New Jersey Outdoors

March/April 1985
$1.50

Three New Jersey
Endangered Species:
Peregrine Falcon
Pine Barrens Tree Frog
Timber Rattlesnake

Vol. 12 No. 2 • March/April 1985

New Jersey Outdoors

Computerized typesetting by Trentypo, Inc. and printing by The Lane Press, Inc.

New Jersey Outdoors **(USPS 380-520) is published bi-monthly (six times a year) by the N.J. Department of Environmental Protection. Second-class postage is paid at Trenton, N.J. and additional mailing offices. Subscriptions are $6.50 for one year, $11.95 for two years, and $15.95 for three years payable by check or money order to New Jersey Outdoors Mailing Office, CN 402, Trenton, N.J. 08625. Single copies, if available, cost $1.50. POSTMASTER: Send address changes to *New Jersey Outdoors* mailing office. 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 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*. Telephone: Circulation (609) 292-1281 or 292-1939; Editor's Office, (609) 292-2477.**

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

(Note: Costs of publishing the magazine not covered by subscriptions are met 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.

FROM THE EDITOR

It must be Spring. . .

Because I'm putting together the Spring issue . . . and whether the weather is ready or not, our Spring events are booked and ready to go on stage. Some of the acts are:

- Opening Day Trout on Saturday, April 13. More than 200,000 anglers (adults and juveniles) will try to catch the 600,000 plus stocked trout and holdovers on this festive day. Pray for good weather.
- Wildlife (Weekend) Workshops for Teachers. Two workshops are scheduled:
  Marine and Estuarine Wildlife
  May 3, 4, and 5 at the Marine Sciences Consortium, Seaville, N.J.
  Upland and Freshwater Wildlife
  June 7, 8, and 9 at the New Jersey State School of Conservation in Stokes State Forest, Branchville, N.J. (See page 29 for details.)
- DEP Poster and Junior High Essay Contest. Our theme this year centers on Wildlife in New Jersey. (Turn to page 28 for Poster and Essay Contest rules.)
- National Wildlife Week Poster Contest. The New Jersey State Federation of Sportsmen's Clubs announces their fifth annual poster contest to celebrate National Wildlife Week. This year's theme is *Soil—We Can't Grow Without It.* (Turn to page 11 for Contest rules.)
- Saturday, May 4, 7:30 P.M. Moonlight Hike: Historic Whitesbog (7 Miles). An easy hike to listen for "sounds in the night." Hear the Springtime chorus of frogs, toads and whippoorwills as they serenade. Walk the dikes of cranberry bogs and a pretty woodland trail. Bring lunch and meet at Elizabeth White Reception Center, Conservation & Environmental Studies Center, Whitesbog Rd., 4½ miles east of Browns Mills, and ½ mile north of Rt. 530. For information, call Bert Nixdorf (609) 267-7052.
- A Long-Awaited Event: Open House at the Pequest Natural Resource Education Center and Trout Hatchery, Sunday, April 28 through Saturday, May 4, from 10 A.M. to 4 P.M. each day. To get there, take Route 31 (to Oxford N.J.), turn on Pequest Road and travel East for three miles to entrance.

IN THIS ISSUE

And in the Spring, especially on April 13, Trout Opening Day, the stocked trout streams and lakes will be the most densely populated places in our densely populated state. Can you visualize Saxton Falls on the Musconetcong, the Flatbrook, or Ken Lockwood Gorge on that day; in the south, Hammonton Lake, Birch Grove Park Pond, or the Maurice River? Opening Day Trout is a tradition and a social occasion in New Jersey, so go out and purchase a license and a trout stamp and get your equipment in working order.

But first read the three trout articles in this issue: *The Caddis Conspiracy* by Allen G. Eastby; *Going Buggy* by Jim Merritt; and *Records Waiting to be Broken at Round Valley Reservoir* by Robert Soldwedel.

Writer/trout fisherman Eastby hasn't written for our magazine for some time but we're glad he's back; ditto for Jim Merritt at Princeton. Bob Soldwedel, a frequent contributor, is a principal fisheries biologist with the Division of Fish, Game and Wildlife.

California, Oregon, and southern Washington all have a sizable and substantial striped bass fishery because 105 years ago a transplanted New Jerseyan, Samuel Reading Throckmorton, wanted to fish for bass. Read this harrowing tale titled *A Factual Fish Tale*, by Ben Van Vliet, Information and Education writer for the Division of Fish, Game and Wildlife. The illustrations were provided by Anthony Hillman.

If you're a polar bear type, you'll like the article titled *Surf's Up* by Contributing Editor Cathie Cush. It's all about surfing off Long Beach Island in the winter. Why? Because the waves are better.

Freelance writer Gail Greco asks, *Where have all the blacksmiths gone?* Although the village smithy is gone, former Ringwood Superintendent Dick Riker, with the help of the North Jersey Highlands Historical Society and other volunteers, initiated a plan to revive a blacksmith shop at Ringwood. And so it came to pass, and Ms. Greco, in her first effort for our magazine, tells us about it.

Outdoor writer Jan McDowell, a columnist for the *New Jersey Herald*, tells us how she bagged a wild turkey last year, after she decided to try her hand at calling. The article is titled, *If only . . . A turkey hunting story.*

Terence M. O'Leary, a former teacher and staff member of the Conservation and Environmental Studies Center at Whitesbog writes about *Carnivorous Plants of the Pine Barrens.* The author discusses how these plants have developed unusual adaptions for trapping and digesting insects and small aquatic animals.

April 1963: Can it happen again? is the question Bureau of Forestry Firewarden Joseph Hughes asks our readers as he describes the most devastating forest fire in New Jersey. We hope not.

The Nongame and Endangered Species Program is funded by (a) the federal government, (b) the state treasury, (c) income tax checkoff, or (d) cookie sales. You're right, the correct answer is (c) income tax checkoff. Read *Go Wild at Tax Time* by Kate Davies, a Senior Editor for Aqua Field Publications, Inc.

If you prefer to fish for largemouth in the Spring, then read the article titled, *Spring Tactics and Tackle for Largemouth Bass*, by Robert A. Martin. The author wrote the article, *Ice Fishing Basics for Lake Hopatcong* in the January/February issue.

Sandy Hook has one of the largest American holly forests on the East Coast but it also has a wide variety of wildflowers. The text and photographs for the article, *Spring Wildflowers of Sandy Hook*, are the work of Jim Duggan and Tom Kienzle, both employees of the Sandy Hook Marine Laboratory.

A closing comment: On page 31 we offer the fourth *NJO Reader Survey.* We hope many of you will take the time to fill it out and return it to us. We'd like to know who you are, what you like to see in NJO, what you don't like, and so forth. Because we know full well that if we don't print what you like, pretty soon we won't print at all.

Steve Perrone

Variation on the classic Adams

The Caddis Conspiracy

By Allen G. Eastby
Photos By Author

It's a conspiracy.

It has to be.

Why else would all those oh-so-knowledgeable flyfishers be hiding behind barricades of entomology textbooks and communicating with each other in secret code? And if you don't think it's code, and it's not classified top secret, eyes only, burn after reading, try to decipher the difference between *Stenonema* and *Stenacron*.

It was bad enough in years past when angling sages informed us mayflies held the key to trout fishing success. But today, today we're told that we have to master the biology and ecology of the *Odonata*, the *Neuroptera*, and the *Plecoptera*, not to mention (hush now, someone may be listening, watch out for shotgun microphones) the *Trichoptera*, or else we don't stand a chance of taking a trout or two on our Saturday outing. And if we're not initiated into the high mysteries and arcane lore of "matching the hatch" (compound and complex hatches as well as simple ones), if we haven't decimated the trout food in our favorite stream so we can proudly display our collection of nymphs, all neatly mounted in blocks of plastic resin, if we haven't studied the intimate behavior of insects with the aid of scuba gear and underwater camera, if we haven't collected virgin male *subimago* mayflies (absolutely indispensible if you want to correctly and accurately identify genus and species), why then we're not really trout fishers at all, just a collection of weekend warriors who should take up something better suited to our limited talents, Pacman, for example, or Space Invaders.

But do we really have to qualify for Ph.D.s in aquatic ecology to catch trout? Do we have to carry a score of fly boxes filled with hundreds of patterns? Must we burden ourselves with insect nets, collecting bottles, tape recorders (invaluable, we are told, for keeping records of hatches and other assorted vital statistics like the sex of insects that come off particular riffles at two thirty in the afternoon on days in May when the air temperature is no more than sixty degrees) and a portable computer? Or have we gone too far?

In the case of the caddis we have.

For years, we anglers have been bombarded by a heavy and steady barrage of books and articles about the *Trichoptera*, the caddisflies. Indeed, it seems as if it is impossible to pick up a copy of one of the popular flyfishing magazines without finding in it an article or two about caddisflies. There must be at least two patterns imitating each of the several hundred species of caddis living in our trout waters, some of them flies of such incredible complexity that only a master fly tier could attempt, let alone complete, one. Whether it's along the Madison or the Musconetcong, wherever anglers meet to swap lies and flies, caddis are sure to be on the agenda. In country taprooms and at fishing club meetings, you can overhear learned discussions about just how and when a caddis sheds its nymphal shuck. And as for the poor caddis, there seems to be nothing left to be said about it since angling scholars have analyzed its sex life and its eating habits (terrible table manners), described where it lives, and told us why it is growing in importance.

Now, there is no denying that knowledgeable flyrodders are the ones who catch trout, and there is something to be said for the feeling of exultation, and the expression on his face, when you tell that certain neighbor, the one with the twelve hundred dollar bamboo flyrod who fishes the South Island of New Zealand every winter, that you caught a half dozen nice rainbows on an imitation of *Hydropsyche simulans*. But by and large the commotion about caddisflies is mostly window dressing, a little of the old razzle dazzle to fool the novices and convince each other that we're really sharp anglers.

Caddis dries (left to right: flat wing, delta wing, hair wing, flat wing)

Several seasons ago, when I discovered that my collection of caddis imitations had grown to unmanagable size—it filled eight large fly boxes—I began to put one side of those flies used only on trips to waters far from home and to ruthlessly cull the rest of my collection, limiting myself to those patterns that took trout day after day from the season opener until the flyrod went on its rack for a winter rest. I found that not only did my fishing vest weigh less, but I was able to concentrate on *fishing*, on properly presenting my flies to the trout, that vital but all too often neglected phase of fishing. To my surprise and delight, I also discovered that seven patterns in a spread of sizes enabled me to face virtually every situation calling for a caddis imitation with complete confidence.

All trout anglers are familiar with the immature stage of the caddis. We have seen the cases of sticks and fine gravel and sand they construct littering stream bottoms. There are other caddis as well, the so called free living forms, which don't build cases. They forage along the bottom or spin delicate nets to strain tiny food particles from the current. All of them are part of the trout's diet and most anglers carry nymphs imitating them to use when no activity is seen. But for searching the water far better nymph patterns are available (dragon and damselfly nymphs, wiggle nymphs, and the ever reliable Hare's Ear). Yet a caddis nymph can be among the most effective flies an angler can carry, when proper ones are used effectively.

As a rule (and there are exceptions to every rule in angling), caddis hatches are sparse and scattered, with insects emerging in spasmodic spurts all day long, usually from mid morning until mid afternoon early in the season and until the evening during the warmer months. In April and May, there are peaks of activity just before noon and again in the early afternoon. During June, there are flurries of activity at dusk. The summer months are unpredictable—so much depends upon the weather—but once the leaves have begun to turn, anglers can expect to find caddis on the move from midday until dusk. As often as not, the trout will ignore the adult caddis and concentrate on the nymphs as they struggle

A Cabal of Caddis

Grey Caddis Emerger
Hook: Mustad #94840 or equivalent, sizes 12 through 20
Thread: black, 6/0, prewaxed
Wing stubs: mottled wing quill segments
Legs (optional): dark partridge or grouse fibers
Thorax: dark grey fur dubbing or ostrich herl
Abdomen: dark grey "sparkle yarn" or dubbing of grey "sparkle yarn" and black "seal substitute"

Olive Caddis Emerger
Hook: Mustad #94840 or equivalent, sizes 12 through 22
Thread: olive, 6/0, prewaxed
Wing stubs: brownish wing quill fibers (pheasants, grouse, and partridge have mottled brownish wing quills; turkey tail fibers, either natural or dyed, can be used without harm to the angler)
Legs (optional): olive dyed partridge
Thorax: dark brown fur dubbing or ostrich herl
Abdomen: olive green "sparkle yarn"

Brown Caddis Emerger
Hook: Mustad #94840 or equivalent, sizes 12 through 20
Thread: brown, 6/0, prewaxed
Wing stubs: brownish wing quill fibers
Legs (optional): grouse or other brownish soft hackle
Thorax: dark brown fur dubbing or ostrich herl
Abdomen: brown "sparkle yarn"

Hair Wing Emerger
Tie in a tuft of deer or elk hair in place of the thorax and wing stubs. This will help anchor the fly in the surface film.

Dark Grey Sedge (Caddis Dry Fly)
Hook: Mustad #94840 or equivalent, sizes 14 through 22
Thread: black or grey, 6/0, prewaxed
Wing: dark slate grey (duck wing quill segments, hackle tips, deer or elk hair, dyed chipmunk hair, or mink tail guard hair can all be used)
Hackle: dark dun
Body: dark charcoal grey fur or polypropylene dubbing (can be mixed six parts dark grey with one part dark green)

Tan Sedge
Hook: Mustad #94840 or equivalent, sizes 14 through 22
Thread: light brown, 6/0, prewaxed
Wing: tannish brown (hackle points from "medium ginger" and "ginger variant" necks are excellent)
Hackle: medium or light ginger (can be mixed with "red" or "ginger" variant)
Body: light tan fur or polypropylene dubbing

Brown/Green Sedge
Hook: Mustad #94840 or equivalent, sizes 12 through 20
Thread: olive, 6/0, prewaxed
Wing: medium brown ("dark ginger" hackle points are recommended)
Hackle: dark ginger
Body: greenish olive fur or polypropylene dubbing

Brown Sedge
Hook: Mustad #94840 or equivalent, sizes 12 through 18
Thread: brown, 6/0, prewaxed
Wing: light brown, mottled (chipmunk tail hair is a good choice)
Hackle: dark ginger (can be mixed with light ginger or either of the "variants")
Body: medium brown fur or polypropylene dubbing

Adams
This classic pattern, usually tied in shades of grey, lends itself to almost endless modifications. Try an Adams with brown (dark ginger) spent wings, an olive green body, and hackle of grizzly and olive mixed or olive dyed grizzly.

On the Musconetcong River: some of the best caddis hatches in the state occur on this river

Caddis emergers (left to right: light brown, olive, grey)

upward from the streambed. A fly imitating the caddis as it emerges, then, is one of the best a flyrodder can use.

There are almost as many styles of tying caddis emergers, or pupas as they are called by those who want to sound like pundits, as there are fly tiers. A durable, easy to tie fly, with a dubbed body of shredded "sparkle yarn," mottled feather or wing quill segments mimicing the wing stubs, and, if you are a traditionalist, a thorax or collar of ostrich herl or fur dubbing and "legs" of soft hackle such as partridge, is telling. Another effective type of caddis emerger has a tuft of deer or elk hair in place of wing stubs and thorax (this fly looks like one of the famous "Comparaduns" without a tail) and is incredibly simple to tie. No matter which style an angler prefers, caddis emergers should be carried in grey, olive, and brown in a range of sizes, from twelve through twenty.

The best way to fish a caddis emerger is dead drift, drag free, and floating on the surface. By working a good paste dressing into the fly and coating the tippet with dressing, an emerger tied on a dry fly weight hook will float as well as any Quill Gordon. On occasion, however, the trout will steadfastly refuse floating flies. An emerger fished just beneath the surface, then, is called for. Incidentally, to sink a fly that has been treated with floatant, try soaking it with contact lens wetting solution. It works better than the fly sink sold by tackle shops. If it becomes necessary to get the fly down deeper, a bit of fine lead wire snugly wrapped around the knot connecting the tippet to the leader will do the job nicely. A good technique to use with a sunken fly is to cast quartering downstream and let the fly swim across the stream. Imparting a pulsating series of twitches with the rod tip can induce reluctant trout to strike. At the end of the drift, be sure to retrieve the fly slowly, using the traditional hand twist. Trout, particularly recently stocked ones whose food gathering skills are not yet honed to a fine edge, will often follow the fly for some distance before snapping at it. Another tactic that works well with a sunken emerger is to cast the fly upstream, allow it to sink, and then retrieve it slightly faster than the current. Mastering this technique takes some practice, but it is worth it. Trout savage flies fished in this fashion, usually hooking themselves, and frequently when the fly is missed on the first pass the fish will come back for a second attack.

One point should always be kept in mind when fishing emergers. It is the angler who is willing to experiment, to try something new and unconventional, who is likely to develop the best methods of presenting his flies to the fish.

Sooner or later there does come a time when the trout will begin to take adult caddis from the surface. Then a sedge (by long tradition stretching back to seventeenth century Britain adult caddis are called sedges) is needed.

There is less room for tactical flexibility when fishing a sedge then when fishing an emerger. Although a great deal has been said recently about the merits of manipulating caddis dry flies, the old angling dictum of dead drift, drag free is dead right still holds true. Perhaps a fly quivering in the current is irresistable to trout; but there isn't one angler in a hundred who can impart to his fly just the right degree of movement. It's far better to be safe. Instead of worrying about fishing your fly "like a living insect," concentrate on the important decisions to be made. Should you work upstream or down? Would

continued on page 33

I found a man who had experience in evading the law and who had the only real seine in the vicinity.

a factual fish tale...

... By Ben Van Vliet

Illustrations By Tony Hillman

The truly ardent angler, given the wherewithal, will sometimes go to extraordinary lengths in the pursuit of health, happiness and fish.

Take the case of Samuel Reading Throckmorton, a self-described capitalist, who ended up in California during the Gold Rush days with money, political ambition and a strong urge for striped bass.

California waters, however, did not at that time contain striped bass—a situation Throckmorton found intolerable and set out to rectify.

And thanks to Throckmorton, a piddling number of striped bass fry found themselves transported from the upper reaches of Monmouth County's Navesink River to the San Joaquin River near San Francisco Bay. That was 105 years ago.

Today, California, Oregon and southern Washington all have a substantial and stable recreational striped bass fishery thanks to this transplanted New Jerseyan, who set in motion this strange odyssey which also involved the U.S. Fish Commissioner under President Ulysses S. Grant; a long-suffering fishery biologist and a trio of local fish poachers.

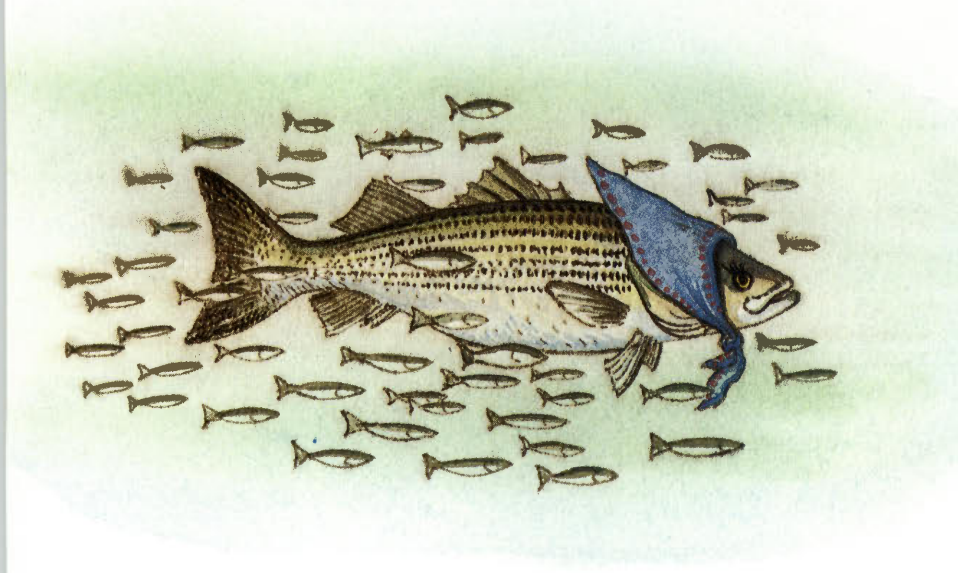
Not much is known about Throckmorton. He was born in Spotswood in 1808, and sometime in 1850 arrived in California via Nashville, Tennessee, where he left his wife and three children, and Panama.

Throckmorton arrived on the West Coast in debt, which he overcame, according to newspaper accounts, "after 19 years of shrewd investing and land speculation." He became not only a rich man, but also chairman of the three-member California Fish Commission.

This was the beginning of the era when wildlife and fishery biologists were experimenting with moving "things" around. Carp and brown trout were being introduced to the United States from European waters. The Australians were about to make a huge mistake by introducing rabbits to a land where the bunnies had no natural predators and thus soon developed into what has been described as "elephant-like herds."

Not to be outdone, the California Fish Commissioners persuaded eminent fish culturist, retired Unitarian minister and U.S. Fish Commissioner Livingston Stone to ship out a railroad car full of eastern fish.

This aquarium train, loaded with an unknown quantity of unknown species, departed for California in 1873. It crashed in Nebraska. A year later, a second carload of fish, reportedly containing shad, black bass and catfish, arrived in Oakland, California, having deposited fish in the Great Salt Lake and the Sacramento River along the way. Apparently



Today, California, Oregon and southern Washington all have a substantial and stable recreational striped bass fishery.

none of these species took hold in the western waters.

Red Bank's the Place

In 1879 Throckmorton ordered the striped bass. He told Stone where to get them because he remembered as a boy fishing for stripers in the Navesink River near Red Bank.

Stone traveled to Red Bank, looked over the river, hired two "fishermen" to make preparations for the catch of striped bass fry, and went back to Washington, where he assigned a fishery biologist named Harry Mason to supervise the operation.

Within two weeks of his arrival in Red Bank, both Mason and his mission were well known in town and neither was being well received. The June 19, 1879, issue of the Red Bank Register said, "It is stated that the party engaged by the United States Fish Commissioner to catch small bass for transportation to California is still using his seine in catching the fish. If it can be proven that he has violated the law he will be prosecuted by the fish warden of the county."

Mason had arrived in Red Bank on June 4 with instructions to gather 150 striped bass fry, 200 eels and as many scallops as deemed advisable.

Prior to setting out for Red Bank, Mason says he was warned that he would encounter "great difficulty" in getting striped bass because none had appeared in the river, and that scallops were definitely out of season.

Where were the Fishermen?

Undaunted, he proceeded, armed only with the knowledge that the first striped bass caught in Red Bank the year before was on June 9. On reaching Red Bank there were other problems. In his report he wrote: "I found that none of the arrangements you (Stone) had made had been attended to; the two men—I cannot say fishermen—employed to catch the bass had but a faint conception of what was wanted ..."

He added that these men had only an eel seine, which was of no use and that they refused to seine the river because they were afraid of a state law against seining.

"I immediately discharged the inefficient fishermen," Mason reported, "and, after considerable difficulty I found a man who had experience in evading the law and who had the only real seine in the vicinity."

"By promise of liberal pay," Mason wrote, "I secured his valuable services, together with those of his sons, and to them is due the credit of undertaking and carrying through the work that scarcely anyone else could or would have brought to a successful issue." Clayton was the name of the man and his sons.

Mason noted that while Clayton was preparing the seine, he inquired as to the habits of the local bass. "Aside from the uniform opinion that bass could not be kept alive overnight," he wrote, "I could find no two (persons) who agreed as to the primary facts. Only one could be found who had ever found a bass with the spawn in her. He said he found it in February, but added the incredible story that it weighed 30 pounds. Some thought the bass spawned in the fall; others in the winter, and a few in the spring, while scarcely anyone agreed with me that about June 1 was the time."

In addition, he was told that bass spawned in the ocean, or in brackish water, or in ditches and brooks. No one reported every seeing a bass less than three inches long and everyone told him his job was "a useless expenditure of time and money."

Mason then notes that the Jersey shore is "one of the chief places for striped bass fishing in the country," adding, "it is not my place to mention the lack of fish culture among the natives."

Seining at Night

Nevertheless, seining was begun, mostly under the cover of darkness, and on Friday, June 6, Mason reported capturing 20 "fair-sized" bass averaging eight inches long. But, disaster struck quickly. Despite being kept in the same water from which they were taken and the water being constantly aerated, the fish were dead by the next day.

Mason and crew then moved upstream in search of smaller fish. He found just nine, which were kept alive by placing them in brackish water freshened with ice to lower the temperature to 65 degrees. Five fish lived to be placed in the San Joaquin River.

By Wednesday of the second week, he had succeeded, "in spite of continued threats of arrest," in keeping alive 60 small and 30 medium-sized bass.

That day, more trouble arose—Clayton and his men lost all but a dozen of 139 small bass they managed to net. "This rather disheartened them," Mason reported, "but after considerable argument they were persuaded to try again." The following day the men hauled in 81 bass, all of which lived to begin the long journey west.

Mason's answer to keeping the bass alive was to put them in tanks containing artifically salted water made by adding about a handful of sea salt to a pail of fresh spring water and to keep the water constantly aerated. "To my surprise and pleasure," he said, "it worked like a charm."

Shipped by Train

Just 10 days after arriving in Red Bank, Mason loaded 167 striped bass on the noon train to Grand Central Depot in New York. It cost him 15 dollars. Along with the bass were 450 small eels.

The fish left Grand Central for Chicago via Albany, and it was after the uneventful trip to Albany that Mason parted company with his charges. He wrote, "I gladly relieved myself of the responsibility that had weighed rather too heavily for comfort upon me during the 10 days of service."

After the problems at Red Bank, the transcontinental trip was comparatively easy. The only reported major loss was 25 fish, which died near Chicago. On June 19, 1879, a total of 137 striped

bass were placed at the head of the Straits of Carquinez, at San Francisco Bay, the turning point of the fresh and salt water.

In a letter written Nov. 12, 1880, Throckmorton reported "some six or seven months after the time of placing in the water I heard that one (striped bass) of eight inches in length had been taken in the Bay of Monterey. All of the circumstances were of so doubtful a character that I gave the rumor but little attention until about the first of July, 11 months after the planting of the young fry ...

There was brought to me a very handsome striped bass taken in this harbor measuring 12½ inches in length and weighing one pound. The fish was in the highest condition, the milt full and ripe and the flavor fully up to the best specimens of the fish of the east.

The Stripers Survive

"The exceedingly rapid growth," he added, "together with the immense amount of shrimps which abound in this bay and furnish abundant food, have, I must acknowledge, infused me with almost an enthusiasm to have this valuable fish brought here in sufficient number to ensure the breeding of them."

So, in 1982, Throckmorton sent J. G. Woodbury, superintendent of the California State Fishery, to Red Bank with instructions to bring back more striped bass. This time, Woodbury was armed with a letter from New Jersey officials allowing him permission to seine the river.

Within two weeks Woodbury had gathered 600 striped bass fry, which he kept alive on a diet of chopped liver. He loaded the fish into 12 cans and put them on a train for Jersey City, where some of them died.

The fish had an uneventful trip until they reached Omaha, Neb., where, while waiting to change trains, a worker gave the fish water from an artesian well. Ten died immediately, Woodbury said, and most of the others turned on their sides, but later revived.

In the end, slightly more than 300 striped bass survived to be placed in brackish water at Army Point in Suison Bay, an arm of San Francisco Bay.

Records show that within 10 to 15 years after the 1882 stocking, a striped bass fishery was well established along much of the California coast, with several million pounds harvested annually.

In early 1940s commercial fishing for striped bass was halted. Today the striped bass is listed as a game fish and is taken by recreational anglers from near the Mexican border to the southern shores of Washington. Striped bass populations along the West Coast have remained stable, although there has been a decline in numbers in the San Francisco Bay area, probably because of loss of habitat.

N.J. has Record

Interestingly, California's state record for the striped bass is held by a 65-pound fish taken from the San Joaquin River, the same river which was home for its ancestors. New Jersey holds the world record for the striped bass—78 pounds, eight ounces taken off Atlantic City in 1982.

It is ironic that the Navesink River, which a century ago provided those few fish for California, hasn't had a spawning striped bass population for more than half a century. In fact striped bass are rarely found now in the river.

But this too may change, because the New Jersey Marine Fisheries Administration in cooperation with the N.J. Bureau of Freshwater Fisheries, has restocked this river system.

Last July, a total of 26,000 striped bass fingerlings were placed into the Hockhocksen Brook, one of the river's main tributaries. Another 15,000 stripers averaging four inches in length were placed in the river last fall.

It is hoped that these fish will survive in the Navesink and develop a spawning population within three to six years. The stripers which were introduced came from the U.S. Fish and Wildlife Service's Edenton Fish Hatchery in North Carolina. They are of the non-migratory "Brookline" strain, which should ensure that the fish will mature and spend their lives within the Navesink/Shrewsbury River estuarine system.

This aquarium train, loaded with an unknown quantity of unknown species, departed for California in 1873. It crashed in Nebraska.

Going Buggy

By Jim Merritt
PHOTOS BY AUTHOR

One of my more exciting moments in fourteen years of fly-fishing occurred not on a trout stream but in my living room.

It was end of a Labor Day weekend, part of which I had spent on the South Branch of the Raritan River collecting stream insects. Although I had been fly-fishing for nearly a decade, this was my first venture into stream entomology, and with the aid of several books on the subject I was now attempting, without much confidence, to identify the amazing creatures scurrying amid the rocks and plants of my aquarium.

Stream insects like mayflies and stoneflies are the primary food of trout. These insects spend most of their lives in an underwater "nymph" stage before changing into winged adults for a brief period of mating and egg-laying. The "flies" used by fly fishermen are artful creations of fur and feathers designed to imitate the insects in either their nymph or adult stages. Like many fly fishermen, I tie my own flies, and my foray into collecting insects was an effort to improve my fly-tying by learning to imitate the natural insects more closely.

One of the more perplexing members of my aquatic menagerie was a long, olive nymph with undulant gray gills running the length of its abdomen. This beautiful bug completely baffled me, for my sources indicated it was probably the nymph of one of several large mayflies ordinarily found in slower soft-bottomed rivers rather than in rushing stony creeks like the upper Raritan.

I had isolated the nymph in a drinking glass and intended to study him closely that evening. When I returned to the glass after dinner, the nymph appeared to float lifelessly on top of the water. My disappointment lasted only a moment, for as I quickly discovered, my mystery nymph wasn't dead at all but had metamorphosed into an adult! It was the cast-off nymphal skin that lay in the surface film, while the living insect was loose somewhere about the house.

Frantically I searched the living room and the rest of the downstairs, then the upstairs, and finally the living room again. At last I found him, at rest on the

Stenomena fuscum *(Gray Fox) in dun or "subimago" stage.*

Hellgrammite, the larval stage of the Dobson fly.

Acroneuria lycorias, *one of the Golden Stoneflies of summer. It hatches on the South Branch in late June.*

molding in a corner, a few inches off the floor.

By mayfly standards he was huge—his folded wings more than an inch long, and with a delicately curved abdomen terminating in a pair of graceful tails. I hurriedly set up my camera and shot the better part of a roll of film. Then I gently plucked him from his perch and placed him in a glass with plastic wrapping over the top. By the next morning he had molted again, this time into the final "spinner" stage for mating. The tails had lengthened, the abdomen had turned darker and firmer, and the wings had assumed a hard transparency. His cast-off skin sat, white and ghostlike, at the edge of the glass.

Observing a mayfly from its nymph through spinner stages allowed me to identify it with relative ease. To my surprise he turned out to be a *Hexagenia limbata*, the celebrated if misnamed "Michigan caddis" of midwestern fame, a mayfly I had read about for years but had never expected to find on eastern waters.

This was the beginning of what became for a time on obsession with collecting stream insects for aquarium study. I was soon experiencing regular hatches in my living room and became proficient at identifying them by their Latin names. The mayflies *Stenachron canadense, Ephemerella subvaria* and *Isonychia bicolor* hovered beneath the ceiling or flexed their soft new wings while at rest on the window screen. The caddisfly *Pyncnopsyche guttifer* passed through its life stages before my eyes, from a lumbering larva in a stick case to a free-swimming pupa with oar-like legs to a winged adult beating against the kitchen light.

Individuals of the stonefly genus *Acroneuria* had the annoying habit of leaving the aquarium at night, crawling across the floor and attaching themselves to the curtain for their metamoprhoses. Each morning I would come downstairs to find another nymphal shuck, neatly split down the back, attached to the curtain. The adult itself could never be located, although the following winter I discovered the corpses of several winged *Acroneurias* behind the bookshelf.

The prize of the collection was a gigantic hellgramite, or dobson fly larva, a predaceous beast with huge menacing pincers. Nicknamed "Creepo," he lurked beneath the rocks during the day but patrolled the aquarium at night, terrorizing the other occupants like Jack the Ripper. My wife worried about Creepo changing into an adult and attacking the kids. I worried about him crawling out of the aquarium and my stepping on him with bare feet. Discretion finally won out over scientific inquiry, and I returned him to the waters of the South Branch.

Like Thoreau at Walden, I spent a year in the collection and observation of stream insects before retiring my aquarium to the attic and resuming the fulltime pursuit of trout. I found the experiment useful, although it hardly made me an expert in stream entomology. Nor, I should add, did it convert me to the "match-the-hatch" school of fly-fishing, which purports that the key to angling success is in fishing a fly that imitates as closely as possible the predominant insect on the water.

It has taken me a while to understand that how you present a fly to the fish is usually more important than the fly itself. When I first started fly-fishing, some of the books I read on the subject were illustrated with fanciful drawings of swarms of mayflies and hefty trout catapulting from the water to snatch them in mid-air. Just glancing at these pictures set my heart palpitating, but whenever I went astream the water appeared mostly barren, with only an occasional mayfly in sight and almost never with trout visibly feeding. I began to wonder if certain fishing writers who have made their reputations on the importance of imitation were not part of some secret society, sworn to perpetuating the myth that insects really live in water and that trout feed on them! (I know better now—there *are* heavy hatches on which trout will feed selectively, but unless you go out of your way to encounter them, it's unusual to see them more than a few times in a season.)

Ken Lockwood Gorge on the South Branch of the Raritan—an excellent stretch for collecting stream insects.

More than anything, what studying aquatic insects did was to make me appreciate the richness and biological complexity of a trout's environment. It *attuned* me to the stream, adding in an intangible way to my enjoyment of fly-fishing.

Having made that point, let me add that there were also some practical benefits that could be measured in terms of the number of fish caught. A hellgramite pattern developed in imitation of my old friend Creepo, for example, has proved consistently successful on the South Branch of the Raritan and the Musconetcong. Before I began collecting, however, I had no idea what hellgramites even looked like, much less that they could be found in abundance on my home waters. Collecting insects also opened my eyes to the dense populations of large stoneflies on these New Jersey rivers. During June and July, when stonefly shucks litter the rocks, I have found that a stonefly imitation virtually guarantees action.

COLLECTING

For the fly fisherman wishing to learn about stream insects and to imitate them at the fly-tying

continued on page 33

Records Waiting to be Broken at Round Valley Reservoir

By Robert Soldwedel
By Author

Round Valley Reservoir recently produced the largest trout (verified) that has ever been taken from the wild in New Jersey. This 18-pound, 36-inch female lake trout was taken by a gill net, in November, 1984 during fish population sampling and egg taking operations conducted annually by the Bureau of Freshwater Fisheries. This laker proved to be one of the 7,300 stocked in March in 1977. At the time of stocking, these lakers were 5 to 6 inches in length and about 20 to a pound. Unfortunately, this fish did not survive the experience, but the very next day another lake trout from that March, 1977 stocking was netted, tagged and released in good health. This second laker measured 35 inches and weighed 16½ pounds.

The success of the March, 1977 stocking has been outstanding and it becomes even more remarkable with each passing year. One of the measures used to evaluate a stocking is "return by weight" (number of pounds produced as compared to the number of pounds stocked) and although an exact accounting has not been kept, it is obvious that this stocking has returned well over 100% on this investment (the 18 pounder alone equals the weight of 360 trout at the time they were stocked). While subsequent stockings have not been as successful as the first in 1977, they too have proven to be good investments. Through creel censusing, at the reservoir, it was estimated that about 34,000 lake trout were caught in 1983 (less than 12,000 have been stocked each year on the average), most of which were released.

In order to keep this success going, and possibly improve upon it, new regulations have been set for 1985. A "slot limit" for lake trout will be instituted and this has been designed to improve the growth rate of all the trout in Round Valley. This "slot limit" will allow anglers to keep one lake trout between 18 inches and 22 inches in length, as well as one lake trout larger than 28 inches. In other words, you may keep a 20-inch lake trout and a 30-inch lake trout, but you will have to release a 25 inch lake trout. The intent of the slot limit is to reduce the number of lakers in a dominant age class that is having an adverse impact on the growth rate of the total lake trout population. Once this competition is reduced, the remaining lakers will have more food available and consequently they will grow faster. By protecting those lake trout between 22 inches and 28 inches, the prime spawning stock, the potential for natural reproduction of this species will be maintained at a maximum.

So far the largest lake trout taken on hook and line weighs in at 10 lbs., 15 oz., considerably less than the 18 pounder pictured here. While some may bemoan the untimely end of this particular fish, consider the fact that every one of the thousands of people that fished the reservoir had a chance to catch her, or the 16½ pounder we successfully released, or the rest of the lakers that are still around from the March '77 stocking, and not one of those thousands of fishermen were able to do it. I feel I can safely assure you that these weren't the only two left from 1977 and that by this year (1985) we'll have a laker in Round Valley that is double the weight of the current (1984) state record. Now all you have to do is to go back out there and catch it. It's a chance to get your name in the record books.

Go for it!

18-lb 36-inch female lake trout taken by gill net

1985 Trout Fishing Prospects

The traditional April opening of the trout, for 1985, will fall on Saturday, the 13th. Hopefully, "13" will prove to be a lucky number and break the string of days with drenching rains/snow, freezing temperatures and flooded rivers, which have come to be an opening day tradition over the last few years. If the weather cooperates, this year fishermen should have a field day. The Pequest hatchery brook trout have lived up to all advanced notices, recklessly attacking any lure or bait cast in their general direction. Compared to their more discriminating rainbow and brown cousins, they're the obliging trout which New Jersey anglers have had to do without for so many years.

It is anticipated that the number of trout available for stocking will be equal in quantity and size to that which were stocked in 1984. Last year over 600,000 trout, averaging almost 10½ inches, were stocked in the Spring. This total was near equally divided between brook trout, brown trout and rainbow trout with the brookies making up the majority of the pre-season releases, in recognition of their superior performance under early season temperature conditions.

There will be a few changes in the list of stocked waters. Colonial Lake (Mercer Co.), Diamond Mill Pond (Essex Co.), Lake Shenandoah in Lakewood (Ocean Co.) and a portion of the Southwest Branch of Rancocas Creek (Burlington Co.) have been added while ABC Pond (Morris Co.) has been eliminated and at Budd Lake (Morris Co.) trout stocking has been discontinued in favor of the northern pike fishery development program. The Delaware-Raritan Canal will be stocked only from Bulls Island to the Prallsville Lock (Hunterdon Co.) while rehabilitation work continues on the rest of the canal system.

If you don't want to wait till the 13th of April, trout fishing is legal from January 1 till March 24 statewide and there is no closed season at Van Campens Brook and Round Valley Reservoir except for the lake trout (check special regulations for both these waters).

NATIONAL WILDLIFE WEEK POSTER CONTEST

The New Jersey State Federation of Sportsmen's Clubs is pleased to announce their fifth annual special poster contest to celebrate National Wildlife Week. This year's theme is "Soil—We Can't Grow Without It." This theme was chosen to remind us that we must conserve and respect our soil resources.

CONTEST RULES

1. All New Jersey residents through the age of 18 may enter.
2. The poster or drawing must relate to the theme: "Soil—We Can't Grow Without It."
3. Paper size should be 8½ by 11 or 12 by 18.
4. Crayons, colored pencils, ink, marking pens, poster paint, water colors, charcoal or colored chalk may be used.
5. If a source is used, the name of the book or magazine and year must be given as the source and listed on the back. (No tracing, pre-drawn posters or magazine cut-outs will be acceptable.)
6. On the back of each drawing or poster, please list: Name, Address, County, Phone Number and Age. (Entries not containing all information will be disqualified!)
7. Deadline for entries must be postmarked by April 15, 1985.
8. Mail entries to WILDLIFE ART CONTEST, Jim Brooker, 114 James Ave., Cranford, N.J. 07016.
9. All entries will become the property of the New Jersey State Federation of Sportsmen's Clubs for use in exhibits. NO entries will be returned.
10. Judging will be based on creativity, neatness and originality.

PRIZES

SENIORS (Ages 14-18) and JUNIORS (Ages 11-13): First Place: $100 Savings Bond. Second: America, Land of Wildlife (NWF Book). Third: One year membership to National Wildlife Federation. ELEMENTARY (Ages 7-10) First Place: $100 Savings Bond. Second: Ranger Rick's Dinosaur Book. Third: One year membership to Ranger Rick's Nature Club. PRESCHOOL (Up to 7 years) First Place: $100 Savings Bond. Second: Ranger Rick's Story Book. Third: One years subscription to Your Big Backyard. And again this year—SPECIAL PEOPLE (Handicapped-Physically or Emotionally) From Special Education Classes. First Place: $100 Savings Bond. Other prizes will be awarded at the discretion of the judges.

All winners will be notified by mail. All prizes will be awarded by the BOARD OF DIRECTORS at the Federation Annual convention.

Surf's Up

Especially when the temperature's down

By Cathie Cush
Photos by Ray Fisk

The near-perfect arc of water raises itself from the ocean's surface and begins its graceful plunge to the sand below. A pair of surfers slide expertly down its six-foot face, their boards slicing through the wave like knives through so much butter. It could be a picture-postcard scene from a California summer—but it's not. It's winter at the New Jersey shore. The ocean is cold, the air is colder and the surf is pumping.

Jersey's surf has a kind of Jekyll and Hyde personality. All summer long, when the weather is warm and the water temperatures are bearable, gentle waves wash the shoreline. That's what most visitors see. On most days there are bigger waves in the pool at Action Mountain. But in the months after Labor Day frequent winter storms change all that, bringing consistently more and bigger waves crashing on the beach.

Harvey Cedars' surfing hotspots don't have the renown of, say, Hawaii's treacherous Pipeline, featured every so often on Wide World of Sports. But during the so-called "off" season, New Jersey's coastline offers some of the best surfing in the eastern United States. That is, if you don't mind braving 40-degree water, frigid air temperatures and wind chill factors that bring nothing but discomfort to mind.

"It doesn't seem to bother you that much," insists Andy Messler, a longtime surfer who lives on Long Beach Island. "One time I was out for two and a half hours and I didn't get cold at all—the air was in the upper 40s." The coldest water he's ever seen in this area was 29 degrees—and slushy. "The coldest water I ever surfed was 34, and I'd probably never do it again. Now if it goes below 38, I think twice." When it's that cold, surfers surf in pairs for safety's sake.

During all but the warmest summer months—and sometimes even then—surfers in New Jersey wear neoprene wetsuits to protect them from the elements. Body heat is lost quickly in water, and even long exposures to relatively warm 70-degree water can be chilling. In the summer, surfers can get away with "shorties" (suits with short sleeves and bathing-suit length legs) or vests. In the winter a full length suit with hood, boots and gloves is required.

Even a wetsuit doesn't offer complete weatherproofing. To begin with, such suits work by allowing a thin layer of water between the skin and the neoprene. Within a few minutes the body heats up the layer of water and the surfer stays warm. Unless he twists in such a way as to let a fresh rush of cold water into the suit (usually down the back of the neck). Or unless an icy wave hits him in the face, where he has no protection.

"It can give you a headache then, an 'ice cream headache,'" says Messler. And with protective gloves, he admits that "your fingertips sometimes start to get a little numb."

In the past few years, better wetsuits have made winter surfing more comfortable. They are cut to fit more closely, and are made with substances such as Rubatex, which allow more flexibility, so a surfer doesn't have to sacrifice dexterity for warmth.

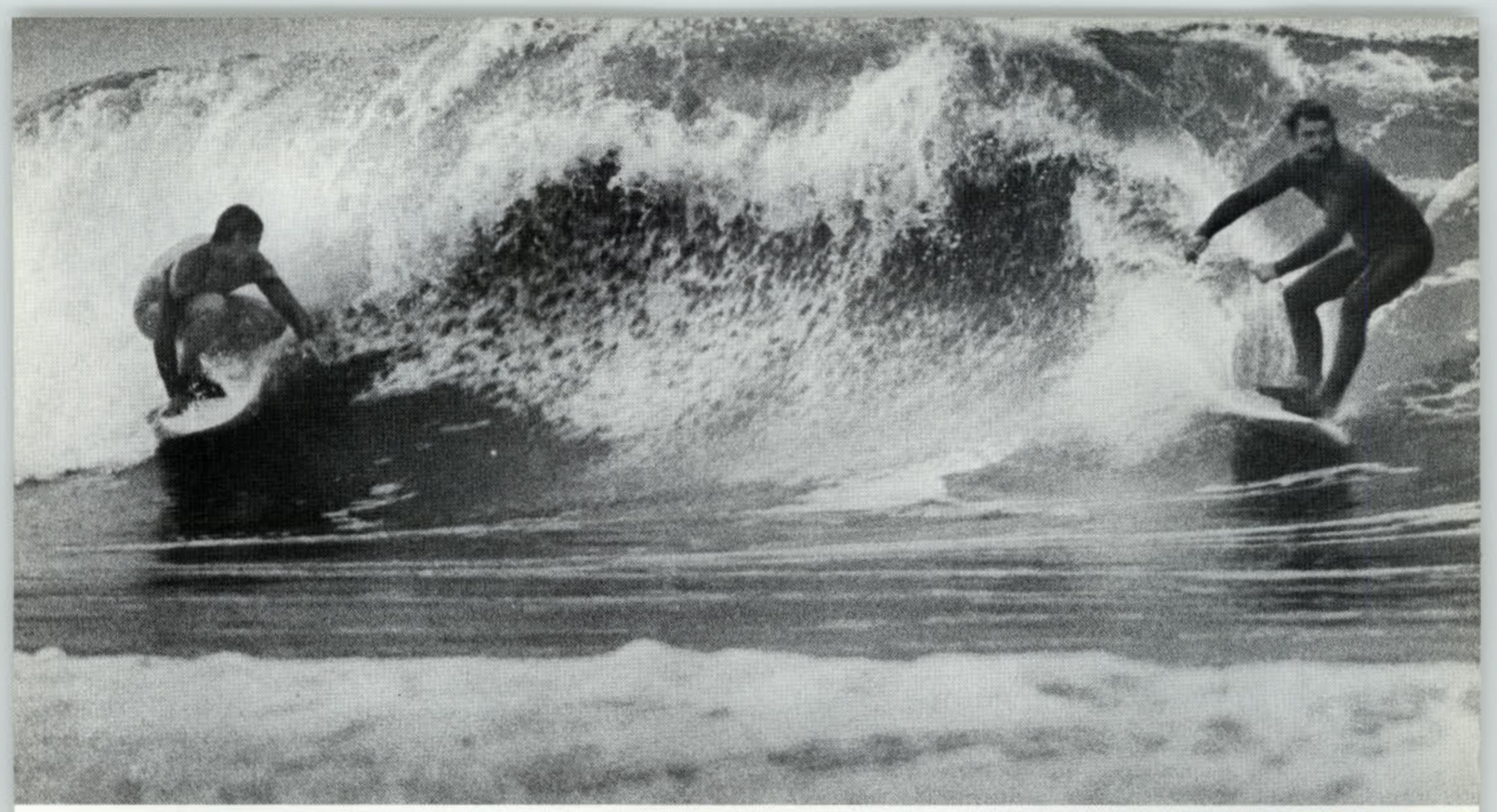
Still, notes surfer Ken Kooyenga, "you want to avoid going under as much as possible."

In addition to the temperature, there is another reason to avoid going under in the winter. The ocean is less merciful in winter.

"The surf seems to break a little harder in the winter," Messler observes. "If you get hit with a wave it feels like there's more power behind it."

Kooyenga, a 23-year-old Red Bank native who now owns a surf shop in Ship Bottom, agrees. "The storm swells you get in the winter have more power." Both the size and the strength of the waves increase in the winter. But that's what makes winter surfing off New Jersey so appealing.

"The surf gets real classic in New Jersey," says Kooyenga, waxing enthusiastic. "As good as probably anywhere. You have days where the surf is six foot, glassy and perfect, but it could be 50 degrees and the water could be 40. In other places you could surf that quality wave in just a bathing suit."



"Nothing compares to winter waves," Messler agrees. Not only are they bigger, they are more consistent. Hurricanes passing offshore in the fall, and the frequent nor 'easters that hit the coast in winter and spring make for better surfing waves. Prevailing south winds in the summer have the opposite effect. "In the summer you're lucky if you get one good swell a month. In the winter you're guaranteed good waves three or four days a week."

Although the surfing is good in the fall thanks to the hurricanes that move up the coast (even a storm hundreds of miles away can stir up big swells), it is best in February, March and April. "Then it slows down for the summer," says Messler. "You get into what we call the 'July flats.' "

As Hurricane Josephine worked her way up the coast last October, carloads of surfers were parked at street ends near the beaches, their occupants checking over the wave situation. Back in his shop Kooyenga remarked, "It's too sloppy today. But it should be good by Tuesday." By then, he predicted, the wind would be coming from the west—another boon to surfers. "When it cleans up and the wind switches offshore it will eliminate the chop. Then it will 'glass off' and the surf will be clean and crisp." In addition to eliminating the surface chop, the west wind would give the wave a graceful, arcing shape.

"In the winter, most people won't even go out unless there's an offshore wind," Messler remarks. On the other hand, in the summer they'll go out anytime the waves look good—because they are good so rarely.

Like other outdoorsmen, surfers keep an eye on the weather at all times. They watch onshore and offshore weather reports religiously, and many have weather radios to keep them up to date on changes in wind and barometric pressure, looking for low pressure systems that bring good waves.

Sometimes the wind will be just right at one spot along the coast and not quite right at another. On those days, the truly dedicated migrate. For example, says Messler, a group of surfers might make a trip from Seaside to Long Beach Island. Conditions often vary even from one spot on the same island to another.

"Some days Beach Haven might have six-foot faces and Harvey Cedars might have eight- or nine-foot faces. The swell we have now is a lot bigger on the north end of the island than on the south end," Messler said as a winter storm churned the waters. "And there are some spots that only break now and then. The sand bars are always changing, so you never know. It could be breaking wrong after a storm."

Like the cold, the shortened daylight available in winter is just another minor obstacle in the life of a surfer who is committed to his sport. Those with 9-to-5 jobs may find it impossible to hit the beach. On the other hand, surfing doesn't seem to attract typical 9-to-5ers. Nor does the seashore in the winter. It's a perfect combination. Many surfers are self-employed and can arrange their schedules to allow a few hours a day in the water. Many others are students. Still others work relentlessly during the summer, when the waves aren't as good, so they can take time off during the winter.

Though still relatively small, the number of surfers who ride the winter waves is growing, thanks both to the newer wetsuits and a steadily increasing year-round population at the shore. And some are becoming a little chauvinistic about it.

"I was never that impressed with Florida waves," replies Messler when asked why he doesn't just pack up and head south. "New Jersey has good waves."

Others, like Kooyenga, do try to travel a bit during the winter. But, he adds, "It's always nice to come back."

Where have all the Blacksmiths Gone?

By Gail Greco
Photos By Tom Bagley

Master Blacksmith Frank Pehrson of Waterloo Village tries Ringwood's anvil

Walking home after school, we would pass the crusty, old blacksmith's shop before rounding the corner to our tree-lined city street. The clanging of the smithy's hammer against the heavy anvil cut the quiet like the monotonous sound of a tired bell—at least that's what my school chums and I thought it was—a persistent clapper that wouldn't go away. The sound always muffled our frolicksome conversations.

As we neared the stucco building, its small chimney puffed thick black clouds into the sky and permeated the air with the scent of burning coal. We were a curious bunch but never brave enough to unlatch the iron-bolted doors for a peek inside. We were not the youths described in Henry Wadsworth Longfellow's poem, "The Village Blacksmith."

" . . . And children coming home from school look in at the open door. They love to see the flaming forge and hear the bellows roar and catch the burning sparks that fly like chaff from a thrashing floor."

We hesitated to touch the jet-black soil that collected outside the building and glistened when the sun shone. Fragments of iron we found along the front of the blacksmith's shop were the only clue we had to what might be happening inside. We picked up the small pieces and used them as markers for 'potsie,' our nickname for the time-worn sidewalk hopscotch game. The iron pieces made the best markers because of their weight. If you won a few games, you kept it for good luck.

I was alone and looking for a potsie marker the day my luck turned and I got to peer inside the smithy's shop. To my surprise, the door was open one summer's afternoon and I cautiously stuck my head inside, my feet anchored out the door, ready to take off on a moment's notice. I could see the billowing flames and hear the melodious hum of the bellows. But what I recall most vividly and fervently was the burly hunched-over figure of the blacksmith beating a bright red piece of iron. I quickly forgot I was scared.

There he stood in a tattered leather apron illuminated by the warm glow of his forge. He was intent but relaxed as he swung his hammer. The face was a cherubic one and as it glanced toward me I detected a faint smile edging its way past his wiry beard. As I watched, in awe of this strange activity, the blacksmith's secret unraveled before me and the kind face grew even warmer.

It was my first and only glimpse of the activity behind the giant doors on the old street corner. I was never to see the kind-faced tradesman again but his memory has lingered. Here was our 'village' smithy, a leftover from an era gone by. This was in the late 1950s, and by the mid-1960s, the shop was boarded up for good. The elderly blacksmith had died and the building was later torn down. And so it happened this way all over America from the turn of the century on. Blacksmith shops extinguished

Bob Greco at home working on bellows

Ringwood Manor Park Superintendent Bill Cerynik presides at Blacksmith Shop dedication ceremony.

From left: Bob Greco, Bob Islieb and Frank Pehrson

their flames as we embarked upon the machine age and the need for hand-wrought iron diminished. The village smithy was no longer needed when the consumer could find similar wares more readily in the department store. Only those who clung steadfastly to their trade still maintained a shop if they could.

Fewer and fewer school children would get to experience the magic of a village blacksmith as progress pushed aside this integral part of history. The art of blacksmithing was largely responsible for the development and progress of all societies. So much depended on the blacksmith, who forged iron into hardware for farm equipment and household goods.

The village smithy is gone, but hardly forgotten. In fact there is a resurgent interest in the venerable craft today, and in this state, it is most evidenced by a recent phenomenon at Ringwood Manor State Park. Here it is, Orwellian 1984, and rather than tearing down a vacant blacksmith shop, the park has brought one to life.

Last summer, the sound of the hammer against anvil resounded off the Ramapo Mountains for the first time in more than a century. Ringwood has brought back part of its past. A building in the park, believed to be a blacksmith shop and later a gas-line pumping house when the E.G. Hewitt family roamed the historic estate, was renovated and opened so the public could remember the blacksmith.

Former Ringwood Park Superintendent Dick Riker initiated the plan to revive the shop, and turned to the North Jersey Highlands Historical Society for inspiration and help. He got both in the form of financial aid as well as action from one member in particular, Bob Isleib of Ridgewood who took the project under his wing and voluntarily did research for authenticity on 18th and 19th century shops including one at Allaire State Park in New Jersey, and one in Cooperstown, New York.

Bob heralds from a line of blacksmiths. He is a modern-day metallurgist during the week and an old-fashioned blacksmith on the weekends. He reread his dusty textbooks and then called on a mason to build the forge and a woodcrafter to make the bellows.

The forge is the blacksmith's most important tool. Built of brick and mortar in Ringwood by volunteer Joe Travaglione and his stepson Scott Nagle, it houses the fire that gets so hot it turns black iron white. The bellows does the important work of breathing life into the fire through double-acting lungs that provide continuous air to the flames. Ringwood's was built in the style of an 18th-19th century bellows by Bob Greco, who used as a model, a miniature prototype built by North Jersey Highlands Historical Society member Jack Chard.

Bob volunteered to duplicate the bellows by making a five-foot paper pattern and then copying it on wood. A maker of smaller bellows for household wood stoves and fireplaces, Bob was enthusiastic about trying one on a "giant" scale. The completed bellows is five feet long by three and a half feet wide, and sits in a cradle puffing relentlessly at the Ringwood shop. "This was the opportunity of a lifetime for me," recalls Bob. "Working on the project helped me realize the hard work the blacksmiths had in those days."

The leather for the Ringwood bellows was donated and Bob notes we can much too easily forget about how the blacksmith had to tan that leather, make metal brackets for the bellows, and cut the tree down for the wood for the bellows.

The Ringwood park had on hand a collection of blacksmith tools but gladly accepted the donations of other state residents who gave the park some replicas and antiques.

On August 19, Bob Isleib's work and the efforts of those who helped him, were rewarded when the new shop, located just past the park's entry gate and dwarfed by the magnificant Hewitt estate in the background, was dedicated. Ringwood Park Superintendent Bill Cerynik told those gathered that this was a dedication in honor of all blacksmiths of the past and the present. "Our early settlers could not have existed for long without the blacksmith. He was the craftsman upon whom many other craftsmen relied. The blacksmith forged the new frontier. He helped build America. May we do our small part with this structure and its forge to show by demonstration the work of the smith and may we pass this bit of our historic past on to others so that the blacksmith's hammer will never be still."

Bob Isleib belted the first hammer's blow, signaling the shop was active again. It seems only fitting that Ringwood, of all places, should have a restored blacksmith shop. Iron-mining was once this town's sole preoccupation, supplying for example, the materials needed for arms-manufacturing during the Revolutionary War.

Also on hand at the dedication was one of the state's most notable and prominent full-time blacksmiths, Frank Pehrson, master blacksmith for the restored Waterloo Village in Stanhope.

For Frank, the park's recognition is an important step in understanding an old craft. He presented the Ringwood park with a special gift—a delicate iron

continued on page 34

BOB McDOWELL

If only...

Have you ever been really happy about how something turned out, only to see later that it could have been even better?

This happened to me during the 1983 spring turkey hunting season here in New Jersey: I got a turkey, but, if my hunting partner and I had planned ahead, we could have had a chance at a double—one with a bow and one with a gun.

The day started off badly with my son, Darrin, and I rushing in the predawn darkness; like so many other hunters anxious to get started, we were running late again.

When we arrived at Jim Craig's house in Stillwater, Sussex County, after a fast drive along some of the county's curviest back roads, Darrin and I were greeted with a quick transferral of gear to waiting cars and another fast but short car trip to our hunting areas—but with little conversation. I, too, get angry when somone disrupts my hunting by being late.

Thirteen-year-old Darrin headed off with Dick Allen, a well-known turkey hunter and champion caller, to newly opened turkey hunting Area 4.

New Jersey had five different turkey hunting areas then, all in the northern part of the state, for which hunters had to apply and receive a permit before they could hunt. The permit system is still in effect in New Jersey, but this year there are nine areas around the state open to spring gobbler hunting—seven in the nothern part of the state and two in the southern.

More will be added, according to the Division of Fish, Game and Wildlife's Wild Turkey Project leader, Bob Eriksen, when turkey numbers in new areas become dense enough to permit hunting.

Darrin and Dick had quite a drive ahead of them. I, however, was heading just down the road a bit in Area 2 with Jim, one of the state's few bowhunting turkey hunters.

When we jumped out of the truck, an ever-lightening sky made flashlights unnecessary. We uncased gun and bow quickly, locked up, and headed for the top of the hill. A quick owl hoot from Jim was answered by a number of gobbles, quickening our already anxious feet.

Before my first turkey hunting season three years ago, I thought this kind of hunting would be easy. After all, temperatures would be mild in May; you didn't have to sit still for hours like in deer hunting; and hunting lasted only till noon. What could be easier?

Only a day into my first season, however, I realized that this wasn't the case. The mild temperatures only make it harder for the body to cool itself as the turkey hunter heads for the tops of the highest mountains around—and without wasting any time, I might add. Turkey hunters don't fool around when they decide to get somewhere.

This morning was no exception. Jim, leading the way to this turkey hunting gold mine he had found, taxed my aerobic dance training on our way to the top.

We both feared we were later than we should be. But who could pass up one of only five days of hunt-

A turkey hunting story

By Jan McDowell

ing because of a late start? During the six-week bow season, a hunter might want to sleep-in one Saturday—maybe—but not during turkey season when five days go too quickly. Besides, unlike deer, turkeys are active during the whole period from dawn to noon so you won't miss out on everything if you arrive late one morning. In fact, I killed my nice 18-pounder tom the year before on a morning when I had overslept till 8 a.m.

When we arrived at the spot, the echoing calls of what sounded like hundreds of gobblers surrounded us. I was almost afraid we had come too far and had walked right under one of those eager vocalists.

I settled down with my back against a substantial tree while Jim found another about 15 yards to my right. He merely leaned against the tree, since he has to stand to draw his bow. We both donned our camo face masks and gloves and readied our calls.

Even though I had practiced with my slate call and could make sounds I thought were as good as anyone else's, I had never actually "talked" to a bird, and really didn't expect to today. Though I had two kills behind me, I had relied on my husband, Bob's, expert calling to get the birds within shooting distance. And today, Jim's competent use of the diaphragm call would probably be all that was necessary.

This morning, however, sitting at the ready with my knee up and the gun propped in the direction of most of the gobbling, I wedged the slate between my thigh and abdomen so it would be ready to use, just in case.

The sun was beginning to rise and over the hill the gobbling, which had never ceased, was getting closer and closer and more and more frantic in answer to Jim's seductive hen yelps and cackles. Jim was trying to make the gobblers come to us by sounding like a lovesick hen which wouldn't move—something that doesn't happen often under normal conditions. Usually the hen goes to the tom.

We both hoped for a chance at whatever was just over that hill.

After a while, we realized something was wrong when the turkeys didn't get any closer and the gobbling seemed to get less and less enthusiastic. Finally, the sound began to fade into the distance without our ever having a chance to see the perpetrators.

When we were sure there was no chance to bring the gobblers back, we abandoned our positions only to find a stone row fence just beyond the slight hill in front of us. THAT was the reason the anxious males had not come in as we had wanted—the rocks were a barrier to the toms, who really wanted the hen to come to them anyway.

As we discussed our strategy for the second assault of the day, Jim noticed a turkey in the big cornfield to our left. We sneaked closer to the edge of the field, along its long side. The bird was a hen that was just beyond a slight knob about 50 yards out. Jim gave a few loud yelps on his very raspy Quaker Boy diaphragm, waited, and called again.

To our amazement, two gobblers started into the field toward the hen from the other end, directly in line with us. The big tom strutted and fanned his tail while he gobbled his head off. The younger, subordinate bird—called a "jake" during the first year of his life—tried to participate in the excitement by offering a half gobble every once in a while and a slight fanning of his tail.

Turkey experts say a dominant male will "cuff" any subordinate if he gets too involved in this mating behavior. Youngsters can come along but aren't allowed to do much.

The turkeys were coming and I wasn't ready, I thought, as I peeked from behind an extensive tangle of multiflora rose. So I grabbed my gun and crawled on my hands and knees through a corner of the field to a grand old oak which stood in the stone row at the end of the field. The healthy crop of poison ivy didn't slow me up a bit. I got set up as fast and with as little movement as I could because the birds were in view and on their way—coming straight at me.

Hunters must be careful about movement and color when hunting wild turkeys because of the birds' remarkable eyesight—one of their best defenses. Researchers say that turkeys are able to take in everything in their environment with a single glance, whereas a human must laboriously scan the field piece by piece with the most accurate portion of his retina to get the same information. And, since the birds' eyes are on the sides of their heads, they can see just about everywhere at once: an area of 300 degrees.

While I made my way to the big oak, Jim, who had laid down his bow while we talked earlier in the woods, didn't take time to go back and get it, but continued to keep the gobblers interested with his yelps and cackles from behind the thick tangle.

Jim's diaphragm calls are thin rubber membranes surrounded by metal and plastic frames that are placed on the roof of the mouth and sort of "talked through." They are favorites of turkey hunters because of the variety of calls that can be made with them, and because they require no outward movement on the part of the hunter. Single-, double- and triple-reeded diaphragms in several models allow the hunter the ability to change calls rapidly during a hunt and sound like any number of different birds.

As we were to realize later, the wall of vegetation Jim found himself behind would have been the perfect place for a bow hunter to pick off one of the turkeys headed our way. The cover allowed him to stand and watch the turkeys coming, while shielding him enough so he could draw the bow before they came into his unobstructed view directly to his left—a perfect situation for a right-handed shooter and one that doesn't come along often.

As it turned out, the gobblers came enthusiastically toward the real hen in the field and then disappeared behind the aforementioned knoll, just out of our view. No matter how insistent Jim's hen imitations became (he even used several different diaphragms and methods of calling), the three were oblivious, appearing momentarily every

continued on page 32

W. B. EVERT

W. B. EVERT

Carnivorous Plants of

By Terence M. O'Leary

The Pine Barrens of New Jersey has been of fascination to botanists and laymen alike because of the unique flora found in the region. Notable among Pine Barren species are those that have unusual adaptions for trapping and "feeding" on insects and small aquatic animals:

Pitcher Plant
Sarracenia purpurea L.
Thread leaf Sundew
Drosera filiformis Raf.
Round leaf Sundew
Drosera rotundifolia L.
Spatulate leaf Sundew
Drosera intermedia Hayne.
Horned Bladderwort
Utricularia cornuta Michx.
Purple Bladderwort
Utricularia purpurea Walt.
White Bladderwort
Utricularia olivacea Wright.
Reclined Bladderwort
Utricularia resupinata, B.D. Greene.
Rushlike Bladderwort
Utricularia juncea Vahl.

The adaption of plant species to extreme habitats is dramatically demonstrated by the unique abilities of these carnivorous species to survive and flourish under conditions of low-nutrient soils and water-table fluctuations that cause frequent inundation. It has also been observed that these species, in the Pine Barrens and throughout their range, thrive in areas in which some type of natural or human-caused disturbance has occurred.

PITCHER PLANTS

Pitcher Plants are perennial herbs with curved flared leaves of 30 to 45 cm. in length modified into traps that emerge from long rhizomes (underground stems) which have shallow fibrous roots. The color of the pitchers varies from bright yellow-green to dark purple, depending upon the amount of direct sunlight received. The most common coloration is from green to red, with deep red veins usually apparent.

The flower hangs downward from a long stalk and is known locally as a dumbwatch, since the flower is similar in appearance to a pocket watch dial without hands, and therefore mute.

Pitcher Plants are found at the edge of wet roadsides, along ponds and bogs especially around hummocks of white cedars, and tolerate occasional flooding. Competition is chiefly from wetland shrubbery such as Leatherleaf, Sheep Laurel, Inkberry, and Fetterbush. Pitcher Plants are apparently favored by such disturbances as turfing, logging, fires and occasional mowing, which establish suitable locations for reproduction.

Pitcher Plants are "passive" traps in that the leaves do not move to capture insects but are pitfalls into which insects crawl or fall. Nectar-secreting glands extend downward from the lip of the pitcher along the outside of the tubular leaves. Attracted insects unwittingly work their way into the mouth of the pitcher, where there are stiff, dense, downward-pointing hairs, allowing no return. The steepest area of the pitcher secretes a digestive enzyme that hastens the insect's descent into the

R. B. PIEL

V. E. VIVIAN

the Pine Barrens

liquid below in which a combination of the enzyme fluid and rainwater encourages active bacteria to form. This aids in the rapid decomposition of the insect. Once the insect is digested, the leaves absorb nitrogen compounds which are usually absent in the low-nutrient soil. The remaining exoskeleton is left floating in the pitcher. This species is host to the larva of the harmless mosquito *Wyeomyia*, often found in the nectar at the bottom of the pitcher.

Pitcher Plants are found from British Columbia to Labrador and south to the Gulf of Mexico along the Atlantic Coastal Plain.

SUNDEWS

There are three species of sundew in the Pine Barrens, although there are more than ninety throughout the world including the Giant Sundew of Australia, which is more than four feet tall and has been known to trap small mammals.

The Thread-leaf (least common of these species), Round-leaf, and Spatulate-leaf sundews, so named because of the shape of their leaf trapping device, are found in wet, sandy, cleared areas. Sundews are generally perennial herbs with leaves that open during the day and close at night. The leaves are always flat with numerous stalked glands secreting a dew-drop-like enzyme evident upon close examination. Coloration varies from green to red depending upon degree of sunlight. The insect prey is lured to the trap leaves by the coloration and the sweet nectar secretions of the glands. Upon touching even a single tentacle the insect is caught. As the insect struggles, it comes in contact with other tentacles, becoming further entangled. Sundews are know as "active" traps because tentacles are highly sensitive, and may move upon transmission of impulses from other tentacles to an angle of 100° to help capture the victim.

Sundews have been observed to kill their prey in less than 15 minutes, and in a few days the soluble matter of the insect is reduced to a fluid that is absorbed by the plant. The tentacles then resume their normal position, dropping the dry exoskeleton of the earlier victim, and ready to entrap another unwary insect.

One insect, however, is immune to entrapment by the Sundew. The Assasin Bug, with green coloration and red dots, is barely noticeable next to the Sundew. It lives only on Sundew leaves, and hides on the undersides of the leaves until it locates a newly trapped insect. It then sinks its elongated proboscis into the trapped insect and sucks its food, offering no return to the host plant.

When squeezed, sundews will exude a red fluid that will stain paper, which explains its use as ink by the early settlers; sundews were also used as herbal remedies for respiratory ailments.

In autumn the sundew will form a hibernaculum (or winter bud), a tight cluster of young leaves that protects the plant from total winterkill. Sundews are found in open wet areas in which there is evidence of disturbances such as turfing, fire, sand roads, deer paths, lumbering, sand and gravel extraction, fluctuating water levels, and cranberry and blueberry cultivation. Competition from tall grasses and shrubs will initially cause sundews to grow taller;

Clockwise, left to right:

An unsuspecting moth that flew too close to the Thread leaf Sundew (Drosera filiformis) will soon become nourishment.

Spatulate leaf Sundew (Drosera intermedia) turns a deep red in open sunlight.

The Pitcher Plant (Sarracenia purpurea) with tall drooping tall flowers (locally known as dumbwatches) in competition with Sheep Laurel (Kalmia angustifolia).

Drops of sticky dew on the hairlike glands of the Round leaf Sundew (Drosera rotundifolia) attract and capture unknowing insects.

continued on page 33

APRIL 1963 — CAN IT HAPPEN AGAIN?

By Joseph Hughes

PHOTOS PROVIDED BY BUREAU OF FORESTRY

Whenever a discussion of large forest fires begins in New Jersey it invariably ends up with what happened in April of 1963. As a boy of 14, I remember the headlines and later traveling to the shore that summer where I viewed mile after mile of blackened woodland and burnt foundations.

After I came to work for the Forest Fire Service, I was always fascinated by the horror stories. Tales of a living hell with sheets of fire and houses bursting into flames from the radiated heat. The acts of heroism—removing a TV antenna from the tail of one of the Forest Fire drop planes, picked up by flying too low; and acts of folly—hook and ladder trucks sent over from Philadelphia. Many have recounted that they have never seen anything like it either before or since. It literally must have seemed like the whole world was on fire!

As a Firewarden now I worry what I would do and how I would react if ever faced with a similar situation. In the last few years, noticing all the development in the South Jersey area, what would the loss be in terms of human life and damage to improved property if a forest fire disaster of a similar magnitude happened today.

The purpose of this *case study* is to take a look at what actually happened April 20-22, 1963. What were the preconditions leading up to the event. What was the damage, and finally what we might expect to happen if a similar series of fires occurred today.

Preconditions

New Jersey, along with most of the East, had experienced severe drought conditions prior to April

20th. The Spring of 1963 had been exceptionally dry and windy. Only an average of 0.30 inches of rainfall had fallen in April and the total since March 20th at the Lebanon Experimental Forest was only 0.57 inches. The precipitation deficit had been 3.00 inches for March and was already 2.00 inches below normal for April when April 20th dawned bright, clear, and exceptionally dry. The Build-up Index (Cumulative Drying Factor) was recorded at 115 and the relative humidity was 23% at 10 am.

In addition to the dryness, wind conditions played a primary role in the havoc that followed. At 9 am wind speeds in a wooded area near the ground were clocked at 12 mph. However, in openings and above tree tops velocities averaged 30-40 mph with gusts reaching 50 mph plus. Not only were velocities high, but they were extremely turbulent. Many small whirlwinds developed. Sand and dust storms were prevalent throughout the Delaware Valley wherever plowing or land clearing operations left soil unprotected.

Prevailing wind directions during the day shifted from northwest to west, back to northwest, finally to almost north that night. Winds shifted as much as 90% within a few minutes.

The turbulent and high velocity winds were caused by the passage of a dry cold front. Later studies of weather records at the Philadelphia Weather Bureau indicated the presence of a low level jet wind over the Philadelphia and South Jersey area on the 20th.

Dry and windy conditions combined to make the Burning Index 200 at Apple Pie Hill Tower and fire weather conditions the worst possible and highest ever recorded in New Jersey.

Origin and Start of Fires

Several of the fires which reached major proportions started as early as 9 am. The cause of the largest of the fires which burned 76,000 acres is well documented. Three fires started between Ongs Hat, Pemberton Road, and Lower Mill in Pemberton Township, Burlington County, between 9 am and 1 pm as the result of burning debris by local blueberry growers. Permits had been banned and announcements had been made in newspapers. However, fires that had been held over in dry fields the previous day rekindled. Strong winds removed a covering of sand and fanned the smoldering embers to life! The first of these broke out at 9:50 am. A good suppression effort by ground crews, water tankers, and a drop plane operating out of Coyle Field held the fire in check. However, a second and third fire broke out in the early afternoon from adjacent properties. This, along with 40 mph windspeeds, and the fact that the plane had been pulled off to fight fires in the Hammonton area, was more than the few tankers and hand crews could handle.

In addition to the cause of this fire its rate-of-speed is fairly well documented. By 8 pm the head fire hit the Jersey Central Railroad near Bullock covering a distance of 9 miles in 6 hours, or a sustained average forward rate-of-speed of 1.5 mph. However, ground crews and personnel at the scene reported short runs that may have approached 4.5 mph.

As the day progressed numerous other fires began to break out throughout the state. (See Chart I and Map) Many of the fires burned into the night and next day without containment or control. Needless to say state, county, and municipal fire fighting forces were overwhelmed. Reports of large amounts of structural damage began to come in with some deaths reported.

Many outside communities, wanting to help in whatever way possible, sent all kinds of equipment and volunteers. As mentioned earlier, hook and ladder and street cleaning trucks came from Philadelphia. This just added to the chaos and confusion. One volunteer fireman was killed when his truck ran into a state truck in the smoke on Route 72, near Coyle Field, on the 76,000 acre fire.

A total of 28 major fires (fires ≥ 100 acres) burned on April 20th along with 51 smaller fires making a total of 79 for the day. Damage figures were estimated at 183,000 acres burned making it the worst single day for forest fires since record keeping began in 1906. Damage to improved property was estimated in the millions of dollars but it would be

months before it was finally assessed. However, the danger and the worst fire disaster in the state's history did not end on the 20th.

When April 21st dawned, all of South and Central Jersey was under a thick layer of smoke. Fire fighters were tired, having worked throughout the night, but most firest were still burning out of control. The problem was compounded because fires were continuing to break out. Twenty-six new fires occurred on the 21st, including two majors:

1. Monroe Twp., Gloucester Co.—start 11:30 am, 500 acres
2. Millville Twp., Gloucester—start 2:05 pm, 160 acres

Fires continued to burn throughout the second day. However, the wind abated. Crews began to make headway and several fires were contained or

CHART I: MAJOR FIRES, APRIL 20, 1963

DIVISION A—NORTH JERSEY

Location	Start Time	Acres Burned
1. Lebanon Twp., Hunt, Co	9:00 am	150
2. Warren Twp., Somerset Co.	9:30 am	100

DIVISION B—CENTRAL JERSEY

1. Jackson Twp., Ocean Co.	9:54 am	1,200
2. Berkeley Twp., Ocean Co.	10:00 am	700
3. Jackson/Freehold Twp., Monmouth & Ocean Co.	10:28 am	4,480
4. Brick Twp., Ocean Co.	10:45 am	600
5. Old Bridge Twp., Middlesex Co.	12:13 pm	275
6. Stafford Twp., Ocean Co.	12:30 pm	190
7. Jackson Twp., Ocean Co.	12:30 pm	14,000
8. Pemberton Twp., Ocean Co.	12:30 pm	1,900
9. Pemberton, Woodland, Manchester, Lacey, Stafford, & Barnegat Twp., Ocean & Burl. Co.	12:45 pm	74,475
10. Jackson Twp., Ocean Co.	1:08 pm	11,300
11. Marlboro/Old Bridge Twp., Middlesex Co.	2:15 pm	2,000
12. Howell Twp., Monmouth Co.	2:38 pm	800
13. Evesham/Medford Twp.	3:15 pm	575

DIVISION C—SOUTH JERSEY

1. Clayton Twp., Clucester Co.	9:00 am	1,900
2. Mullica Twp., Atlantic Co.	9:20 am	11,500
3. Franklin Twp., Gloucester Co.	9:45 am	600
4. Buena Twp., Atlantic Co.	10:50 am	12,600
5. Monroe Twp., Gloucester Co.	11:00 am	2,700
6. Winslow Twp., Camden Co.	11:15 am	2,215
7. Lindenwold/Gibbsboro Twp., Camden Co.	12:10 pm	260
8. Monroe Twp., Gloucester Co.	12:30 pm	2,000
9. Alloway Twp., Salem Co.	12:30 pm	1,000
10. Hamilton Twp., Atlantic Co.	1:00 pm	4,160
11. Hamilton Twp., Atlantic Co.	1:15 pm	15,000
12. Hamilton/Egg Harbor Twp., Atlantic Co.	1:20 pm	14,500
13. Egg Harbor Twp., Atlantic Co.	4:20 pm	1,250

CHART II: DAMAGE TO IMPROVED PROPERTY

186 Houses damaged or destroyed	3 Churches	3 Hunting Club buildings
191 Out-buildings (sheds, barns, garages, chicken coops)	2 Saw mills	23 Vehicles
12 House Trailers	1 Bar/restaurant	2 Blueberry fields
5 Camp Buildings (Mt. Misery) destroyed, 1 damaged	1 Government Office building	45 Acres of cranberries
	1 Laundromat	$70,000 worth of pulpwood
	1 Gas station	

brought under control.

On Monday, April 22nd, there were 22 new fires including a 400-acre fire in Franklin Township, Gloucester County, and a large jumpover from the 13,000-acre fire burning in Buena Township, Atlantic County, which consumed an additional 5,500 acres and threatened the town of Mizpah before being brought under control.

Finally, rain began to fall on Monday night. The worst was over. Only two new fires occurred on the 23rd.

During the three-day period, there were a total of 127 forest fires, 31 of which reached major status. The acreage burned was 190,300 acres. Nearly four percent of the entire land area of the state was burned during the three-day ordeal. Twenty-eight percent of the entire forest acreage burned in the northeast in 1963 occurred in New Jersey.

It was several months before all the damage estimates were in, but as the figures came in a grim total was adding up. Damage estimates ranged from 1.5 to 9.5 million dollars! A total of 404 structures had been damaged or destroyed. (See Chart II)

Worst of all: seven persons had been killed—including a family in Jackson Township, and the Firemen previously mentioned.

Prognosis for the Future

It's now been 22 years since April 1963. What has happened in that span of time? The woods have grown back in places. People have built homes back where they burned down, much as people will return and build on a barrier island right after a hurricane

has leveled everything. In addition to what was there originally, there has been major development in the Central and South Jersey areas previously burned and many others in adjacent but equally hazardous areas.

Another problem is the residents have forgotten about 1963 and many new to the area are unaware that it ever occurred.

What would happen if a similar type fire occurred in the South and Central Jersey area today? Just taking inflation into account would increase the damage to improved property to $60 million. A new home that went for $12,000-$15,000 in 1963 costs $85,000 today. In addition, the $5,000 summer cottages of years ago have been replaced by year-round $100,000 estates.

None of this takes into account the increases in development or population. It was estimated by a former Section Warden, now Division Firewarden, that if a fire similar to the one that burned 14,500 acres in Hamilton and Egg Harbor Townships in 1963 and destroyed 12 houses then, today 100 homes would be lost. If a similar multiplier is applied across the board, the loss would approach 1500 homes with a total estimated value of over $112 million.

It should be emphasized that estimates are just that... *estimates!* It is *impossible* to tell what would happen with any degree of accuracy because there are so many variables and so many things have changed. However, I think it can be said with some degree of certainty that if a similar type disaster occurred today it would be much worse and damage estimates would be considerably higher than 1963.

The stage is set... two factors are already present:

1. Highly hazardous wildland fuel.
2. Numerous human ignition sources.

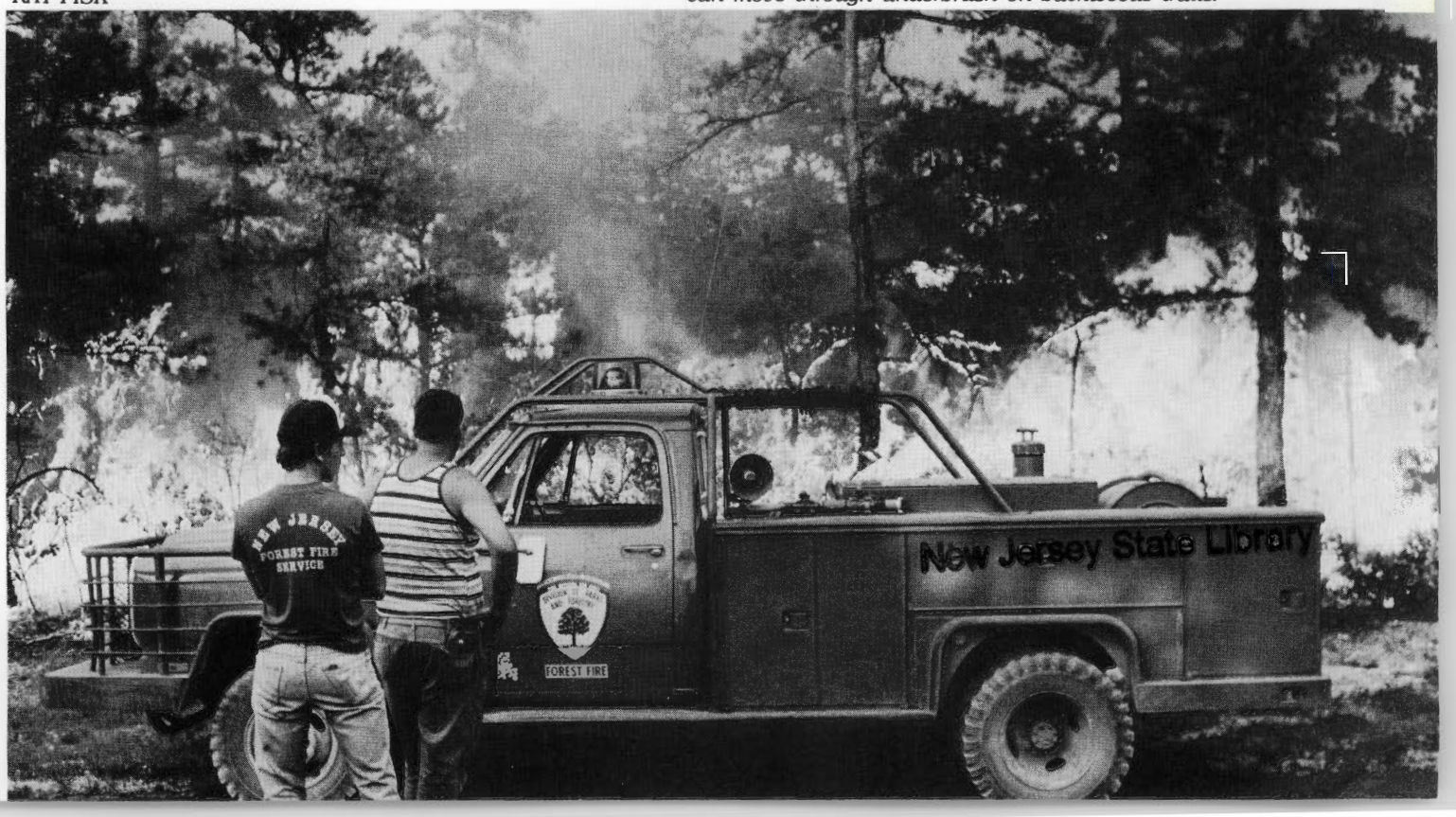
Weather is the *critical* variable. Conditions need only be similar to April 20, 1963 for a *major wildland fire* to occur.

BARNEGAT TOWNSHIP, N.J.—5/21/81: Flames three times the height of the trees reach toward the night sky illuminating clouds of smoke here as a forest fire burns 2,200 acres of Ocean County pinelands.

RAY FISK

LACEY TOWNSHIP, N.J.—7/13/83: Volunteer fire fighters with the state Forest Fire Service watch a backfire they set flare up along Lacey Road here as they try to bring a fire burning about 530 acres of the Pine Barrens under control. The truck is specially protected by steel grating so that it can move through underbrush on backwoods trails.

RAY FISK



GO WILD AT TAX TIME:

By Kate Davies

The bald eagle has grasping feet and talons, the bog turtle an armor-like shell, the timber rattlesnake venomous fangs, the great blue heron a razor-sharp bill. But no matter how effective an animal's means of self-defense, it is useless against the most formidable enemy of all—modern times.

Today's technology has changed the face of the land. Industrial parks emerge from swamps. Woodlands give way to housing developments. Highways slash the countryside. Wildlife habitat, that critical combination of food, water, cover and space basic to survival, is disappearing from New Jersey. The eagle, bog turtle, rattlesnake, great blue heron and other endangered and threatened creatures are losing their homes.

These animals are not completely defenseless, however. They have powerful allies: caring, supportive taxpayers and the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program.

The Program has been around for a decade now, winning many environmental battles. From humble beginnings—three biologists working on a shoestring, state-appropriated budget of $48,000 per year—the Program has blossomed into a $500,000+ project administered by a staff of 10 and financed by the general public through the nongame tax check-off.

The check-off, a prime example of grassroots democracy, allows taxpayers to contribute all or a portion of their state income tax refunds to the welfare of nongame wildlife. Since its debut, the check-off has been a success, raising $350,000, $440,000 and $475,000 in 1981, 1982 and 1983 respectively. The resulting benefits to wildlife are evident throughout the state.

✔ The osprey is back. Most of the artificial nesting platforms installed on our wetlands by Endangered & Nongame Species Program employees and volunteers are now topped with the massive stick nests of these fish-eating birds of prey. One of the most easily observed nests is right off the Garden State Parkway. Heading south, just before the Smithville Exit 47 at the Mullica River crossing, look to your right. You'll see the bulky nest and March through August you may even spot the birds. More than 100 nesting pairs were counted in 1984, double the 1974 total. Ospreys are reproducing at such a healthy rate, proceedings are underway to officially remove them from New Jersey's endangered species list. The osprey is here to stay.

✔ The peregrine falcon has also returned. Central to a drive around the dikes at the Brigantine National Wildlife Refuge is the falcon nesting tower, one of the 18 erected on New Jersey tidal marshes. If the bird is not out hunting, you may witness its aerial acrobatics in the vicinity of the tower. Since the early days of the Program, 55 young captive-bred peregrines have been released in the state. Some of these birds have returned to nest, producing more than 30 young "Jersey-bred" falcons, the first in many years.

✔ Least terns and skimmers are nesting peacefully. Fenced and posted breeding colonies can be seen at Corson's Inlet State Park and other locations statewide. Extensive colonial waterbird surveys

Black Skimmer over nest.
BRECK P. KENT

☑ CHECK OFF FOR WILDLIFE

have pinpointed these colonies and enabled the Endangered & Nongame Species Program biologists to take measures to protect these sensitive ground nesters.

✔ Cliff swallows have beat out their arch rivals, English sparrows, for prime nesting space. You may have noticed these small graceful birds darting about the Lambertville-New Hope Bridge. Program biologists devised and installed artificial nesting structures beneath the bridge to give the endangered cliff swallows a competitive edge over the ubiquitous, urbanized sparrows that usually usurp the available nesting sites.

✔ New Jersey's only nesting pair of bald eagles is raising young for the first time in years. As Charles and Diana are to England, this couple is to the Endangered and Nongame Species Program: the subject of much media coverage. You can't observe the celebrated duo firsthand, their nest is deep in Cumberland County's Bear Swamp, but you'll read about them in the papers and see them on television. The pesticide residues in these birds are still causing them to produce thin-shelled eggs too fragile to bear the weight of the incubating parents. Endangered & Nongame Species Program biologists have been removing these eggs and entrusting them to the U.S. Fish & Wildlife Service's Patuxent Research Center. An artificial egg placed in the New Jersey nest keeps the adults on their nest while their natural eggs are incubated and hatched under laboratory conditions. The eaglets are then returned to their parents.

✔ Eaglets from Canada are being transplanted to New Jersey. At a hacking tower erected on another Cumberland County site leased from the Natural Lands Trust, these "imported" birds are raised with a minimum of human contact in an enclosure on the tower and released when ready to fly. Eventually some of these birds may return to the area to breed, helping the Program reach its goal of establishing eight to 10 breeding pairs in New Jersey.

✔ A prime piece of wildlife real estate acquired by the Program in 1975 is serving the needs of diverse interest groups through implementation of an innovative management plan developed by the Endangered & Nongame Species Program. The 400-acre Higbee Beach Wildlife Management Area has something for everyone. Birders flock to this Cape May attraction to witness the warbler migration in spring, the raptor migration in fall. In fact, Higbee Beach is one of the most popular birdwatching areas on the entire East Coast. Sunbathers enjoy Higbee's unique bayshore. Hikers take to its trails and hunters take advantage of Higbee Beach's fall woodcock flights. Amid all this activity, an eastern tiger salamander breeding pond provides a predator-free environment for the larvae of this endangered amphibian.

Bog Turtle
PETE McLAIN

These are just a few highly visible examples of what your tax check-off dollars have helped the Endangered & Nongame Species Program accomplish. Not mentioned are ongoing studies of many other birds, reptiles, amphibians and mammals; the environmental impact assessments; the easement acquisitions; the extension services; law enforcement efforts—the list goes on.

The Endangered & Nongame Species Program is doing a lot. It could do more if funds are available, and that depends on the response to Line 37b on the 1984 state income tax return form.

A random sample survey has shown that two-thirds of New Jersey's 2.9 million taxpayers don't even know about the check-off for wildlife. Imagine the benefits to wildlife if they did.

You know about it—tell your friends. Better yet, show them. Take a ride to the Greenwood Forest Wildlife Management Area in Lacey Township and walk along the newly refurbished Webbs Mill Bog nature trail and boardwalk. Point out a pitcher plant, a treefrog, the residents of a typical Pine Barrens bog community.

Show your friends an osprey nest, a falcon tower, a colony of nesting terns. These are the accomplishments of the Endangered & Nongame Species Program in New Jersey.

Remember to ✔ for wildlife.

BRECK P. KENT

Spring tactics and tackle for Largemouth Bass

ROBERT A. MARTIN

Largemouth bass are cold-blooded creatures. That means that their body temperature and metabolic rate increase or decrease as the water around them changes temperature. Consequently, bass can be expected to be somewhat lethargic as water temperature cools to near freezing. However, bass also acclimate to this cold water. My observations suggest that bass may continue to feed in icy water and perhaps, at a limited level, throughout the winter months.

Many studies have shown that bass school more tightly during the cold weather, and this may be what makes them more difficult to catch in winter than at other times of the year.

Fishermen have long thought that bass go deep when the water is cold, but this may be the case only in certain lakes. Following the fall turnover, a typical northern lake will be coldest near the surface because water, unlike other liquids, becomes less dense as it approaches freezing. That is why ice cubes float and lakes freeze from the top down. Water is most dense at about 39 degrees Fahrenheit (4 degrees Celsius). During the winter our northern lakes are 39 degrees from 8 to 10 feet all the way to the bottom, so a bass cannot find warmer water by going deeper. If it does go deep, it is probably in search of prey. Bass can be caught in shallow water just after ice-out, especially as some baitfish spawn in the shallows, therefore providing bass with early season forage.

Structure Fishing

Bass are object-oriented creatures and will most often be found near submerged structures. In northern New Jersey these structures include weedbeds, rocks and submerged rubble, docks, bridges, submerged timber, sea walls, dropoffs and other underwater discontinuities (humps, ridges, etc.). There are bass in open water, but they are so difficult to find that most often it does not pay to fish for them.

Most weedbeds die back in the water, and it pays to know the winter and spring distribution of remaining beds and debris. These areas draw baitfish and crayfish as well as bass. Consider docks a combination of fallen timber and tree stumps. Bass often choose ambush points next to pilings under docks. Rocky shoals that extend out from points are great morning and evening feeding stations. Crayfish, which move shallow during the spring to give birth to their young, are the prime bass food on this type of bottom. Some fish can always be found nailed to the shoreline, where they feed on insect larvae, worms and whatever else washes down from land.

A good electronic depth finder is essential to successful bass fishing. Flashers, as they are called in the trade, run off a 12-volt battery and provide important information concerning depth and bottom configuration. The presence of rocks, weeds, mud, trees, and often fish can readily be determined by the flasher pattern. As indicated below, channels are bass highways, and a depth finder is necessary to locate them. Dropoffs, sunken islands, ridges, and humps cannot be found quickly any other way.

Channels: The Secret to Spring Success

Bass relate to sunken channels at all times of the year, but particularly during the spring, when they follow these channels from deep water to shallow breeding coves. Channels can be actual flooded stream or river channels, or simply areas of deeper water between two shallow flats. Look for big bass

Daniel Segal, Vernon, N.J., caught this 6 lb. 14 oz. bass in Pleasant Valley Lake with a black rubber worm. He released it after weighing and measuring it.

during the prespawn period in and along the channels at 8 to 10 feet, on the weedy flats on sunny days, and on the docks and submerged wood at any time. As the water warms above 60 degrees many fish will move into the cove to spawn.

The Spawn

Spawning bass are notoriously difficult to catch, and it is generally not biologically sound to fish for bass when they are bedding anyway. Taking or even disturbing a large bedding female can have serious effects on bass fishing in the future. When mating, the males (smaller than the female) clean out a circular area on a sandy or gravelly bottom as a nest. Bass nests are generally not constructed close to one another. In contrast, sunfish nests may be found together in large groups. The males then entice the female to enter the nest area and lay her eggs. Normally the female deposits her eggs and leaves. She may lay eggs in more than one nest. The male becomes the dominant guardian and may remain with the young for a few days or weeks.

In New Jersey spawning can begin in mid-May and is usually over by mid-June. Water temperature is the prime cue used to trigger the spawning cycle. In 1984 the cold spring pushed spawning back into late May and early June.

Tackle and Lures

Although it will seem heretical to say this, everything that works later will also work in the spring. It's really not different from fishing at any other time of the year, except that it should be done very slowly. However, certain lures do work better than others for both biological and practical reasons.

As mentioned previously, many species of baitfish move into shallow water right after ice-out. Bass, pickerel, calico (crappie) and other predatory fish gorge themselves on this seasonal abundance. This is why minnow imitations work so well at this time in both topwater and crankbait versions. Rapala, Rebel, Bagley and Storm make some of the best minnow and shad imitations.

The warming waer also spurs development of insects and amphibians that have lain dormant through the winter months. With the weeds not yet grown up, jigs with plastic or pork trailers are powerful lures to use at this time. The jig, a hook with lead head, can be chosen in any weight. For shallow water and a slow drop, I prefer a 1/16-ounce head and plastic grub. When a straight drop is needed, or when fish are out in the channels a heavier, larger jig such as the jig and pork chunk can't be beat. The pork and double-tail plastic lures probably represent molting crayfish to the bass.

Spinnerbaits are only effective if bass are actively chasing prey. While they can be outstanding lures in the prespawn period, they are not as good as jigs if the fish are inactive.

Plastic worms in four- to six-inch lengths will catch bass in the spring, but do not seem to be as effective as jig-plus-trailer combinations. Rigged Texas style (a weedless method) however, they are the essential summertime lure in weedbeds and wherever there is a lot of junk in the water.

Some fishermen use all baitcasting tackle, while other prefer spinning. I combine the two. For light jig fishing I prefer a short spinning rod (5-feet, 6-inches max) and spinning reel with 8-pound test clear monofilament. For heavier jigs I will go to a stouter spinning rod and 10-pound line. For flipping, a technique in which a jig is lobbed underhand at an object, I use a 7½-foot flipping rod and casting reel with 12-pound line. For topwater minnow imitations, crankbaits, and spinnerbaits I use 5½-foot casting rods and casting reels with 10- to 12-pound mono.

All my rods are graphite. Although much less expensive, fiberglass is too heavy and whippy to provide the solid set necessary to drive home a jig or worm hook, particularly in the hard palate of a big fish.

FIGURE 1. Lake Topography. The arrows depict a route, following a 10-foot channel between the island and the mainland, that bass are likely to take on their way to the breeding cove. They may also use this channel throughout the year as a holding and feeding area.

FIGURE 2. Blowup of a breeding cove. Notice the stream entering the back of the cove and the old channel, outlined by the 10-foot interval line that existed prior to the lake being constructed.

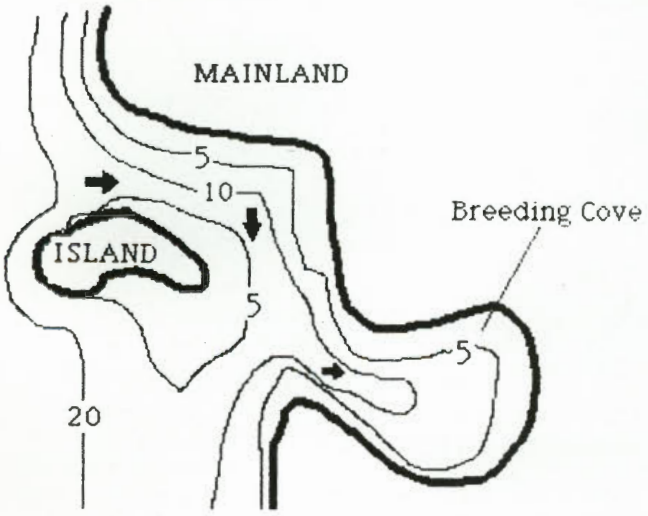


FIGURE 1

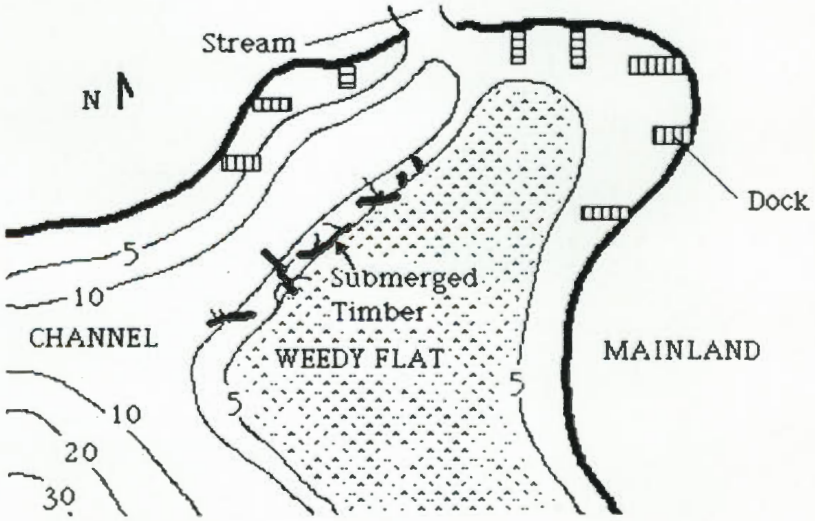


FIGURE 2

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION SIXTH ANNUAL POSTER AND JUNIOR HIGH ESSAY CONTEST

Our general theme this year centers on Wildlife in New Jersey. Poster contest rules designate specific themes for specific categories.

New Jersey has been classified as a highly industrialized, urban state. Yet, over half of our lands are parks, forests and open space. New Jersey is the most densely populated state in the country, but we also have an abundance of wildlife.

WHAT IS WILDLIFE? Animals that are *not* domesticated. Examples include insects, spiders, birds, fish and mammals. Farm animals and pets are considered domesticated animals. Wildlife comes in many different forms and colors—microscopic size to species of many tons.

VALUE Wildlife brings with it a variety of values. Contributions to people and to the environment fall into many categories—aesthetic, economic, intrinsic, recreational and scientific.

POSTER CONTEST RULES

Entry Levels

Primary (K-3)	I like wildlife
Intermediate (4-6)	Wildlife and its habitat
Junior High (7-9)	Wildlife is all around us
High School (9-12)	Wildlife, habitat and me
Special Education	Wildlife is all around us

(Classifies students in self-contained class)

Entries may be no longer than 20" x 27".
Entries must be original. No copyrighted characters will be eligible.

All entries will become the property of the Department of Environmental Protection.
Entries should follow the specific theme and will be judged on originality, presentation, and adherence to theme.

All entries must be received by *March 25, 1985.*
Submit entries to:

New Jersey Department of Environmental Protection
Environmental Awareness & Education Program
Poster Contest
CN 408
Trenton, NJ 08625

Direct any questions to (609) 984-7478.
Posters must be identified on the back, lower left-hand corner:

Student's name, address, and phone number
School name, address, and phone number
Entry Level

Any posters not so identified will automatically be disqualified upon receipt.

JUNIOR HIGH SCHOOL ESSAY CONTEST

THEME: My responsibilities to wildlife.

All entries must be no more than 500 words, typed doubled spaced.
Entries should follow the theme and will be judged on originality, technical soundness, organization and content.

Submit entries to: New Jersey Department of Environmental Protection
Environmental Awareness & Education Program
Junior High Essay Contest
CN 408
Trenton, NJ 08625

All entries become the property of the New Jersey Department of Environmental Protection.
All entries must be received by *March 25, 1985.*
Place the following information on separate cover sheet:

Student's name, address, and phone number
School name, address, and phone number
Grade

"It's a learning experience and a fun weekend . . ."

wildlife workshops for teachers

Marine and Estuarine Wildlife-May 3, 4, and 5, 1985 at the Marine Sciences Consortium, Seaville, New Jersey

Upland and Freshwater Wildlife-June 7, 8, and 9, 1985 at the New Jersey State School of Conservation in Stokes State Forest, Branchville, New Jersey.

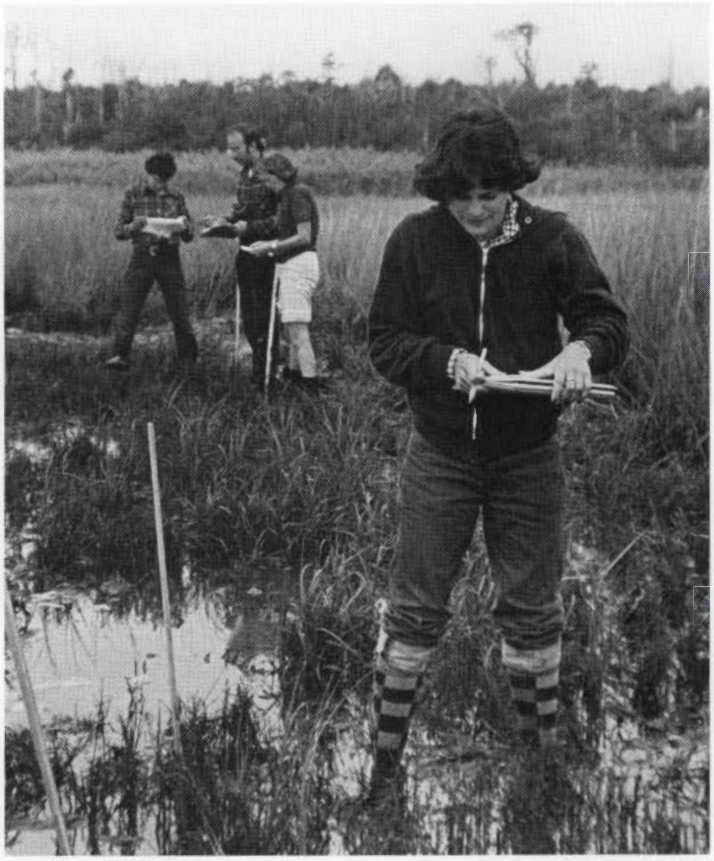
These workshops are sponsored and conducted by the Department of Environmental Protection's Division of Fish, Game and Wildlife. These weekend workshops are designed to give teachers the background to teach environmental concepts using the wildlife resource. Rutgers University will award one graduate-undergraduate credit for those working on advanced degrees or wanting in-service training credit.

The courses are taught in the field by professional wildlife biologists. The May 3, 4, and 5 workshop will be held at the Marine Sciences Consortium at Seaville, New Jersey in Cape May County. It will concentrate on wildlife resources in the marine environment. The workshop on June 7, 8, and 9 will be held at the New Jersey School of Conservation and will emphasize upland and freshwater wildlife.

These wildlife workshops have been in operation for the past nine years and in that period over 1500 students (teachers) have taken the course.

For further information and registration forms contact:

N.J., Div. of Fish, Game and Wildlife
Wildlife Education Unit
Pequest Rd., R.R. 1, Box 389
Oxford, N.J. 07863



A hands-on experience to take back to the classroom.

NAME _____

ADDRESS _____

_____ ZIP _____

PHONE _____

SCHOOL _____

ADDRESS _____

_____ ZIP _____

GRADE _____

SUBJECT _____

Which workshop would you like more information on?

_____ Marine & Estuarine

_____ Upland & Freshwater

Phone: 201-637-4125

1.

2.

5.

4.

3.

Spring Wildflowers of Sandy Hook

6.

By Jim Duggan and Tom Kienzle
Photos by Authors

Sandy Hook is a unique place in the sense that it is a wilderness located less than ten miles from a great metropolis. Many habitats are found in this small area ranging from dunes to fields to forests. Its wild vegetation is lush and thick and is a haven for many bird and animal species.

When you first look at Sandy Hook's flora, you will probably notice the larger vegetation such as trees and shrubs. (Sandy Hook has one of the largest American holly forests on the eastern seaboard). Looking closer, you will find that there are also many wildflowers. However, an even closer inspection of the area will reveal that there is a great variety of smaller and less conspicuous wildflowers, or "weeds". A "weed" is any undesired, uncultivated plant which may grow in profusion and crowd out desirable plants or disfigure lawns. Many of these unwanted wildflowers normally can go unnoticed unless you get down on your hands and knees and take the time to actually look and see what's there. Many "weeds" are quite beautiful and beneficial in their own way, and many parts of these plants are even edible!

This article originated when we started using our closeup photography equipment and techniques to photograph and identify some of the spring wildflowers at Sandy Hook. We utilized our free time at lunch, while working for the Sandy Hook Marine Lab. Our purpose in preparing this article, besides the experience in floral identification, was to make people aware of some of the less recognizable and otherwise overlooked wildflowers and able to appreciate them as wildflowers and not only as weeds.

Much of the study, during the period March through June, occurred in the northern area of Sandy Hook. The areas under study ranged from dunes to forested areas. One note worth mention is that poison ivy was extremely abundant, and anybody walking in and around Sandy Hook should be aware of its presence. One natural remedy for the irritations that poison ivy can cause is to rub on some crushed jewelweed, which is also found here and apply it to the affected areas.

The following list and photographs are of some of the wildflowers blooming at Sandy Hook in the spring and should not be interpreted as a complete list. There are many more which occur that we couldn't find and identify in the time we had.

1. Field Pansy *(Viola kitaibeliana)* *Violet Family. Flowers are whitish with blue and yellow parts. Found along fields and roadsides.*

2. Henbit *(Lamium amplexicaule)* *Mint Family. Erect, purplish flowers. Stems go through center of leaves. Found along roadsides and waste ground.*

3. Yellow Wood Sorrel *(Oxalis stricts)* *Wood Sorrel Family. Yellow flowers with seed pods in erect, angled position. Found in dry soil and roadsides. Edible.*

4. Evening Lychnis, White/Campion *(Lychnis alba)* *Pink Family. White flower with five curved styles. Found in waste areas.*

5. Herb Robert *(Geranium robertianum)* *Geranium Family. Rose-purple flowers with fernlike leaves. Found in rocky woods.*

6. Blue Toadflex *(Linaria canadensis)* *Figwort Family. Pale violet flowers found in dry soil or sandy, acidic soil.*

NJO READER SURVEY

(To answer, use circle or check mark.)

1. What are your favorite interests, hobbies, sports?

_____

2. About how much time do you spend outdoors per week?

_____

3. How did you first learn about NEW JERSEY OUTDOORS?
_____ a. exhibit or educational program
_____ b. motor vehicle or boat registration
_____ c. fish & game publication
_____ d. another reader
_____ e. state park
_____ f. other _____

4. How long have you been reading NEW JERSEY OUTDOORS?
_____ a. less than a year
_____ b. 1-2 years
_____ c. 3-5 years
_____ d. 6-10 years
_____ e. over 10 years

5. Other than yourself, about how many people read your copy of NEW JERSEY OUTDOORS? _____

6. Which of the following attracts your interest first?
_____ a. recreational articles (camping, hiking, boating, etc.)
_____ b. editorials
_____ c. parks
_____ d. pictorial essays
_____ e. nature study
_____ f. historical articles
_____ g. fishing & hunting articles
_____ h. environmental education
_____ i. other _____

7. Do you think NEW JERSEY OUTDOORS is succeeding in its efforts to inform and educate the people of NJ about our environmental concerns and the conservation of our natural resources? _____

8. Would you like to see more articles on the following?
_____ a. natural resources conservation
_____ b. hunting
_____ c. fishing
_____ d. historic preservation
_____ e. environmental education
_____ f. parks and forests
_____ g. diving
_____ h. gardening
_____ i. hiking
_____ j. camping
_____ k. canoeing
_____ l. biking
_____ m. nature study

9. Do you use NEW JERSEY OUTDOORS as a reference tool (teaching, camping trips, fishing guide)? _____

10. Circle or check the appropriate answer.

AGE	EDUCATION
_____ Under 17	_____ less than four years of high school
_____ 18-24	_____ high school graduate
_____ 25-37	_____ attended college
_____ 38-50	_____ college graduate
_____ 51 or over	_____ post graduate degree

11. Place of residence (county or town)

_____

12. Occupation?

_____

13. Sex _____ Male _____ Female

14. Would you purchase a NEW JERSEY OUTDOORS Calendar made up up of color covers from past issues of NJO? It would be priced at about five or six dollars. _____

We welcome any other comments or suggestions. (Attach separate sheet, if required.)

_____

ADD TAPE TO SEAL

Fold

PLACE
STAMP
HERE

New Jersey Outdoors Reader Survey

CN 402
Trenton, N.J. 08625

Fold

Turkey Hunting

continued from page 17

once in a while as the gobblers circled the hen and concentrated all their attentions on her.

With the second chance of the day all but fouled, I decided to try my slate. It certainly couldn't hurt, no matter how bad it might turn out.

My D.D. Adams slate call is a piece of slate mounted on a small resonating chamber which is scratched or rubbed with a plastic stylus to make the whines, yelps, purrs, clucks, etc., needed for turkey hunting.

Since slate calls require hand movement to operate and then must be put down to get ready for a shot, many people won't use them. Even so, they are considered to be a superior tool for making authentic-sounding turkey noises. I use the slate because I like the variety of sounds you can learn to make with it, and I can't get used to the feel of the diaphragm call in my mouth—a problem shared by many turkey hunters.

Since it is my first try at talking to real wild turkeys, I started with very tentative purrs and soft clucks, only a couple at a time with quite a length of time between.

It was like magic. After just a couple of purrs, I saw turkey heads pop up from behind the hill and they were on their way again. This time, there were no gobbles, but the larger bird continued to display in a half strut as the younger zigzagged his way down the field.

Jim stopped his calling when he saw that my slate was doing the job.

When the first bird got within about 45 yards, I laid the slate's stylus on my leg and slowly raised my hand to the trigger of the Baretta 12-gauge over-and-under I was using. All was well until the stylus fell against the slate and the noise seemed to thunder across the field. I thought it was all over, but the turkeys seemed to like the sound in their excitement, and continued to come.

I again checked the color of their heads—red, white and blue—and made sure the closest bird had a beard.

I then began to squeeze the trigger, aiming at the tom's neck. But I stopped when the bird's head suddenly lowered toward his body and out of my gun's sights. I waited for a moment and his head shot forward as he took a step. It went up again while he stood and looked around. This moving target stopped for an instant and I finally was able to make the shot—a fast kill on the spot with number 4 birdshot.

Jim and I went running immediately to see the jake. I had shot the smaller of the two birds, the one in front, at about 35 yards. He weighed 13 pounds and had a 4½-inch beard. Also, he had a triple beard, a fairly unusual and interesting occurance.

What a day!! I had killed a turkey that I had called part of the way myself. And it was still only 6:30 a.m.!

And only one thing could have made it better—if Jim could have scored on one of those birds. In the future, when more than one bird is coming, we plan to let Jim, the bowhunter, have the first shot at the closer bird, and I'll follow immediately with a shot at the far bird.

One with a bow and one with a gun would be better any day of the year. And if I'm hunting alone, maybe I'll try for the big one next time.

Darrin and Dick did as well as Jim and I that day—Dick got a nice bird, but Darrin had to wait until the next year for more turkey hunting action.

Going Buggy
continued from page 9

vise, there is no substitute for collecting nymphs for aquarium study. A small, 9 X 16-inch aquarium, an aerator and accessories can be purchased in a pet shop for $30 or less.

The aquarium should be set up in a cool area of the house, away from direct sunlight but exposed to the daily cycle of light and dark. A piece of glass or plastic placed on top is also recommended, lest your nymphs metamorphose and fly off before you've had a chance to examine them as adults. A bedding of sand, a few small rocks and some plants (purchased at a pet store or collected from a stream) should make your nymphs feel right at home. An aerator is essential to keep the water well oxygenated.

In collecting nymphs, most stream entomology guides recommend use of a hand-held seine. This calls for two people—one to hold the seine and another a few yards upstream to turn over rocks and loose the nymphs into the current. A simpler, one-person method is to turn over the rocks and pick off the nymphs by gently sliding a penknife under them and dropping them into a jar of water. (Add a few leaves or other detritus to the jar for them to cling to.) If you have any distance to drive between the stream and home, you may want to transfer the nymphs to a larger container so they won't exhaust their oxygen. A picnic cooler is perfect for this.

PHOTOGRAPHING BUGS

If you own a 35-mm SLR camera you might want to photograph your insects, both in their nymph and adult stages. A couple of extension rings on a standard 50-mm lens is all that's needed for close-up work. (Better yet is a "macro" lens, which allows you to focus to within a few centimeters of your subject without the use of extension rings.) Fast (ASA 400) film should be used for "stopping down" the lens to its maximum closure for good depth-of-field. Labeled slides or prints of your bugs can be kept on file for reference. Whenever photographing insects, especially winged adults, first place them in a jar in the refrigerator long enough to render them temporarily immobile. Shoot quickly, though, as they come back to life fast.

Another method, recommended by Dr. Charles Bagdale in the July 1981 issue of *Fly Fisherman* magazine, calls for slower film (ASA 25 to 100) and a flash unit, with either a macro lens or extension rings attached to a conventional 50-mm lens. The flash unit is held in the hand (not seated in the accessory shoe on the camera) and placed with its face even with the face of the lens. They key to this system is covering the flash with lens tissues secured with a rubber band, which mutes the light sufficiently so as not to overwhelm the subject. The exact number of lens tissues is determined by experiment; Bagdale found that this equipment produces perfect pictures with ASA 64 film using six layers of tissue.

BOOKS

Of the many books on stream entomology available from mail-order fly-fishing outlets, I recommend the following "short list" of titles: *Nymphs*, by Ernest Schweibert (superb illustrations); *Hatches*, by Al Caucci and Bob Nastasi (the most thorough treatment of mayflies); *Caddisflies*, by Gary LaFontaine (an exhaustive study); and either *Stoneflies for the Angler*, by Eric Leiser and Robert H. Boyle, or *Stoneflies*, by Carl Richards, Doug Swisher and Fred Arbona.

Carnivorous Plants
continued from page 19

however, overshading will eventually eliminate a suitable habitat for the species.

The Round-leaf Sundew (*Drosera rotundifolia*) is found throughout the northern states and Canada from Alaska and California to Labrador and Virginia. The range of the Spatulate-leaf Sundew (*D. intermedia*) extends from the Great Lakes region to the Maritime provinces and southward along the Atlantic Coastal Plain to Florida and westward along the Gulf Coast to Louisiana. The Thread-leaf Sundew (*D. filiformis*), although abundant at several stations in the Pine Barrens, is found elsewhere only in scattered locations in Cape Cod and the Carolinas.

BLADDERWORTS

The tiny Bladderworts are the least well known and understood of the carnivorous plants. Five species known from the Pine Barrens of New Jersey, the Horned, White, Rushlike, Reclined, and Purple bladderworts, are found in wet, sandy, acid soils along ponds and streams or where frequent flooding has occurred or where land disturbances have caused areas of standing open water.

The form of the plant is a rootless branching green or brown stem with tiny bulbous traps found on the feathery downward branching stems. In the autumn, Bladderworts often form a type of hibernaculum (winter bud) called a turion, that either floats or sinks to the bottom of the stream or pond.

The tiny trap mechanism is both complex and rapid. Near one end of the trap is a small opening trimmed with branched hairs. This opening is covered from the top by a fringed veil called the door and when this "active" trap is triggered, the door shuts. From the bottom the opening has a smaller veil of plant tissue called the velum. When a small aquatic animal or insect brushes one of the sensitive trigger hairs around the opening the door opens, allowing an inrush of water which carries the prey along. After a period of several days the victim is digested and the trap reopens. Mosquito larvae, and small tadpoles, and minute crustaceans are common prey.

Range of Bladderworts found in the New Jersey Pine Barrens:

- Purple Bladderwort (*Utricularia purpurea*): Along the Atlantic Coastal Plain;
- Horned Bladderwort (*Utricularia cornuta*): Minnesota east to Nova Scotia, along Atlantic Coastal Plain and Gulf Coast to Texas;
- White Bladderwort (*Utricularia olivacea*): N.J. Pine Barrens, Atlantic Coastal Plain from North Carolina to Florida;
- Rushlike Bladderwort (*Utricularia juncea*): N.J. Pine Barrens south to northern Florida;
- Reclined Bladderwork (*Utricularia resupinata*): Rare; New Brunswick to New Jersey, South Carolina to Florida.

Due to the unusual adaptions of these carnivorous species, and the botanical interest that they have inspired, many formerly thriving sites for these plants have been eliminated by amateur and commercial collection. Furthermore, increased land development has eradicated many other known and potential habitats within the Pine Barrens. Public acquisition and/or conservation easements of these habitats, coupled with a sound management plan to provide the types of "disturbances" beneficial to these unique carnivorous species, may ensure their continuance in the Pinelands.

Caddis Conspiracy
continued from page 4

a positive or negative curve be best? When should you mend your line so you can get the longest possible drift? You also have to decide which fly to clinch onto the end of your leader.

The classic Adams is probably the best known and most widely used caddis imitation. It is also among the most effective flies ever devised. Some fly rodders use it successfully from April until the first snow fall. But it can be made into an even better fly. Try tying a selection of Adamses with bodies of olive, tan and brown polypropylene dubbing. Use then to "match the caddis hatch" when sedges are seen skipping over the riffles or skittering around the tails of pools. But even if you tinker with the Adams, it will frequently be refused by selective trout on heavily fished waters. For these fish, an imitative fly is necessary.

The most imitative sedge is one with a "down" wing of wing quill or tail feather segments (usually duck or turkey) and hackle palmered over the front half of the body and trimmed on top and bottom so the fly floats flush in the surface film. A short, stubby tail is often tied in for added floatability and balance. Unfortunately, whenever one of these flies meets the jaws of a trout, the result is inevitable: the wing is shredded. Still, when working over a highly selective brown, especially late in the season, this is the fly of choice.

Virtually indestructable and literally unsinkable are the popular hair wing caddis flies. With wings of mink tail guard hair, chipmunk tail hair, or deer or elk hair, these flies are favorites of caddis afficionadoes even though they can be spurned by critical trout.

Luckily for flyfishers there is a style of tying sedges that is both durable and highly imitative: the "delta wing." Tied with hackle tip wing projecting out from the body (forty five degrees is the prescribed angle—few fly tiers can achieve this with mathematical precision and they don't have to), the delta wing sedge meets all the requirements for an outstanding dry fly: it floats well, it is a properly impressionistic representation of an insect, it will survive the abuse given it by a trout's teeth, and it is easy to tie.

The *style* of fly an angler selects is of less importance than *size* and *color*. Four sedge patterns in a range of sizes are ample to carry the flyrodder through the season. A pattern in dark grey ("slate" wings and a charcoal body) will be useful in the smaller sizes very early in the season and again in the fall. In the larger sizes (sixteen through twelve) it imitates some of the caddis appearing on late spring and early summer evenings. A tan sedge is called for from early May through June and again on summer mornings. The basic brown sedge and the brown/green ("dark ginger" wings and a dark greenish olive body) are flies for all seasons.

But surely there must be more to it than a few flies and some basic tactics? For years now we anglers have been told that mastering the *Trichoptera* would take a lifetime of study and research. There is some truth in that. But what is too often forgotten is that when you're thigh deep in the Musconetcong, pitting yourself against that one trout that has eluded your best efforts for a month, you're engaged in a contest of wits with an opponent who doesn't give a salmon egg if you can conjugate your Latin adverbs correctly or if you fell asleep last night reading a physics textbook (you just have to know exactly how light behaves underwater, don't you?). You are going to be judged by one of those implacable jurists, *Salmo trutta* and *Salmo gairdneri*. They only care about the important things: that you show them a decent fly that behaves as they expect it should. Give them that and you'll find you've won your case. And the caddis conspirators? Let them conspire. Just don't tell them I said so.

Blacksmiths
continued from page 15

rose he handcrafted as a symbol of his support. The blacksmith teaches smithing and says he knows the interest is compounding because of the number of people wanting to take his classes. The art of the farrier (horseshoe maker) has been one of our most obvious contemporary links to the formidable craft. But Frank foresees a change: "People come to me for repairs but also to make obsolete items like a boot scraper. They would rather have a real blacksmith do their ironwork because they can speak to the smith personally; they can get what they want."

Blacksmithing in New Jersey mirrors the trade as it now exists all over the country. The interest is growing. "The day is coming when me and my smith colleagues will be needed full-time again," says Hank Rhem, a North Arlington smith who is a school teacher by day. Like many smiths, Hank moonlights as much as he can. A job at the South Street Seaport in New York City, for example, gave Hank plenty of work one summer. He also takes free-lance work that might involve repairs or additions to homes, estates and publicly-owned buildings. Otherwise, he does creative ironwork from a humble forge in his basement.

But today, blacksmithing has a few distinctions that must be made. Some blacksmiths don't like to be thought of in the image of the folk hero, and tout their craft as a highly-technical form of metallurgy. The National Blacksmiths and Welders Association says this about the trade today: "It is much more than working with the iron of our ancestors. Today's craft requires a knowledge of steel strengths, design stresses, drawing and reading of blueprints, and the understanding of design application of hydraulic power. The blacksmiths of today must have considerable education in mechanics, engineering, electricity, etc."

Indeed, the products the modern-day, highly technical blacksmith produces, and the number of items he turns out may differ from the folk-hero smith. However the basic method has never changed and the Ringwood restoration is proof that there is room for both to exist in the 20th century. The contemporary shop is not all that different from the romanticized version. As author Charles McRaven in his book, "Country Blacksmithing," put it, "Whether or not you are a modern-day pioneer, whether or not you use powered equipment, whether you are located in the woods or the suburbs, yours is a kinship with the frontier blacksmith. The hammer striking the forge iron, hot on the anvil, has never changed."

The park's living monument to an ancient trade is testimony not only to a craft we want to know more about, but more importantly, to the recollection of a lifestyle we just won't let out of our grasp. If only the village smithy I watched years ago on that eye-opening summer's day could visit Ringwood's shop. He would discover that all the hammering against his anvil helped keep the craft alive. His life's work was not in vain because people like Bob Isleib and so many others responsible for Ringwood Manor's restoration are keeping the blacksmith's flame burning eternally.

Dear Editor

New Jersey Outdoors welcomes letters from readers. Letters for publication should include the writer's name and address and should be mailed to: Editor, New Jersey Outdoors, CN 402, Trenton, N.J. 08625. Letters may be edited for reasons of length or clarity. Please keep the letters coming. We'd like to hear what you think about the magazine. We'll also try to answer questions and if we cannot, we'll ask our readers for help.

Who's Watching the Wetlands?

The January/February article ("WETlands are not WASTElands") extolling the virtues of freshwater wetlands puzzles me. If wetlands are not wasted, why is DEP helping to destroy them? It appears that, given the chance to protect freshwater wetlands, DEP shirks from its responsibility. Two examples are the "Trenton Complex" Interstate Highway Project where DEP has granted permits to destroy more than 8 acres of wetlands with more on the way and the proposed changes in the floodplain regulations which will exempt NJ Department of Transportation road projects from compliance. Why should government agencies be held to a lower standard than private developers? It takes more than some pretty pictures and nice words to protect wetlands. It takes the courage to say "NO" when confronted with destructive projects.

James W. Parker
President
Bordentown Waterfront
Preservation Society

Wetlands have many values, but recharging aquifers is not generally one of them. In humid parts of the country (including New Jersey), water usually enters ground water systems in upland areas and moves through them to discharge in stream, floodplains, lakes and wetlands. The NJ wetland that recharges the groundwater system is very unusual.

The authors of "WETlands are not WASTElands" and "We Need Wetlands!" (January/February) were right that the other values are important. That's why the Sierra Club urges the NJ Legislature to pass the Ogden wetlands protection bill (A-672).

Ian Walker
Vice-Chair
Sierra Club, NJ Chapter
Princeton

We stand corrected on the relationship between NJ's freshwater wetlands and aquifer recharge. On the subject of protecting NJ freshwater wetlands, there are virtually no state or federal regulations designed adequately to protect freshwater wetlands. DEP Commissioner Robert E. Hughey recognized this lack when he testified in favor of the Ogden wetlands protection bill (A-672) last September. "Freshwater wetlands," he said, "presently receive incomplete protection under federal and state laws that were prinicpally designed for flood and water pollution control, not for freshwater wetlands protection. This indirect and piecemeal approach is unsatisfactory, and we strongly support the adoption of a state freshwater wetlands protection law that defines freshwater wetlands and requires a level of protection commensurate with their natural resource value."

DEP permits approved for the "Trenton Complex" highway project require that the Department of Transportation create wetlands equal in area to those destroyed. In addition, DEP has proposed a revised policy for wetlands mitigation, which would require replacement on a two for one basis when coastal wetlands are destroyed. These policies and A-672 are designed to allow projects that serve the public interest to go ahead, but not at the expense of N.J.'s wetlands.

Environmentalists need to communicate

I was happy to see your article on acid rain (November/December). As a graduate student in Environmental Sciences at Montclair State College, I believe environmentalists must work to see that the public is knowledgeable on questions that involve our land and resources if we are to make rational decisions to protect them. New Jersey is fortunate to have such an environmental forum in *New Jersey Outdoors*. The need for your publication is evident.

William F. Brash, Jr.
Morganville

We agree with you 100 percent! We are working all the time to develop articles for NJO and for *Environmental News* that will give our readers the kinds of information they need to understand what NJ's natural resources are, and how we can protect them and make the best use of them for all NJ's citizens. To get *Environmental News* send your name, address and zip code to Editor, *Environmental News*, Department of Environmental Protection, CN 402, Trenton, NJ 8625.

A Prince in the Outdoors?

A garland of red oak leaves to Carol Decker for her artistic menagerie, realistic and true to life. I didn't know toads' pupils could be vertical or horizontal depending on the species. (Inside back cover September/October) When I found one poised on my bed in Australia, I wondered if I should kiss him to see if he were a prince. Alas, I didn't.

Jessie Lang
Kearny

New Jersey And You . . .

I have always lived in Morris County, but this summer my family spent a glorious weekend at the cabins in Atsion (Wharton State Forest) in the Pine Barrens. We really got to know a new part of our great state. I was surprised how few people were at Batsto. Perhaps some group could organize a booklet of coupons, good for a year to all our state sites such as Ringwood, Allaire, Batsto, etc. More people might consider newer places to visit if they were publicized as a package deal and made as economical as possible. Enjoyed ourselves in Pines.

Evelyn Hamman
Ironia

Thanks for the suggestion. It does seem that a lot of New Jersey residents don't know much about all the attractions our state parks offer. Howard Wolf, Director of Resource Interpretive Services thinks your idea for a coupon book has possibilities. We'll keep you posted on how it works out.

Clean water

I would like to have some water from a stream near our summer home analyzed for chemicals, metals, pollutants, etc. Can you provide me with a name or organization who will provide this service?

Lindsay Brown
Jersey City

A good place to start is your municipal or county health department. They can usually refer you to local testing laboratories.

Looking for Gems in NJ

This summer I took my grandsons, ages 6 and 8, to the Franklin Mine and we collected some good stones (January/February). One of the employees put them under their light and they were good. So I purchased a black light, which was no good. Can you help me by giving me the name and address of the manufacturer of the ultraviolet lamp? Can a portable light be made so we can take it with us this summer? We plan to return to the Franklin Mine and look for more stones.

William J. Scheidt
Secaucus

We'll forward your letter to the author and to Wolfgang Vogt or the Bergen County Minerology and Paleontology Society. They should be able to suggest some sources for you.

A wildlife watcher reports

After reading "New Jersey's Turtles" (March/April '84), I contacted the Nongame and Endangered Species project with pertinent information on my sightings of wood turtles. We own a small farm with horses, chickens and plenty of wildlife right next to the Newark Watershed and a branch of the Pequannock River. I spent last winter "turkey watching" as five females grazed in my front yard. Over the past 20 years we have been lovers of wildlife of all kinds and have observed barn and cliff swallows, fox, deer, some black bear and rattlesnakes. So I shall continue to enjoy your articles about NJ's great variety of wildlife.

Florence Stephens
Stockholm

Ring-Necked Pheasant

BY BOB MCDOWELL

Like most people in North America, several species of our wildlife are immigrants to this land. The ring-necked pheasant has been one of the welcome additions to the variety of animals that now occupy this continent.

As settlers began to tame the land and bring an agriculturally based civilization to North America, the land clearing and deforestation had devastating effects on many native species of wildlife. The heath hen and the passenger pigeon became extinct and the wild turkey all but disappeared in many parts of the country around 1900 because of habitat alteration.

The tremendous change in habitat, although disastrous for some game birds, did create an unfilled niche for a game bird that not only tolerated, but thrived, in an environment which included small farm fields interspersed with brushy and fallow fields—habitat made to order for the ring-necked pheasant.

As early as the late 1700s a few landowner-sportsmen tried to introduce ring-necks from Scotland and England. The pheasant, originally from China and other parts of the Orient, was imported to the British Isles before 1700 and then was introduced to the colonies.

The major effort to establish a new wild-breeding population of pheasants did not occur in New Jersey until the late 1800s. In 1887, a population was established in northwestern New Jersey in Warren County, near the town of Allamuchy.

In 1899, a state law was passed that closed the entire state to pheasant hunting. The population grew rapidly in the more fertile farming areas of the state and in 1903 the Board of Fish and Game Commissioners allowed a two month hunting season during November and December.

Since that first hunting season, the pheasant has become the most popular game bird in the Garden State. The pheasant has been accepted as a normal part of our state's rich wildlife resource by both sportsmen and wildlife observers. Many people consider this bird to be a "native."

The ring-neck is a close relative to the ruffed grouse and the wild turkey, our true native game birds. Like these birds the pheasant nests and spends most its waking hours on the ground.

In the early spring the more ornate male pheasant establishes a breeding area by crowing and cackling from selected locations in his three to five acre "turf." The male usually attracts a small harem of three to five hens.

The hens begin to lay eggs during April in nests located in weedy fields. The hen usually incubates 10 to 12 eggs for 23 to 25 days. When the young hatch they are able to follow the female in just a few hours. Within three weeks the young are able to fly short distances and fend for themselves. However, the chicks usually remain with the hen until September.

There is an extremely high death rate for chicks with less than 50 percent of them surviving until fall. Just like most other small animals the pheasant has a very high annual turnover in the population with more than 70 percent of the birds dying each year. Many human activities affect the annual turnover in pheasant numbers: mowing, cars, free running cats and dogs, and crop harvesting. In addition, predators, disease and parasites take a toll of chicks and adult birds.

Another human activity, hunting, is controlled with seasons and bag limits, determined by biologists, so only surplus birds are taken. This way the overall effect is the same as if we did not hunt pheasants, since only 25 to 30 percent of the population lives to reproduce the following year. Therefore, hunting does not affect the pheasant population from year to year, but does provide recreation and generates nearly 11 million dollars for our state's businesses and citizens.

Pheasant hunting is very popular with hunters all over our state. The potential for pheasants to generate lots of hunting recreation was recognized early in the 1900s when the Board of Fish and Game Commissioners built and opened the Forked River Game Farm in Ocean County in 1913 and the Rockport State Game Farm in Warren County in 1924. Since then the Division of Fish, Game and Wildlife has annually raised and released 50 to 60,000 pheasants on Wildlife Management Areas and other lands open to public hunting.

In addition to the ring-necks stocked by the Division of Fish, Game and Wildlife, many sportsmen's organizations and landowners raise or buy and release pheasants for hunting purposes.

Currently, New Jersey's best wild breeding pheasant area consists of the farmlands of southern Warren and Morris counties, Hunterdon and Somerset counties and northern Mercer County.

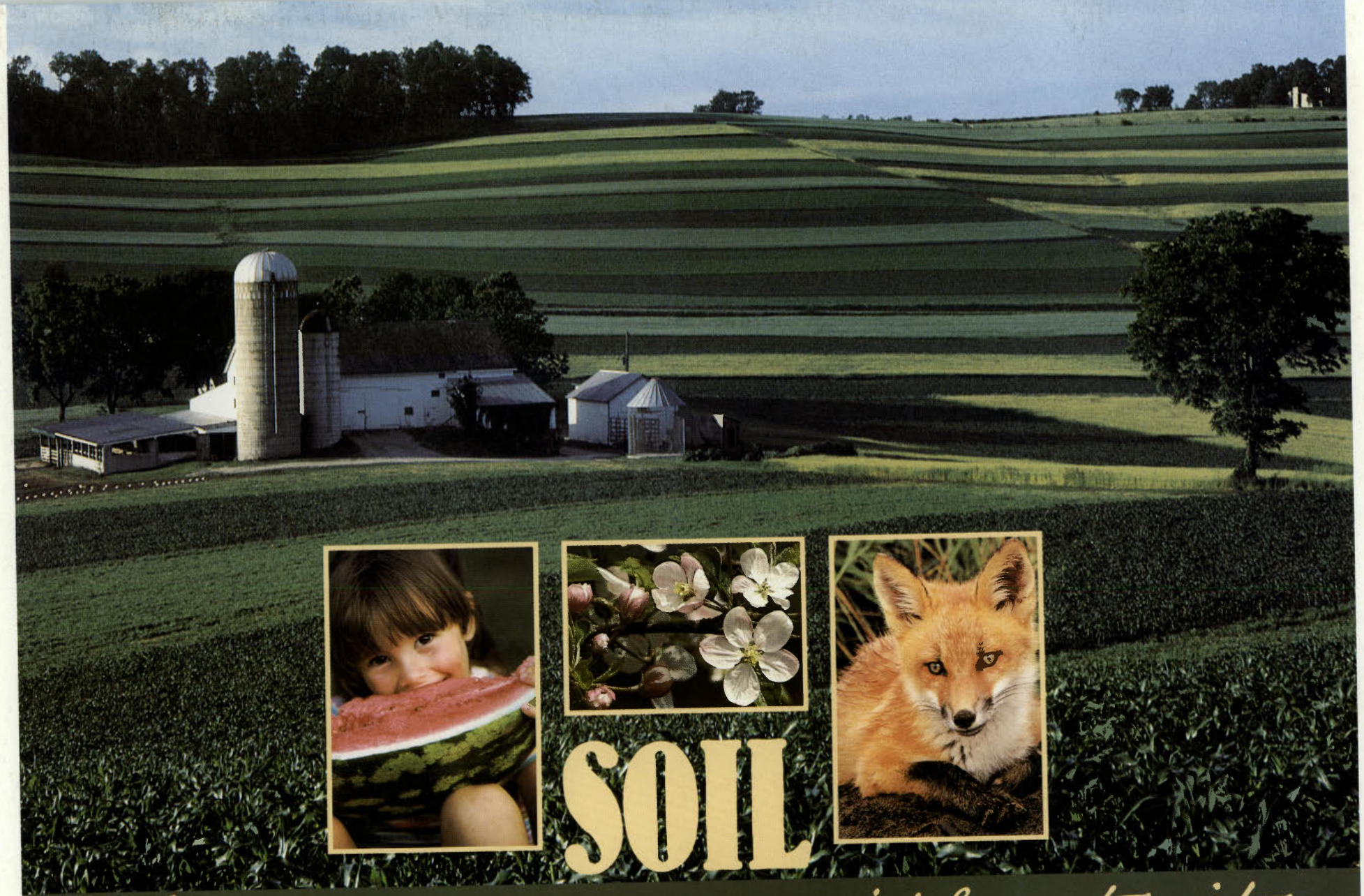
However, pheasants have been experiencing a decline in populations all over New Jersey. Biologists believe that recent changes in farming practices may be responsible. It is suspected that changes in crops from small grains to soy beans and related increases in field size have reduced the cover necessary for pheasant reproduction. Also the amount of land under cultivation has increased and reduced the amount of fallow fields so important for nesting sites. The increased use of herbicides and insecticides may also affect nesting and the survival of young.

It is probable that this adopted species of game bird will be with us as long as there is habitat to support its needs. And like many other species, it is able to adapt to many of man's activities and land uses. Evidence of this is the sizable population of pheasants that occupies the marshes and grassy habitats located in our suburbs and some of the state's busiest airports. It does seem ironic however, that our early agricultural efforts made habitat for pheasants but our modern crop growing technology may be reducing ring-neck habitat.

FRONT COVER
Three New Jersey Endangered Species. Photographed by Breck P. Kent

INSIDE BACK COVER
Ring-Necked Pheasant. Illustration by Carol Decker

BACK COVER
National Wildlife Week, March 17-23. The theme this year is *Soil—We can't grow without it.*



We can't grow without it

NATIONAL WILDLIFE WEEK, MARCH 17-23, 1985
JOIN AND SUPPORT THE NATIONAL WILDLIFE FEDERATION AND STATE AFFILIATES