of New Jersey—state parks and forests, wildlife, historic sites. The attractive four-color, 18" x 24" posters, produced by DEP's Division of Parks and Forestry, also can be ordered by mail at a cost of $1.50 each from the Bureau of Parks, Box 1420, Trenton 08625. □

REGULATION OF MAUSOLEUMS TRANSFERRED FROM DEP

State regulation of the construction of mausoleums was transferred on July 20 from DEP to the Department of Community Affairs (DCA). The transfer of authority resulted from a joint agreement signed by Environmental Protection Commissioner Daniel J. O'Hern and Community Affairs Commissioner Patricia Q. Sheehan.

Mausoleum approval will now be processed through DCA under the authority of the Uniform Construction Act. Under the law's provisions, DCA will review mausoleums for structural and other factors, as well as sewage and drainage. (DEP had been in charge of reviewing the structures since 1973 with respect to sewage and drainage conditions; prior to 1973 the responsibility for review was in the Department of Health.) Both commissioners agreed the transfer will result in a more comprehensive review and will eliminate duplication. □

Continued from page 16B

CAFRA PERMIT ACTIONS

designed the initial plan to retain the site's wooded characteristics and surrounding wetlands.

Sanitary landfill: DEP denied a CAFRA permit to construct a 46-acre sanitary landfill, known as Ecoplex, in Old Bridge Township (Middlesex County) because construction of the landfill, located between Monmouth County and Lawrence Harbor roads, would jeopardize the water quality of Whale Creek. The landfill would have negative impacts on the surrounding area because of its proximity to a residential community. The landfill, designed to handle a million tons of solid waste for about five years, also received a denial from DEP's Solid Waste Administration. □

'TOPO' MAPS IN DEMAND BY HUNTERS, HIKERS, CAMPERS

The action has been brisk at the map counter of DEP's Bureau of Geology and Topography as campers, hunters, hikers, fishermen and other outdoor enthusiasts prepare for fall outings by buying topographic maps to use as "silent guides". New Jersey "topo" maps are color coordinated for easy reading and are available in different sizes and scales. Each state Atlas Sheet covers a large area and is convenient for use by hunters, fishermen and others interested in the regional picture of an area. (The bureau also carries U.S. Geological Survey (USGS) maps. These are attuned to local use as they indicate housing areas, factory locations and the like.) For publication and price list write to Publication Sales, DEP Bureau of Geology and Topography, Box 2809, Trenton 08625. □

HOW DOES DREDGING AFFECT MARINE LIFE?

A section of the Absecon Creek in Atlantic County was dredged in mid summer as part of a thorough biological study to determine the effects of dredging on fish, shellfish and other marine organisms. The results of the five-year study, begun in 1977, will help DEP to select the best ways to dispose of dredging material and the best times to perform dredging operations with the least amount of disturbance to marine life.

The material dredged from the bottom of the Absecon was deposited in the bay 1,000 feet from the edge of the navigational channel. Rutgers University, which has been contracted by the department to conduct the project and to submit periodic progress reports to DEP's Office of Shore Protection, will study the survival and recolonization of various marine organisms in the area for four years (Summer 1982). □

TO REPORT ABUSES OF THE ENVIRONMENT CALL ACTION LINE 609-292-7172

BECOME A MEMBER OF THE "COASTWATCH" NETWORK

The American Littoral Society is a New Jersey based national public interest organization whose primary focus is coastal and offshore issues. During the last year, the Society, in cooperation with DEP-OCZM has developed a "COASTWATCH" program. The program encourages local residents to review permit applications and to notify appropriate State agencies of possible violations of coastal regulations.

If you would like to join this program or additional information, contact Mr. Dana Rowan, Coastal Programs Coordinator, American Littoral Society, Sandy Hook, Highlands, New Jersey 07732, (201) 291-0055. □

Continued from page 9

Resource Farms

come back, and last year the Bureau of Wildlife Management purchased 22 Wild Turkeys from Vermont and released them in the Flatbrook area. Mr. Spinks says that they appear to have "taken," because observers have seen separate flocks, one with 27 turkeys in it.

In the course of the morning Mr. Spinks drove me to see two other nearby wildlife management areas, Wallpack and Hainesville. As we drove around this small, unspoiled corner of New Jersey, we went through little villages like Layton, Peter's Valley, Wallpack Center. Most were no more than a crossroads general store with a gas pump out front, and a few well-kept old houses. In between the towns we drove past old farms, some with chickens in the yard or a few cows in old pastures bordered with stone walls. It was one of the first days of fall, and things stood quietly in the morning sun. I remarked how rural and unspoiled everything looked.

"Things are changing up here, though," Mr. Spinks replied. "When I moved up here in the '40's it was all working farms. The census showed more cows than people in Sussex County then. But most of the serious farming died out in the '50's—it got too hard to make a living. People around here farm on the side, now, but they have other jobs. There's almost no one left who farms full time."

He pointed out a few small, more modern homes in between some old farms.

"It's getting built-up around here."

To me, living five miles from Trenton, the houses he was pointing to did not look like much of a threat, but he saw them as a sign of change.

"A couple of doctors and a lawyer bought a big piece of land near here —they'll most likely develop it. And the Federal government has bought up a great deal of land, and most of the farms, for the Tocks Island Recreation Area, even though they haven't decided what to do with it yet."

He turned to me and said, "It's not hunters who are the danger to wildlife. New Jersey loses 45 square miles of land a year to development. That's the real danger to wildlife."

Editorial Comment:

WILDLIFE MANAGEMENT GUIDE

The revised and expanded edition of the "Guide to Wildlife Management Areas" is available now.

The new guide, comprising over 116 pages of articles and maps in three colors, will be priced at $3 per copy.

Descriptions of the 54 wildlife management areas include locations, hunting and fishing information, as well as data on parking and access roads.

The 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 to:

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

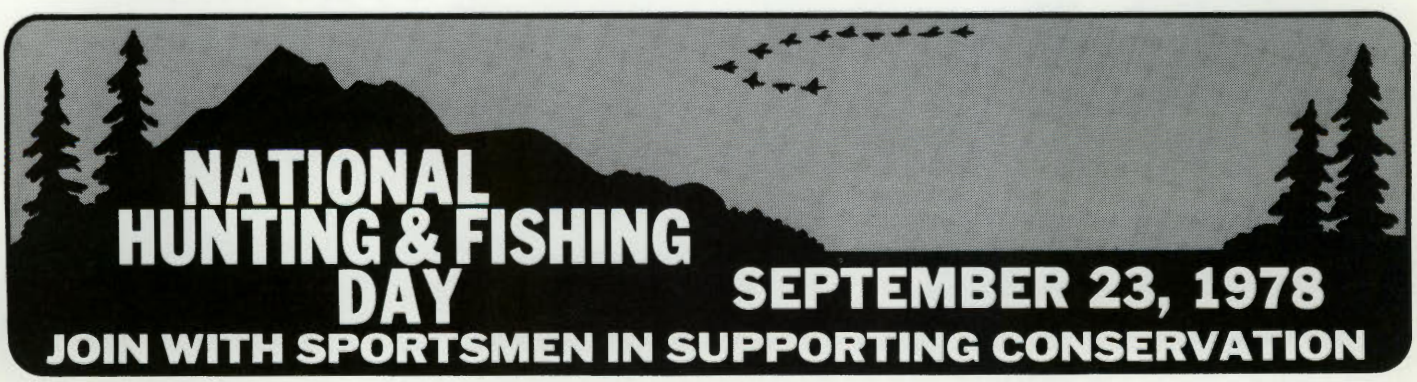
YOUNG WATERFOWL HUNTERS PROGRAM

This year will be the fourth year the New Jersey Waterfowlers Association will be organizing a "Young Waterfowl Hunters Program."

This program will consist of a day of classes on Waterfowl Identification, Decoy Carving, Duck Boats, Duck Blind Construction, Hunting Clothes and Equipment, Hunting Ethics and Wetlands conservation. Several hunting and conservation films will be shown and lunch served. Parents are welcome. The classes will be held at the Highlands Yacht Club, Highlands, New Jersey on Sunday, November 5, 1978, starting at 9 AM.

The highlight of the program will be a hunting day at the Brigantine National Wildlife Refuge sometime in late November and early December, 1978. A Familiarization Firing and Safety day will be held at the Wayside Skeet Club between the class day and the hunting day. At Brigantine the student will be accompanied by an unarmed instructor, who will be able to impart as much duck hunting knowledge as possible through a one-on-one relationship in the field.

I would like any youngsters who are interested to write Bob Creeden, care of The Young Waterfowlers Program, New Jersey Waterfowlers Association, P.O. Box 208, Monmouth Beach, N.J. 07750 before the end of October, 1978. □



a field trialer looks at his sport

BY ROBERT BUBLITZ

Why would anyone spend hours and hours exercising a dog; weeks and months training him; load him in a car, drive two or three hours; sit around in the rain most of the day and wind up the whole evolution putting him into a competition where the odds are 20, 25, or even 30 to 1 against him? "Cause we're field trialers, that's why!" And what, pray tell, is a field trialer, you may ask? Well, the obvious answer is, anyone game enough to do the above, but perhaps a litte more explanation is in order for those (and I am sure there are many) who are unacquainted with field trials.

There are field trials for many breeds of dog and trials for most breeds are held at one time or another, right here in New Jersey. Retrievers—Labradors, Goldens, and Chesapeakes to mention a few, compete in trials in which they retrieve ducks from a pond, lake, or river, by sight or scent. Hounds—Beagles, Dachshunds, Bassetts, again to name a few, compete in trailing rabbits. Foxhounds too run in Jersey, although the Foxhound events have more the flavor of testing the abilities of the horses and riders than those of the hounds. Cocker and Springer Spaniels also compete in "flush and retrieve" trials.

By far though, the most popular types of field trials in New Jersey are the events for pointing-breed bird dogs. There are many recognized pointing breeds and we see nearly all of them in our trials here. Most frequently encountered are English Pointers and Setters; German Shorthaired and Wirehaired Pointers; Weimaraners; Vizslas; Irish, Gordon, and Red Setters; and Brittany Spaniels.

Brittany Spaniel Field Champion "Action Aires of Axeworthy" pins her bird against the fall foliage.

A pointing-breed field trial is a stylized, simulated-hunting competition. The dogs, cast off in braces (two dogs constitute a brace), are observed by two or three judges, usually from horseback. With each dog is a handler who may walk or ride horseback.

The dogs run over a predetermined course so the judges can evaluate each dog's hunting sense, enthusiasm, ground coverage, use of wind, and coverage of objectives. Puppies, which range in age from 6 to 8

Starting out to follow a brace.

PHOTOS BY DAVID CAMPIONE

On point is German shorthaired pointer "Briarwood's Apache Tomahawk"; honoring the point are field champion "Action Aires of Axeworthy", a Brittany spaniel; Vizsla dual champion "Carriad's Kutya Kai Costa, CDX"; German wirehaired pointer dual champion "Graf Bowser"; Irish setter field champion "Verde Mae"; and German shorthaired pointer "Udibrot's Ramblin' Jake".

months, run from 20 to 30 minutes. Derbies, which can be up to 30 months old, normally run 30-minute heats, and adult dogs (called "gun" or "shooting" dogs) run a minimum of 30-minute heat. In Championship events, one-hour heats are normal, but in some events down South and out West, two- or even three-hour heats are held.

Dogs are graded on their ability to cover the course, their "manners" when on game, and their responsiveness to the handler's commands. As few as three or four dogs may compete in a stake or as many as 35 or more. Trials may be open to all pointing breeds, a single breed, or specific breeds.

It might be of interest to describe just what a gun dog is expected to do. Aside from the dog's ability to search for and locate game birds (he is expected to ignore nongame birds, by the way), he must display "manners." That means that when he points a bird, he must remain on point while the handler searched for and flushes the bird. The dog is required to remain on point if the bird walks away from him or even if the bird or birds decide to walk around him or between his legs. The amount of training, discipline, and nervous tension displayed can only be appreciated when you see a dog on point, rigid, head high, eyes rolling around in his head like marbles in a mix-master as a quail walks between his front legs—and then realize that the pointing breeds were originally developed not as bird pointers, but as bird catchers! and there he stands . . . you hope!

After the handler flushes the bird and it flies away, the dog must remain in place, being permitted only to move his head or turn around to mark the flight of the bird. The handler fires a blank pistol and the dog must still remain in position. Having done all that, the dog is considered to be steady to wing and shot. The handler then sends the dog to search for the next bird, but the dog must not move in the direction in which the bird just flew, for that would be a "delayed chase," a major no-no for a field trial dog.

In some trials for some breeds, either the handler or another gunner kills the bird. Again, the pointing dog must remain steady while the bird drops, being allowed to move only enough to mark the fall of the bird. The dog must then retrieve the bird on command from the handler, and bring it "promptly and tenderly to hand" as the rule book says. Should a dog run over a bird he has not scented, or should a bird flush wild within the dog's range of vision while he is running, the dog must stop and stand until sent on by the handler. No *chasing* birds for bird dogs!

Well, is that all? No, not quite. Just one more thing and your dog has a full set of manners. Suppose he is loping along a hedgerow, brain focused on the impressions he is getting from his 200 million olefactory cells, and ahead of him his bracemate goes on point: What does he do? He stops and points his bracemate, that's what he does, telling his handler that there is a dog on point up there, and thus a bird up there. This little touch is called "honoring" or "backing" the bracemate. And, by the way, he must remain where he is, pointing the other dog while the bird is flushed, the gun fired, and the bird retrieved by the other dog (if it is a retrieving-type trial). Even if the other dog makes a breach of manners, chasing the bird when it flushes, perhaps, or dancing around when the shot is fired, the honoring dog must remain steady. His bracemate's bad manners are never an excuse for his own.

Now just think of trying to train a dog to do all this when he is several hundred yards away, beyond reach of your hand or voice, distracted by horses and people, focused on birds, fighting the rain, buffeted by the wind, running through puddles and jumping streams. Think of that as a training exercise in comparison to

Continued on page 26

Continued from page 7

Student Attitudes

small mammals are cute and cuddly, or that their favorite ones are furry. This is probably because I told the students during the teaching unit that many people misunderstand wildlife conservation in four ways:

A. In their zeal for nursing individual members of a population back to health, they tend to neglect the remainder of the population which might be in poor health.
B. Disagreement about how best to preserve wildness in wildlife—either by management or by letting nature take its course.
C. Too much emotional concern about dead wildlife. Death is necessary to beget life, yet some persons would try to prevent all natural predation.
D. Too many people care to conserve only selected species (the cute, cuddly, human-like ones) rather than an entire ecosystem. Those people who would actively lobby to kill coyotes or snakes would want to conserve small mammals, for example.

Whereas the results of question #13 were not appreciably different, those of questions 17 and 21 were. After the three-week teaching period, more students thought conservaion organizations are comprised of people who overreact to problems. Fewer youngsters said such groups were necessary to point out problems. Also alarming were their probable reactions to finding injured animals, regardless of whether the hurt creatures were closely or distantly related to the students. After the teaching unit, more stated that they would either drive on, or put the animal out of its misery. Yet, although this last phrase seems horrible, perhaps most of those who indicated it thought differently. It is not difficult for a junior-high youngster to honestly believe that running over an injured animal would be the quickest, most humane death, especially in view of what I taught

FIG. 1 SURVEY ON WILDLIFE ATTITUDES

Our attitudes toward wildlife are sometimes obvious; often, however, they are "covered up" so that we may not realize some of them until a certain wildlife issue makes them surface. This is a non-graded questionnaire which will test your attitudes. Choose the answer for each question which *best* fits your attitude, and most honestly. Don't choose an answer because it seems to be the one the teacher would most like to hear.

1___ If I were to see a live boa constrictor suddenly in front of me, I would
(a) scream
(b) faint
(c) feel sick
(d) be very interested
(e) be sure not to touch it because it is slimy

2___ Sharks
(a) excite me because they are dangerous
(b) bore me
(c) are beautiful animals
(d) are found near beaches
(e) should be killed on sight

3___ Animals with large teeth
(a) are fascinating to me
(b) scare me
(c) usually cannot harm me if I leave them alone
(d) are ugly and should be done away with

4___ Small mammals (gerbils, hamsters, etc.) are
(a) cute and cuddly
(b) stinky
(c) trouble-makers if kept in the house
(d) fun because of their soft fur

5___ My favorite animals are
(a) furry
(b) large and powerful
(c) insects
(d) long and skinny
(e) dirty and slimy
(f) feathery
(g) I either don't like animals or have no feelings about them

6___ Animals with loud voices
(a) turn me off
(b) are neat
(c) are funny
(d) scare off other animals

7___ If I were to imitate an animal, just for fun, I would imitate a
(a) snake
(b) monkey
(c) tiger
(d) mouse
(e) dog
(f) owl
(g) rabbit
(h) frog
(i) fish
(j) none of these

8___ Sea gulls
(a) are beautiful to see in flight
(b) are dirty
(c) don't stimulate me one way or the other
(d) should be shot
(e) are noisy
(f) are not good for anything

9___ Places like Great Swamp
(a) are smelly and dirty so they should be paved for shopping malls
(b) are necessary as safe places for wildlife
(c) are necessary as breeding places for ducks and deer so hunters can continue to have a good supply
(d) should allow highways to be built through them so people can view wildlife better

10___ Hunting is
(a) a way of recreation which relaxes people
(b) totally useless and should be banned
(c) sometimes necessary to control animal population numbers
(d) good because it pits man against nature
(e) good because it satisfies man's age-old hunting instinct

11___ My opinion of nature is that
(a) it's my friend and must be preserved
(b) it's man's enemy and should be destroyed
(c) I have no feelings
(d) so long as it doesn't get in my way, it's OK

12___ If I were an adult Randolph resident, and someone were to shoot eagles in Alaska, I
(a) could not care less
(b) would get angry and write a letter of protest to my congressman
(c) would be saddened but not to the point of writing letters
(d) would want to do something about it
(e) would prefer that someone else do something about it

13___ The insecticide, DDT,
(a) keeps air space free from birds at airports
(b) proves that man is not an intelligent form of life
(c) should have been completely tested before allowing its use
(d) is necessary in the environment to keep animal numbers down

14___ The Hackensack Meadowland sports project
(a) is good because the land is cheap and we need more sports arenas
(b) is bad; it could have been built on land without much wildlife
(c) will preserve the environment by not using artificial turf
(d) allows migrating birds to avoid the polluted water and air in this area because they are drawn away form the bright lights

15___ When I look at a forest of redwood trees, I see
(a) truckloads of outdoor furniture and homes
(b) beautiful nesting places for birds or other animals
(c) thousands of newspapers, magazines and comic books
(d) jobs for thousands of lumber people
(e) another place where a perfectly balanced city could be built

16___ Wildlife poetry and art are
(a) for sissies
(b) wonderful art forms giving people a different outlook on life
(c) good; they allow people to express their feelings toward wildlife, but I would not take part in it
(d) OK, but it depends on the quality of the poetry or art

17___ Wildlife groups such as Audubon, Sierra Club, etc., are
(a) a bunch of nuts overreacting to most small environmental problems
(b) necessary to point out environmental problems
(c) good; they offer field trips
(d) sissies who go hairy if you step on a plant by accident
(e) run by people who just want money to support their programs

18___ If I were a voter deciding how to vote on an environmental issue in my community, I would
(a) find out everthing I could about the issue
(b) just decide either "yes" or "no" without any thinking beforehand
(c) vote "no" if it involved me paying more taxes to support it
(d) vote "yes" regardless of how much money it would cost me

19___ If I were a voter deciding how to vote on an environmental issue that did *not* affect me personally, but *would* affect my state or nation, I'd (possible answers are identical to #18)

20___ If I were in my car and saw a cat lying on the road, obviously injured but still alive, and the location was *not* near my home, I'd
(a) call for help
(b) drive on and not do anything
(c) stop the car, move the cat to the side, then call for help
(d) stop the car, move the cat, then give first-aid if I knew how
(e) stop the car, move the cat, then drive on without telling anyone
(f) put the cat out of its misery by running over it

21___ Identical question as #20, but for a TURTLE.

them about nursing sick creatures back to health and too much emotional concern over dead wildlife. I'm sure this is the cause, and I admit my mistake because I now know how to correct it. This is the best reason for conducting the before-and-after survey!

The four questions showing the greatest variation in choice selection were #3, 6, 7 and 16. Both before and after the teaching unit, students answering questions 3 and 6 picked the first three choices. Whereas the nature of question 7 caused all sorts of selections, question 16 resulted in scattered choices among the last three possibilities.

One more point is apropo here. It is quite likely that much of the information in this survey had not been considered by junior-high youngsters before being exposed to my teaching unit. For example, the probability is great that children of this age had not thought about what they see when they observe a forest (question #15). Therefore, perhaps the initial exposure to such questions (and the teaching unit which followed) caused some students to think more about them. The second exposure might have caused true feelings to surface. All of this does not deter from the proven value of using this questionnaire. Indeed, due to the possibility that youngsters may have been stimulated enough by it to ponder some questions, the survey is still a success.

THE CONSERVATION TEACHING UNIT

Since the results of the second survey and its comparison with the first depend on how the conservation unit is taught, allow me to describe my approach to the three-week course. In the past I have taken pupils on field trips to Great Swamp and on our own school grounds to conduct various studies (described in the Nov.-Dec., 1977, *New Jersey Outdoors* and the Feb., 1975, *American Biology Teacher*.

This year I had them assemble and use wildlife population simulators (described in the March-April, 1976, *New Jersey Outdoors* to acquaint themselves with population dynamics. I also scheduled

Continued on page 24

NEW JERSEY
viewed through the artist's eye

By Carleton V. Brairton
Photographs by
David Bast

David A. Bast, New Jersey teacher, professional photographer, and frequent contributor to *New Jersey Outdoors,* has an artist's eye for capturing the natural beauty of New Jersey. Although he has trekked into the remote woodlands and diminishing farmlands for his scenic shots, he never ignores the photographic possibilities surrounding his home at White Meadow Lake. From a brilliant wild bloom in his backyard to a quiet moment on the lake at sunset, his photos convey the glory and excitement of outdoor life—a life which so many of us overlook in the day-to-day routine of our lives. Accompanying these photos—which were selected from dozens of shots taken over a period of five years—are some insights into the man and his special talents with the camera.

Dave has been developing his technique with the lens for the better part of 20 years. Although he owns a 4x5 Graflex, a larger format camera, he prefers the 35mm Minoltas which he used for this sequence. The light weight, varied choice of film, ease of operation, and spontaneity of shooting are key advantages in using the 35mm format. When the conditions for a good photo are right, the cameraman must have the training to frame quickly and shoot fast. Of course, the photographer must always be prepared for the unexpected, so Dave usually carries a camera with him. Although several of these photos were planned, many were taken when Dave happened to

Sailing on White Meadow Lake toward sundown

David—down the slide

Looking back toward the clubhouse from North Lakeshore Drive

Bee on Azalea at Miami Trail, Rockaway

White Meadow Lake from south shore

be in the right place at the right time.

What are the right conditions for outdoor photography? Light is critical for a good picture. Dave prefers the brilliant sun of early morning or the elongated shadows of early evening. At these times, the low angle of the sun gives him backlighting or sidelighting which are necessary for depth and perspective in what could otherwise be a flat scene. Yet, Dave does not limit his photography to these hours. The absence of shadows at noon provides an excellent time to photograph flowers. Clouds also produce dramatic light variations. One of the most exciting moments for the cameraman is capturing the sun as it breaks through the clouds.

Water is another main ingredient in Dave's outdoor photography. Not only do the lakes, ponds, and streams reflect the sunlight, but they usually provide the interest of a photo—children, fishermen, boats, or even ducks. Some of Dave;s best shots convey the peacefulness of moored sailboats at sunset or the joy of people around water.

Nature may provide the sun, clouds, and water, but the photographer must supply the patience. The ideal moment for the cameraman, when all the important elements seem present, may not be perceived as perfect by the camera. The camera captures subtleties and contrasts in a scene that the human eye may overlook. Consequently, the photo may be a failure. Of course, perception and keen awareness of surroundings are prime ingredients in the craft; however, according to Dave, the photographer must be willing to accept many failures to gain "the perfect shot." Dealing with the frustration of defeat is as integral a part of the art as the satisfaction of accomplishment. But Dave cautions that there are no set rules for a success, and that technique is highly individualized.

When asked what attracts him to outdoor photography in New Jersey, Dave says he likes the challenge of the geography. "The grandiose beauty of the West can be simple to photograph. But in New Jersey nature does not give up her secrets easily. To be a roadside photographer is not enough; the artist must search for the hidden pockets of beauty in out-of-the-way places." Dave's favorite seasons are spring and fall, when the New Jersey landscapes are the most vibrant. But whenever and wherever he shoots, his 20 years of practice, dedication, and patience have yielded an impressive collection of successes. □

Lisa and David on White Meadow Lake—toward sundown

Continued from page 21

Student Attitudes

the course in advance of the Great Swamp deer hunt. After class discussions of wildlife management principles, as well as the eight conceptual areas mentioned earlier in this article, all students traveled to Great Swamp headquarters for a slide-talk and question-answer session dealing with the deer hunts, both past and present. Internationally renowned wildlife photographer Leonard Lee Rue III presented a slide show on deer. Opponents of hunting and trapping from the Humane Society ably presented their side of the controversy and permitted students to see for themselves how a trap operates. Meanwhile, student "lawyers" for and against the hunt volunteered to conduct a class courtroom debate, complete with judge and jury. Both teams planned their strategy with the help of N.J. Humane Society President Nina Austenberg.

While the debate was being finalized, still another guest speaker —Leonard Soucy, President of the N.J. Raptor Association—introduced youngsters to population-limiting factors in birds of prey by bringing along a barn owl and red-tailed hawk. The hawk was special in that its left eye had been shot out by some thoughtless person. Soucy explained the bird rehabilitation center he operates at his home next to Great Swamp, describing some of the bird injuries he has treated. I used the opportunity to reiterate the harmful human effects on wild things (sometimes directly such as the hawk, or indirectly via habitat destruction), and to make students aware of conservation efforts by Soucy's group and others.

After discussing these animals, barn owl pellets were collected and analyzed to provide data on owl diet which would in turn indicate the carrying capacities of the small mammal species eaten. This exercise also demonstrated how the predation limiting factor affects carrying capacity, thus reinforcing the principles learned while using the wildlife population simulater. Youngsters not only submitted lab reports on the pellet data, but constructed cardboard charts displaying the bony contents of each pellet. Weights of bones and fur from each pellet were recorded along with the length of each arm and leg bone. Other students prepared for the courtroom debate by erecting a bulletin-board display of the main arguments for and against the deer hunt as indicated by Refuge personnel and Humane Society opponents during their visits with students. A wildlife artist meanwhile demonstrated and discussed his work.

TABLE 1. Percentages of all students selecting most popular choice for each question of survey administered before and after Wildlife Conservation teaching unit.

Question	Most Popular Choice		Percent Response	
	Before Teaching	After	Before Teaching	After
1	D	D	43%	53%
2	A	A	59	57
3	C	C	48	56
4	A	A	62	49
5	A	A	64	57
6	B	B	42	47
7	B	B	30	35
8	A	A	77	78
9	B	B	91	91
10	C	C	70	77
11	A	A	83	88
12	D	C	42	46
13	C	C	93	90
14	B	B	49	58
15	B	B	81	83
16	B	B	38	41
17	B	B	87	77
18	A	A	81	87
19	A	A	65	84
20	C	C	39	42
21	D	C	32	29

TABLE 2. Greatest percent changes in survey choices for each question as a result of teaching unit on Wildlife Conservation.

Question	Pos. Choice		Neg. Choice		% + Response		% — Response	
	Before	After	Before	After	Before	After	Before	After
1	D	D	A	A	43%	53%	36%	29%
2	A	A	E	E	59	57	4	5
3	C	C	B	B	48	56	30	19
4	D	D	B	B	23	32	3	9
5	B	B	A	A	26	38	64	57
6	B	B	D	D	42	47	10	3
7	—	—	—	—	—	—	—	—
8	A	A	F	F	77	78	4	2
9	B	B	A	A	91	91	0	1
10	C	C	B	B	70	77	20	11
11	A	A	D	D	83	88	13	8
12	D	D	A	A	42	25	3	13
13	C	C	D	D	93	90	1	4
14	B	B	D	D	49	58	19	9
15	B	B	A	A	81	83	1	6
16	C	C	A	A	22	30	9	11
17	B	B	D	D	87	77	4	10
18	A	A	C	C	81	87	7	5
19	A	A	C	C	65	84	10	2
20	D	D	B	B	38	16	12	20
21	D	D	F	F	32	14	4	14

As the debate started, several other pupils constructed a ballot box in the wood shop which was used after the debate as youngsters cast their votes for or against the deer hunt and for or against wildlife management. These ballots were counted. Results showed that while most students (over 90%) opted in faver of management techniques, most were displeased with those methods as used toward deer at Great Swamp.

The debate and resulting vote signaled the conclusion of the minicourse on conservation. Students finally wrote letters of thanks to all the guest speakers.

CONCLUSION

The content of the three-week course outlined above should not be construed as all that could occur; nor should one assume that students don't receive any further training in ecology during the year. Course content is purposely flexible, and I constantly return to its concepts throughout the year by using a variety of learning situations. For example, depending on governmental progress to set aside the Pine Barrens as a preserve, I plan to have youngsters write letters about it to state legislators. They are to include reasons for their views as learned from this wildlife conservation minicourse. Students moreover accompany me on field trips I lead for the N.J. Audubon Society. They also attend evening Audubon meetings and lectures throughout the year.

The survey on human attitudes toward wildlife is a valuable answer to the obvious need for some measurement technique. It successfully bridges the gap between what we *think* we teach and what is *actually* learned. As I have demonstrated, students can and do sometimes misinterpret information given during the teaching phase of the minicourse which begins and ends with the questionnaire. But because the survey is administered twice, pinpointing such misinterpretation is much easier.

Wildlife managers and opponents of management alike can utilize the survey in their public relations and education programs. It helps to know the general mood of an audience toward conservation before one assumes any specific level of knowledge or attitude. This is why the questionnaire is adaptable and applicable to people of almost all ages and backgrounds, and why any teacher or naturalist leader should use it with confidence. Remember: We who are in the business of encouraging the public to be more environmentaly literate have a responsibility to search for and use new methods of conveying such literacy. The people will not do it without us, and we, just as surely as they have everything to gain and nothing to lose except for a little time if we take the initiative.

For copies of survey and reprints of other outdoor education articles, contact Stephen J. Zipko, Randolph Intermediate School, Randolph, N.J. 07801.

Continued from page 11

My Brother the Hawk

On Sunday, April 10, 1977, my wife and I journeyed to the place we loved so dearly. We walked across the field to the woods and on through the foxtail and blue bent of the meadows to our old familiar tree. We climbed up and settled back to observe the magic of the coming hours and search the evening sky for our friend. A strange thing occurred. A hawk appeared out of the horizon, but it was not our hawk. It was a large female whom I had not seen before. She approached slowly, circled the tree, and then flew away. We stood silently contemplating the meaning of it all, and as I glanced at the ground, below my eyes beheld a sight that at first my mind refused to believe. We slowly climbed down from our perch in the tree for a closer look. It was, as I had feared, the body of my friend, the ancient warrior of the skies, the hawk.

I gently cradled him in my hands and examined him. His death, in sharp contrast to the violence that permeated his existence, was peaceful. Apparently he flew to one of the branches of my tree and when his heart beat for the last time, he fell to earth, never again to rise. It is heartening to me that of the thousands of places he could have gone to spend the last few seconds of his life, he chose the place I call "my tree." As my wife had said, "Maybe he chose this place because he sensed a feeling of peace and friendship attached to it." Maybe he knew that had I not discovered his lifeless form, I could never have known his fate and would have always wondered about it. I did not bury him. Instead I simply chose to remove five of his feathers to signify the five years I had known him. I left him there for his remaining feathers to scatter to the four winds over his sacred domain. Perhaps his flesh will be fed upon by some of the tiny creatures who had sustained him, and his bones will fertilize the earth that he might complete the cycle of life and fulfill that destiny that was preordained so long ago.

Hopefully, I will see him again if only in the image of his offspring. Maybe that female I saw will provide for that portion of his destiny.

If I have but one regret, it would be that I didn't take the many opportunities I had to photograph him. Somehow I thought he would always be there. I could get my camera and go back to photograph his remains but I do not wish to hold in my memory that morbid sight. Rather I would prefer to remember him in the various postures peculiar to his species. Floating out of the sunrise with wings outstretched horizontally as if frozen to the sky, his relentless determination in pursuit of the hunt, with wings folded, hurtling toward the earth, gliding, circling and then with a few short beats of his mighty wings riding the crests of an autumn breeze into the sunset. □

Continued from page 19

a field trialer looks at his sport

what a dog does, for instance, in the show ring. Or trying to train old Prince not to sleep on the living room chair. There's a clear difference in the magnitude of the training problem, and an even clearer difference in the magnitude of the psychic reward, for the dog as well as for the handler. If you have ever seen a dog come out of a bird field, having, as they say, done it all, you'll know that pride in accomplishment is not something confined to the human race!

In New Jersey, most trials take place on the Assunpink Wildlife Management area, one of the finest field trial grounds in the East. Assunpink WMA, a several-thousand-acre area near Clarksburg, provides the wide variety of terrain and cover and the room necessary to run first-class bird dog trials. The high quality of the grounds for field trials is attested to by the fact that Assunpink has been the site of several Regional Championship events, and is already booked to host the Region II Championship and the Eastern Continental Classic in 1978, as well as the Vizsla Open and Amateur National Championships in 1979.

Booking of dates for field trials is coordinated by the Association of Field Trial Clubs of New Jersey. The Association, which is composed of 16 field trial clubs, was formed in 1966 to promote high quality competition among bird dogs of all breeds; to act as a clearing house for judges and trial dates for the members clubs; to encourage conservation, restoration, and management of upland game, game birds, waterfowl and their habitats; to recognize achievement in bird dog competition and motivate breeders, owners, and handlers through the New Jersey Bird Dog of the Year Awards; and to promote through competitive testing the development of better bird dogs in New Jersey.

The Association maintains liaison with the Division of Fish, Game and Shellfisheries for the use of state Wildlife Management areas and ensures that its member clubs are "good citizens" in the use of public grounds. The member clubs release thousands of quail, chukar partridge, and pheasant on the Wildlife Management areas annually in the course of their trials, assisting in the restoration of game bird populations.

Who are these field trialers? Where do they come from? And when the trial is over, where do they go until

Continued on page 32

A typical field trial scene: dogs, kids, horses, trailers and the whole works.

German wirehaired pointer dual champion "Graf Bowser" eyeball to eyeball with a pinned quail.

Following a brace through the spring cover at Assunpink Trial Grounds, Clarksburg, New Jersey.

The Redcoats are Coming . . . The Redcoats are coming . . .

PHOTOS BY JOHN MARCHETTI

Battle of Monmouth Reenacted at Park Dedication

BY EDI JOSEPH

The final major military campaign commanded by General George Washington in the North took place in Monmouth (now Freehold) on June 28, 1778. Although it ended in a draw, the British retreated the next day to Sandy Hook, and to Staten Island and Long Island in New York. Recreational development of the battlefield area was undertaken by DEP as a bicentennial project, so it was especially fitting that the June 25 dedication program for the state's newest historic park included a reenactment of the important Revolutionary War encounter in commemoration of its 200th anniversary. Close to 2,000 volunteers from 19 states and Canada participated in the event, arranged by the state Bicentennial Commission. Former Governor Robert B. Meyner, chairman of the commission, dedicated the park during ceremonies in which DEP Commissioner Daniel J. O'Hern and Parks and Forestry Director Alfred Guido participated.

The new park facilities include a visitor center which features an interpretive display of the Battle of Monmouth. The building is completely barrier-free—there are ramps, and the public restrooms contain toilet booths which are large enough to accommodate a wheelchair and which have safety bars. There are two new picnic areas with tables and 20 outdoor grills; parking areas and access roads with control station; and bike paths. The entire project, which also included water and sewage treatment facilities, underground utilities and landscaping, cost $3.6 million and was funded under the state portion of the 1974 Green Acres Bond Issue development program. (Land acquisition was begun under the 1961 Green Acres program.) Located along routes 9 and 33 and county route 522 near Freehold (Monmouth County), the park is administered by DEP's Division of Parks and Forestry. □

Members of the Continental Army

Reenactment of Battle of Monmouth

It was almost as hot (in the 80's) the day of the reenactment as it was 200 years before—and the same thing happened this time —soldiers in their heavy woolen uniforms were felled by the heat as they fought in the midday sun.

Continued from page 16

MORRIS CANAL

mountains, McCullough envisioned a canal linking the coal-rich Pennsylvania Lehigh Valley with the manufacturing towns of eastern New Jersey and New York. It would originate from Great Pond itself, helped by damming the Musconetcong River to form a reservoir, and then proceed westward to the Delaware River and eastward to the Passaic River.

The terrain over which much of the canal was to flow was formed when the last great ice mass, known as the Wisconsin Glacier, crept down from the North about 15,000 years ago and reached into what are now Union and Morris counties. Then as the earth gradually turned warmer, the glacier slowly retreated, leaving behind a wide band of rock and debris known as a terminal moraine. Visible traces of this glacier are evident in our North Jersey lakes, in the grooves and scratches of bare rock outcroppings such as those along the Kittatiny Ridge, and even more dramatically in the occurrence of "erratic" boulders, such as the 2,000-ton limestone rock found on Jenny Jump Mountain, four miles south of the nearest limestone deposits. This moraine, which stretches in a counter grain band across the State, is an assortment of kettles and kames (hollows and hills) that was known to the Colonists as the short hills.

The ditch was dug by hand, all 102 miles of it, mainly by immigrant Irishmen. They knew nothing of Pleistocene Eras, glaciers, or moraines, they only knew that the rocks and stones they were uncovering, shifting and hauling out of ditches, groaning over, sweating over, and breaking their backs over, were of such size and orneriness that "Sure'n it must have been the Devil himself who put them there." But nevertheless they shoveled across the northern hills of New Jersey, through forests, through swamps, pick-axing their way through bedrock and slag, through mud and mire, all for a dollar a day and a chance to get drunk on Sundays! They tore across the land with incredible speed and fury, perhaps sensing somehow that they were a part of that great thrust westward; poor laborers though they might be they were fulfilling a destiny. They were changing the face of America.

The greatest challenge to the builders was the fact that the canal went through the hilliest part of the state, a

Inclined Plane at Newark

problem that led to the development of its most remarkable feature, the inclined plane. These planes were based on a similar method used in England and were devised for the canal by James Renwick, Professor of Natural and Experimental Philosophy at Columbia University, who was appointed Consultant.

Very simply, an inclined plane consisted of a track, similar to a railroad track, between the two levels of water. The boat entered a cradle which rode the track and was pulled up or let down the incline by chains extending from drums. Water power was harnessed for this operation by the use of the scotch turbine.

In 1826 several test runs were made near Rockaway on a plane rising to an elevation of 51 feet. It would take five locks to raise the canal that much, and a boat would spend at least an hour going through them. By comparision, each trip up or down the inclined plane took approximately 8 minutes.

According to a report of the Joint Committee of Council and Assembly appointed to view the Morris Canal and Inclined Planes in 1828, an 80-foot ascent up the inclined plane at Boonton in a barge containing 18 tons of stone and 100 passengers took 14 minutes. The economies of the inclined plane were obvious.

This same plane at Boonton was the scene of a near-disaster one day as the canal boat, *Electra,* loaded with a cargo of iron, was descending the plane. Suddenly the chain broke, and horrified onlookers watched as the boat hydroplaned across the water, shot over a 20-foot embankment and landed in the trees. The captain's wife, who had been in the cabin at the time, emerged aparently unperturbed. She "allowed as how it had come down pretty fast," but thought that was how the thing worked!

In 1824, after much campaigning by McCullough, the Morris Canal and Banking Company issued stock in the amount of $1,000,000. Later the Banking Company was allowed to issue another million dollars' worth. McCullough was strongly opposed to banking privileges, believing that the canal should be controlled by Jerseymen, not speculators. History has proved him right. The canal was plagued with financial problems and scandals, and at one point, in 1830, the entire canal was mortgaged to the Dutch banking house of Wilhelm Willark, Jr., of Amsterdan.

But in spite of defaults in payment and even the indictment of the officers by the New York Grand Jury, the canal was completed and in the spring of 1831 was open from Phillipsburg to Newark.

Coal was the main commodity carried by the canal, and even if it never proved as profitable as, say, the Erie Canal, it did revive industry. Boonton, for example, was a dying town, with grass growing in the streets, until with the coming of the canal East Jersey Manufacturing Co. erected a blast furnace, four forges, and a mill. Iron products and produce were shipped via the waterway to Newark and New York, but whether, as suggested by the 1823 report of the Commissioners, it "improved morals by sending apples and cider to market instead of making applejack" is not recorded.

In Newark the canal cut right through the heart of the city, going underground at what is now Raymond Boulevard. The long, dark, narrow tunnel, which passed underneath a farmers' market, gained a sinister reputation. Rats as large as cats inhabited

its dank walls, dropping onto the boats as they passed through. The men had to pole their way through this dark and odoriferous passage, and there is at least one gruesome tale of a canalman being impaled on his pole.

But this was the exception. For the most part the Canal was a cheerful, pleasant place, flowing along what is now the route of Newark Subway. During the winter, when the waters were frozen, men and women who worked in the factories along the route used to skate to and from work. Picture them, bundled up in woolen caps and scarves, the women in long skirts, skimming along the frozen canal, chatting, laughing, rosy-cheeked from the cold, crisp air. The subway certainly holds few charms in comparison, but such is progress.

Whenever you mention the canal to anyone old enough to remember it they almost always mention skating. It was an excellent shortcut between towns, and was often the site of contests and races and family skating parties both in town and in the country. In fact it was, in addition to a route for the heavy barges laden with coal and ore, a source of recreation and pleasure; a place for boys to skinny-dip on hot summer days, and for couples to stroll along the towpath in the evening.

Watching the boats being hauled up and down the inclined planes or going through a lock was a regular source of entertainment, and the mournful sound of the boatman's long blast on the conch shell to alert the lock-keeper must have stirred the hearts of boys then as much as a fire engine's siren does today.

If you want to try seeking the route of the old canal, the best sources are U.S. Geological Survey topographic maps which have it clearly marked. Traces of the canal bed can be found along Browertown Road between West Paterson and Little Falls. There is a stretch between Lackawanna Avenue and Long Hill Road where the bank and depression can be seen. In fact, across the street stands the Tow Path Inn, its name conjuring up memories of slow barges and plodding mules, not to mention thirsty canal boatmen.

Unfortunately there is nothing left of the famed aqueduct which carried the canal across the Passaic River at Little Falls. This imposing structure, built of stone in a series of rounded archways, was dynamited in 1922. A pipeline for the Newark Reservoir now crosses the river in approximately the same location, but hardly looks the same.

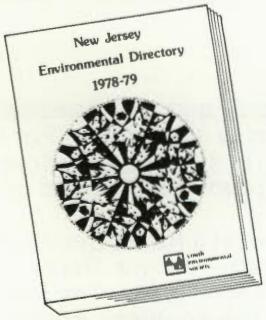
It is easier to find the canal in the less built-up areas to the north, but even here it is fast disappearing. The remains of an old lock, which is now used for swimming, can be seen at Saxton Falls State Park. And at Rockport and Port Murray the canal bank is visible. But the best place to get the feel of the canal is at Waterloo, near Stanhope. This once-busy stopping point along the canal has been restored to give an idea of its original state. Here are houses formerly owned by canalmen, a store where they bought their provisions, and the site of an inclined plane (no actual inclined plane remains throughout the length of the canal).

But it was on a quiet stretch of road between Waterloo Road and Route 80 that we discovered a small, forgotten piece of the canal itself. The towpath was overgrown, trees leaned over the still, unruffled waterbed. As we walked along the quiet, deserted bank, listening to the deep-throated croaking of the frogs, searching for the hidden tunnel of the muskrat (a trapper for the canal earned 18 cents a tail), we felt we had slipped back into an earlier century. A slower, more tranquil time, when this silver ribbon of water wound up and down the North Jersey hills and "ships sailed the mountains." □

BIBLIOGRAPHY

"The Morris Canal" by James Lee, Canal Press, York, Penn. 1973
"The Old Canals of New Jersey" by Richard F. Veit, N.J. Geographical Press
"The Roads of Home" by Henry Charlton Beck, Rutgers Univ. Press
"From Indian Trail to Iron Horse" by Wheaton J. Lane, Princeton Univ. Press. 1939 "Report to Directors of Morris Canal," 1827, Colden Cadwallader. New Jersey Historical Society.
1. History, 2. Legends by Elizabeth Lockwood Coombs, Manuscript. N.J. Historical Society "Morris Canal Memories" by L.Y. Cressman. N.J. Historical Society

---



New Jersey Environmental Directory Published By The Youth Environmental Society (YES)

Have you ever wondered who is trying to save the Pine Barrens; what groups are fighting nuclear power plants; what student environmental groups are out there and what do they actually do?

If you're one of the many people plagued with such questions, The New Jersey Environmental Directory may have many of the answers you seek. The 52-page Directory was published by the Youth Environmental Society (YES) this summer and has listings and information on more than 200 environmental efforts.

"The idea of compiling a directory was a natural for YES," said Assistant Director Daniel J. Van Abs, who compiled the directory from the returns of a survey mailed out to over 650 organizations.

"We work with high school and college students statewide," Van Abs said. "The Directory will help students and non-students become familiar with the full scope of New Jersey's environmental movement."

The Directory attempts to show the great diversity of environmentally-oriented groups active in New Jersey. Among the 14 chapters in which this is delineated, such categories as Youth Activism, Environmental Education, Conservation, Land, Water and Energy ought to be of prime interest.

YES plans on producing an entirely new edition of the Directory every two years, with additional supplements in-between as necessary. If you are interested in purchasing the New Jersey Environmental Directory, it is available at a cost of $3, payable to:

The Youth Environmental Society P.O. Box 1127 New Brunswick, N.J. 08903 (201) 828-6880

Continued from page 3

New Jersey is for the Birds

Eagles nesting in the state.

Getting There: Take the Garden State Parkway to exit 52. Route 542 is on the edge of Wharton State Forest. Exploring these areas by foot, canoe, or car requires a good map and an adventurous spirit. The town of Green Bank has a canoe rental service (Mullica River Boat Basin).

Birder and his car, N.J. Audubon—Cape May Weekend

Tufted Titmouse

HACKENSACK MEADOWLANDS (6)

Amidst the garbage dumps and landfill, under the shadow of the World Trade Center in northern New Jersey, lies one of the best shorebird areas of the East Coast. The estuary of the Hackensack River is one of the most important feeding and resting areas for migrating waterfowl and shorebirds. Fall migration provides an opportunity to see plovers (Golden and Black-Bellied), Short-Billed Dowitcher, Greater and Lesser yellowlegs, Northern and Wilson's phalaropes, Marbled and Hudsonian godwits and at least 5 species of sandpiper. Birds concentrate in the sewage pool and in the impounded pool as well as along the dump. In summer, breeding waterfowl include Gadwall, Blue-Winged Teal and Ruddy Duck. In winter, there are Pintail, Marsh Hawk, Rough-Legged Hawk, Short-Eared and Long-Eared owls as well as Glaucous and Iceland gulls.

Getting There: Take Route 3 east to Route 17 exit. Bear right on to Rutherford Avenue. Make a left turn on Orient Way and another left at Valley Brook. Parking is available near the railroad tracks.

GREAT SWAMP NATIONAL WILDLIFE REFUGE (7)

Often called a "postage-stamp wilderness," this 5900-acre area, within reach of millions from the metropolitan area, represents some of the richest wetlands in the state. The habitat includes hardwood forests, swamps, and marsh as well as open fields and lowlands. Two separate interpretive boardwalk trails, as well as a photographic blind/observation building, are available to visitors. A diverse bird population is seen throughout —herons, waterfowl, rails, wrens, and thrushes make up part of the 200 species recorded here. Nesting species include four thrushes (Robin, Bluebird, Veery and Wood), numerous warblers, and two species of wren (House and Carolina), just to name a few. For the more adventurous, there are a number of primitive trails (remember to wear waterproof footgear and carry insect repellent).

Getting There: Located on Long Hill Road, the Wildlife Observation Center can be reached via Route 202 through New Vernon and Lee's Hill Roads. The Morris County Education Center, on the southern border of the refuge, can be reached from New Vernon via Village Road and Southern Blvd. Both have boardwalks and interpretive displays. For more information write: Refuge Headquarters, RD 1, Box 148, Basking Ridge, New Jersey 07920.

HIGH POINT STATE PARK & STOKES STATE FOREST (8)

In the exreme northwest corner of the state, along the Kittatinny Mountain ridge, these contiguous areas occupy 27,000 acres of rugged woodland and lakes in Sussex County.

High Point State Park, so named because it contains the highest point in New Jersey (1803 feet above sea level), has an extensive trail system and natural area which includes a cedar swamp (John D. Kuser Natural Area). This region and the periphery of Culver

Lake offer some of the best spring warblers of the state, especially northern species such as the Magnolia, Canada, and Northern Waterthrush.

Stokes State Forest, especially at Sunrise Mountain, is an excellent hawk-watching area. The forest areas, including Tillman Ravine, contain a diverse population of birds, with well over 200 species.

Getting There: Stokes State Forest is easily reached by Route 206, which traverses the park. High Point State Park is reached by Route 23. Both areas have trail maps and descriptive material at the park entrances.

BULL'S ISLAND RECREATION AREA (9)

Bounded by the Delaware-Raritan Canal and the Delaware River, this small (80-acre) area in Hunterdon County has facilities for camping, boating, and picnicking and is most productive during the nesting season. A few of the species that are regularly seen are Acadian Flycatcher, Warbling Vireo, Great Horned Owl, Black-Billed Cuckoo, Yellow-Throated Vireo, Cerulian and Prothonotary warblers, and Ruby-Throated Hummingbird.

Getting There: From Route 287, exit at Route 523. Take Route 523 south to Stockton and then Route 29 until the entrance to the area.

PALISADES INTERSTATE PARK GREENBROOK SANCTUARY (10)

Palisades Interstate Park occupies 75,000 acres along the Hudson River. The Palisades Long Path (along the cliff edge) and the Palisades Shore Trail belong to the National Recreational Trail System. Within this area is a 165-acre oasis called Greenbrook Sancturary. Its 16 marked trails wind 6-1/2 miles through varied habitats. More than 170 species of birds have been identified here, including nesting Ruffed Grouse, Wood Thrush, Brown Thrasher, Northern Oriole, Pileated Woodpecker, and Great Horned Owl. In winter, Canadian species include Evening Grosbeak, Purple Finch, and Winter Wren. During the fall hawk migration (September and October), more than 9000 have been counted over the sanctuary. The sanctuary has a naturalist (John Serrao) and holds a variety of programs including weekend nature walks and field trips. In May, a weekend bird walk by members at the sanctuary recorded 64 species including 20 species of warblers.
Getting There: Greenbrook Sanctuary is located 5 miles north of the George Washington Bridge off Route 9W. The Palisades Nature Association, with permission of the Palisades Park Commission, operates Greenbrook as a special-use sanctuary. Membership is required. For information write: Palisades Nature Association, P.O. Box 155, Alpine, New Jersey 07620.

New Jersey Reporter Wins Deep Woods Writing Award

Rick Methot, outdoor writer for The Home News, New Brunswick, N.J., was honored on June 14 by the Outdoor Writers Association of America with a Deep Woods Writing Award for journalistic excellence. Methot won second prize in the newspaper category for a three-page illustrated feature titled "Conservation: The Choice is Yours" that appeared in the April 29 issue of the newspaper.

The Deep Woods Writing Awards, sponsored by Johnson Wax to encourage writing excellence in outdoor reporting, were presented during the 51st annual conference of the 1,450-member O.W.A.A. organization. Nine awards totaling $5,000 were offered in the annual competition.

Entries were judged by John Fry, editorial director for the Times-Mirror Magazines of New York, and David Petzal, managing editor of Field & Stream, under supervision of the O.W.A.A. The judging determined the best writers in the four categories of newspaper reporting, magazine writing, radio broadcasting and telecasting.

Methot's column, "Outdoors," which appears regularly in The Home News, was devoted in the April 29 issue to conservation and pollution of the landscape by overbuilding and littering. Editor of the Leisure Section, Methot used the entire double-page center spread of the newspaper to list conservation organizations which the public can join to aid in the battle for conservation, with a summary of Methot stories on the accomplishments of public groups all over the country in restoring damaged areas to useful, productive recreation space. □

surprises found among 20 cities with air pollution problems

Most environmentalists can guess which U.S. city has the worst air quality.

Los Angeles, famous for its smog, was the easy "winner" in a study published by the Council on Environmental Quality. On 318 days in 1975—the year on which the study was based—its air was "unhealthful," "very unhealthful" or "hazardous."

But the list of a representative group of cities contained a few surprises, according to the National Wildlife Federation, which monitors the nation's air pollution in its annual Environmental Quality Index report. The cities, and the number of days on which their air was "unhealthful" or worse were: Denver, 177; Albuquerque, 150; Philadelphia, 150; New York-New Jersey Metropolitan Area, 149; Boston, 147; Houston, 141; St. Louis, 140; San Francisco, 127; Spokane, Wash., 126; Phoenix, 118; Fairbanks, Alaska, and District of Columbia, 90; Sacramento, Cal., 88; Louisville, Ky., 72; Steubenville, Ohio, 60; Cincinnati, 51; Omaha, 40; Memphis, 38; and Wichita, Kan., 25.

Continued from page 26

a field trialer looks at his sport

next weekend and the next trial? And why, why do they do what they do?

Field trialers come in all sizes, shapes, colors, and sexes. You see handlers and judges in their seventies, and you see a five-year-old proudly sending his dog into the water to retrieve a duck. Ladies, handling and judging, are seen more and more frequently. They have a well-deserved reputation for being tough competitors, by the way.

As to occupation, trialers I know drive trucks, fight fires, patrol the Turnpike, teach school, coach football, fill teeth, run companies, farms or banks, and sell cars. And between weekends at trials, they go back to doing the same things we all do, earning a living, raising a family, and paying the bills. There is only one difference; each also finds the time to excercise and train a dog, or as is more often the case, dogs.

Why do they do it? Several reasons come quickly and easily to mind: "It helps keep the kids busy and out of trouble," "It's healthy being out-of-doors on weekends," "I enjoy being with other trialers," "It's a chance to test the abilities of the dogs I've bred," "It's nice to relax after working all week." But way deep inside, field trialers, like the Datsun commercial says, are *driven.* They are driven by the urge to compete, to win, to glory in that blue, red, yellow, or white ribbon, to relish casually saying, "Oh yeah, that's old Bowser. He's got over 100 field trial wins," and to display those trophies, proudly, almost fiercely, in the place of honor in their homes.

That's not to say that trialers are cut-throat, compulsive competitors, driven by strange and murky psychological quirks. Quite the contrary; trialers as a group are friendly, open, and warm. I've never seen one yet who wouldn't drop what he was doing and spend hours explaining to a spectator what was happening, how the trial was going, and what the dogs were doing; and do it in a fashion that would make the newcomer feel welcome and motivate him to participate in trials too.

What is a typical trial like? Well, a typical trial will be held at Assunpink, one of the other Wildlife Management areas, or on one of the several private grounds around the state. A Championship event may run three or even four days, but the average trial starts at 7:00 A.M. Saturday, and winds up late Sunday afternoon. Often, the sponsoring club will host a dinner for the trialers on Saturday night, either on the trial grounds or at a nearby restaurant. Typically too, the breakfast and lunches served on the grounds will be prepared by volunteers who give their time and turn their profits over to the Deborah Hospital. And believe me, starting to cook breakfast for 30 or 40 people at 6:00 A.M. takes a really dedicated volunteer.

Over the course of the weekend, there will be upwards of 100 people at a typical trial, and probably 25 to 30 horses and 100 to 150 dogs will be in evidence. Since many trialers stay overnight, there are always a certain number of "spectator" dogs around; puppies too young to compete, old-timers with a touch of rheumatism, and young tigers who need just a bit more training. During the course of the trial, there will be stakes (competitive events) for Puppies, Derbies, and Shooting Dogs. Some stakes will be for amateur handlers only, others will be Open stakes where the amateurs compete against the professional handlers, who make their living training and handling field trial and hunting dogs. There will be stakes for big-running, wide-ranging dogs, which must be followed on horseback, and stakes for close-working dogs handled on foot. There may be stakes for junior handlers or lady handlers. Not all trials will offer all events, but all will offer a variety of stakes. On an average weekend, anywhere from 80 to 145 dogs will be competing, winning and losing. And one thing any trialer will tell you; if you can't stand losing, don't trial, because field trialing is the best place in the world to practice losing. Whether there are four or forty dogs in a stake, only three or four can be awarded placements. And if no dog performs to the judges' satisfaction, no placements are awarded. The best of the worst just doesn't make it at the trials!

To show that New Jersey's field trials are right up with the best, we might mention Dr. A.H. Nitchmann of Cranbury, whose English Pointers have garnered more than 30 Championships over the past six years. Dr. Nitchmann is clearly in a class by himself, although his competitors are strong and numerous. Among the various breeds, and within the differing rules of the American Field and the American Kennel Club, more than 100 New Jersey bird dogs have earned the titles of National Champion, Regional Champion, Field Champion, or Amateur Field Champion over the past decade. And more are doing so each year, thanks in no small measure to the availablitiy of prime trial grounds here in New Jersey. □

Anyone interested in further information on field trials may contact
Mr. Herb Hollowel (President, Association of Field Trials of New Jersey)
RD #1 Box 94
Whitehouse Station, New Jersey 08889
(201) 534-2609

FRONT COVER

Sunday View of White Meadow Lake—Photographed by David Bast

INSIDE BACK COVER

The Red Squirrel—Illustration by Carol Decker (See article on page 12.)

BACK COVER

Evening Fisherman in September on the Metedeconk River in Laurelton—Photographed by Robert R. Fales

Carol Decker '77 ©