

# New Jersey *Outdoors*

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# *The Changing Role*

## **of Fish and Game Law Enforcement**

*By Russell A. Cookingham, Director*

The original, and possibly the most well known, conservation specialist of them all is the "conservation officer" formerly known as a "game warden."

Until recent times, the conservation officer's prime responsibility was to apprehend fish and game violators and to stock the fish and game reared by the Division. During his 24-hour-a-day, seven-day-a-week vigil, he also became a proficient "trouble shooter", being one of the few conservation officials to have a published phone number. Thus, he was available to help John Q. Public on such devious matters as removing a raccoon from the chimney or keeping deer from eating one's prized shrubbery. Segments of the public expected him to come up with quick remedies and answers to problems such as fish kills and injured animals, as well as to be the authority on fishing prospects for the coming weekend.

Today, the same individual—the total number 40—has become engaged in new demanding and more sophisticated assignments which are indicative of our changing times and mounting environmental problems.

The modern conservation officer still has to chase down the deer poacher, check the angler for his license and handle the myriad of human complaints. In addition, he is involved more and more in public relations, working with youth groups, lecturing to civic organizations, advising commissions on programs, coordinating activities with other divisions within the Department of Environmental Protection, training



*Continued on Page 31*

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# New Jersey *Outdoors*

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### Cover—"Hungarian Partridge"—*Harry Grosch*

The Hungarian partridge is not commonly seen in most sections of New Jersey. However, we do receive many requests for information about this interesting and exotic game bird. Therefore, we have included a write-up about the Hun on page 27 of this issue.

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# The Deer Research Project

## Current Activities and Future Needs

By Rodgers W. Todd,

*Assistant Wildlife Biologist*

*Bureau of Wildlife Management*

*Photographs by Harry Grosch*

Maintaining a healthy, productive deer herd in a state as heavily populated as New Jersey is a management challenge facing Division of Fish, Game, and Shell Fisheries wildlife biologists.

Through funding from the Division and the Federal Bureau of Sport Fisheries and Wildlife, the Division's Bureau of Wildlife Management is gathering pertinent, applicable data on the New Jersey deer herd by a variety of methods.

### **Capture and Marking**

How is information concerning deer numbers, conditions, range, productivity, etc. obtained? Personnel assigned to the deer research project are engaged in several activities the year round to collect this information. The capture and marking of wild, free roaming deer is a challenge but marked animals provide vital information concerning movements, behavior, mortality, and physical development of these animals. By using box traps, nets, and dart

guns the Bureau has captured, tagged, and released approximately 1,000 deer since 1969.

During the winter period large, double-door box traps are used to capture deer. Most of the box trapping is done in two study areas; one being in the hemlock and rhododendron swamps of Warren county and the other in the fringes of white cedar swamps of Ocean, Burlington, and Atlantic counties. A helicopter is used to locate the deer wintering areas. Once a trap site is chosen it is baited with apples or corn. When the deer start feeding regularly on a bait pile, a trap is brought in and set. While feeding inside the trap, the deer trips a wire which releases the doors. Confined to the total darkness of the traps, and in the absence of curiosity seekers, the deer generally remains calm. Biologists then herd the deer through a reduced opening into a small restraining box where its condition is noted and it is tagged,


## . . . Deer Research

weighed, and released. In most cases, the entire tagging procedure takes less than ten minutes. The trap has to be set an average of six nights to capture a new deer.

The dairy farming area of northwestern New Jersey provides an ideal situation for the capture of newborn fawns. This area predominates in hay and grain fields and supports large populations of deer. Box trapping proved quite difficult here because the deer have an abundant food supply. Where deer are naturally well fed, they are not as easily lured into a trap as are those in areas of poor habitat. Therefore, it was decided to attempt to capture newly born

fawns in these farm areas. A crew of two to five men search field edges. On the average it takes from four to five hours to locate a fawn. When sighted, the motionless fawn is slowly approached and quickly covered by a long handled net or hoop net, tagged, and released. Sometimes as many as three fawns have been found in close proximity. During the spring of 1972, a total of 105 fawns were captured by this method.

Capturing wild deer with immobilizing drugs has been successfully tried on a limited basis. The deer are baited into an area, shot with the drugged dart, and tagged while under the influence of the drug. The deer is allowed to return to its natural habitat when



*Deer captured in a live trap are transferred to a restraining box where they are checked, weighed, and tagged.*



*In the hay and grain fields of northwestern New Jersey newly born fawns are captured with a net for tagging purposes*

the effects of the drug wear off.

Every deer that is captured has a numbered metal tag with a return address placed in each ear. Colored plastic streamers are sometimes attached to the ear, or to the tag, and are used to identify marked animals at a distance. This extra hardware does not seem to bother the deer.

The success of the tagging program depends upon those individuals who recover marked deer. In the event that a tagged deer is found, information as to tag numbers, date recovered, name, address, recovery area, and how it was killed, should be mailed, along with the lower jaw, to: New Jersey Division of Fish, Game, and Shell Fisheries, P. O. Box 1809, Trenton, N. J. 08625.

Persons returning the tagged deer information will receive notification from the Division as to the original capture location of the deer.

New Jersey deer are not usually long distance travelers. Most of the tagged deer that were killed or found dead were located within one mile or less of the original site of capture. However, some did travel quite a distance from their wintering areas, with one north Jersey buck taken by a hunter 30 miles from where it was tagged. In fact, one of our tagged females swam the Delaware River and was killed by a car in Pennsylvania.

Hunter returns have accounted for approximately 50 percent of the tag recoveries to date. The remaining half died as the result

### . . . Deer Research

of motor vehicles, illegal hunters, accidental deaths, and unknown.

#### Collection of Data

Much of the data needed to manage New Jersey's deer herd is collected during the deer hunting

checking stations where information concerning age, sex, weight, antler development, and general physical condition is collected. This year regulations require that all deer be taken to check stations. These data indicate the relative condition of a population in a given



*Capturing wild deer with immobilizing drugs contained in a dart shot from a gun has been successfully tried on a limited basis*

seasons. Each year, in the past the Bureau examined approximately 20 to 25 percent of the total state-wide reported buck harvest. Hunting clubs, individual hunters, and cold storage lockers provided most of the deer examined. During the one-day either sex seasons, deer were examined at mandatory

area and trends in population change. For example, age data, especially the size of the younger age-classes, indicate whether a population is increasing, decreasing, or stable. From these, management recommendations can be made as to the number of either-sex permits to be issued.



*Much of the deer research data is collected at checking stations*

The general physical condition of the deer directly reflects the condition of its habitat. For instance, yearling bucks that are harvested in the fertile areas of Regions II (South Morris, Hunterdon, Mercer, and Somerset counties) and III (Monmouth and Middlesex counties) have a larger antler beam diameter (average 20 mm.) and a greater number of antler points (average over 5 points) than yearling bucks inhabiting the low fertility areas of Region IV (Ocean, Burlington, Atlantic, Cumberland, and Camden Counties). Their antler beam diameters average 16 mm. and antler points average 3.5.

Autopsies performed on deer found dead throughout the year provide researchers with additional information. Female reproductive organs are collected and analyzed to determine the rate of reproduction. Incidence of parasites and diseases is noted. Many of the animals provided for such study have been road kills that were brought in by conservation officers. Usually, partial autopsy is adequate to determine cause of death. In some cases, when the cause of death is difficult to determine by partial autopsy, the deer is taken for a complete examination to the diagnostic laboratory of the New Jersey Department of Agriculture.



### ***. . . Deer Research***

During late winter and early spring, dead deer searches are conducted in various North Jersey wintering areas to determine types of deer mortality. Searches of this nature proved difficult in South Jersey due to the dense undergrowth found in most wintering areas. A crew of two to eight men, arranged in parallel lines, searched predetermined areas, using Walkie-talkies to coordinate the search. During 1970 and 1971, over 5,000 acres were searched and 72 deer were found. In other words, from eight to nine dead deer were located per square mile.

All deer encountered were autopsied to determine the cause of death. The majority of deer found dead had died from malnutrition, illegal shooting, and crippling losses during the hunting season. Dogs or motor vehicles killed the rest.

### **Census and Index**

Successful deer management depends upon knowledge of deer numbers. Two methods are currently being used to determine deer population trends. The first method is by flying a helicopter over randomly selected sample plots ( $\frac{1}{2}$  mile by 1 mile) and counting the number of deer seen. This figure may then be expanded to a county population estimate. For

example, in 1971 the Sussex County plots were flown and 139 deer were counted. The average number of deer per square mile was calculated to be 8.4. This figure was then multiplied by the 490 square miles of deer range to arrive at an estimated 4,116 deer in Sussex County. Unfortunately, due to the lack of a suitable snow cover and the dense, coniferous canopy which covers much of the winter deer range in the southern counties, census flights are restricted to the northern areas.

The second method used is the determination of minimum deer populations on a county and statewide basis. By knowing the number of adult bucks harvested dur-

ing the hunting seasons, age compositions, sex ratios and reproductive rates, it is possible to estimate the minimum number of deer before and after the hunting seasons. A minimum total of 45,183 deer were estimated to be in New Jersey prior to a given deer season. This is a conservative figure because deer that were killed by causes other than hunting are not included. In New Jersey these "other" deer may equal the known totals.

#### Summary and Conclusion

If we are to have a deer herd of maximum numbers that is in balance with its habitat and compatible with other land uses, data collection as described above, must

*A helicopter is used to count deer to determine population trends*



### . . . Deer Research

be continued and expanded. By studying harvest reports, age class composition, reproductive rates, physical condition, population densities, etc., the trend and fluctuations of the deer herd may be checked. Successful deer management depends upon analyzing the various factors that influence the herd. The Bureau now has a good research program to keep tabs on the physical condition of the deer.

What is needed next is a program to determine methods of manipulating deer habitat in order to increase and stabilize deer populations. Increased amounts of na-

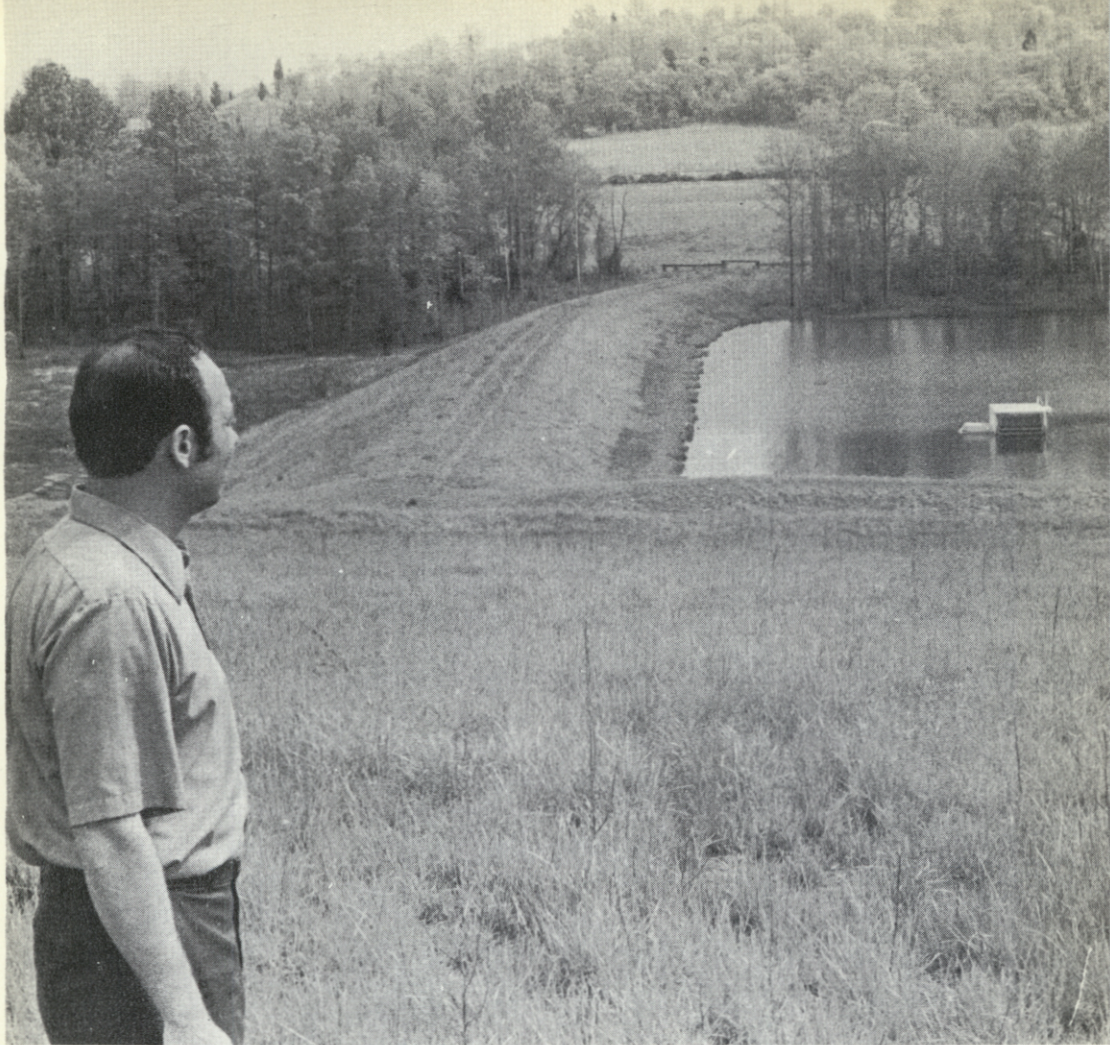
tural browse may be produced by: timber harvests, fires, and shrub plantings. The food value of existing browse may be improved by fertilization. Habitat condition and composition are greatly influenced by deer utilization. By being familiar with the key browse species, the biologist can determine the amount of pressure the deer is exerting upon its habitat. For instance, a deer range in poor condition may be brought up to optimum browse production by reducing the numbers of animals it has to support. Quality deer hunting in the future depends upon the success of the research and management programs of today. #

*Methods of manipulating deer habitat are required to prevent . . .*





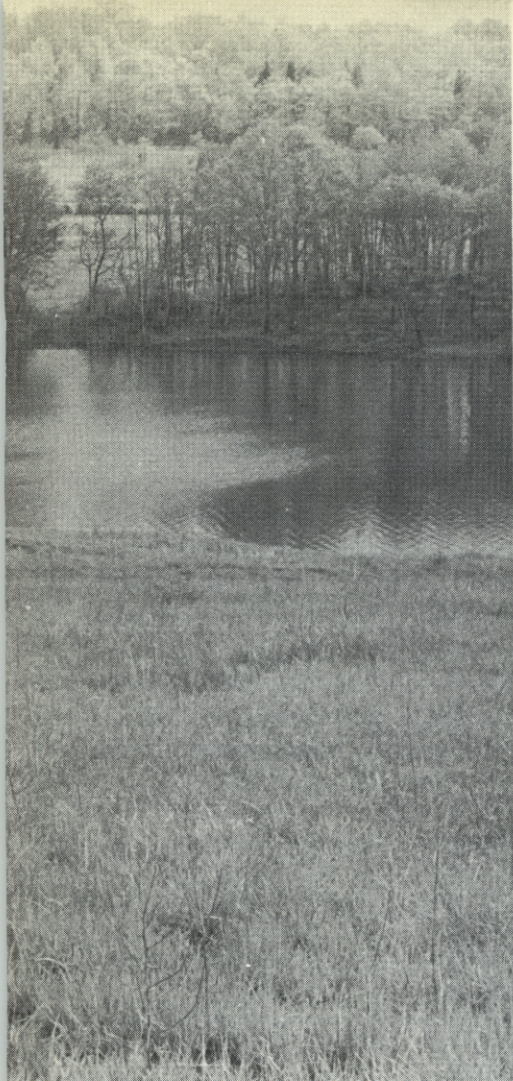
*... waste of New Jersey deer caused by malnutrition on overbrowsed range*



# The Assunpink Area

**The centrally located Assunpink Fish and Wildlife  
Management Area in western Monmouth  
and eastern Mercer Counties**

*By Frank Tourine,  
Bureau of Wildlife Management  
Photographs by Harry Grosch*



*Author Frank Tourine scans one of the flood control structures that forms an impoundment on the Assunpink*

The Assunpink Fish and Wildlife Management Area was assigned to the Division of Fish, Game, and Shell Fisheries as the result of an administrative order from the Commissioner of the Department of Environmental Protection. The land was made available to the state through purchases made by Green Acres.

The area assigned to the Division of Fish, Game, and Shell Fisheries is an elliptical shaped tract about eight miles long and two miles wide at the widest point. The total acreage will be about 5,000 acres, depending on the final alteration of the take line.

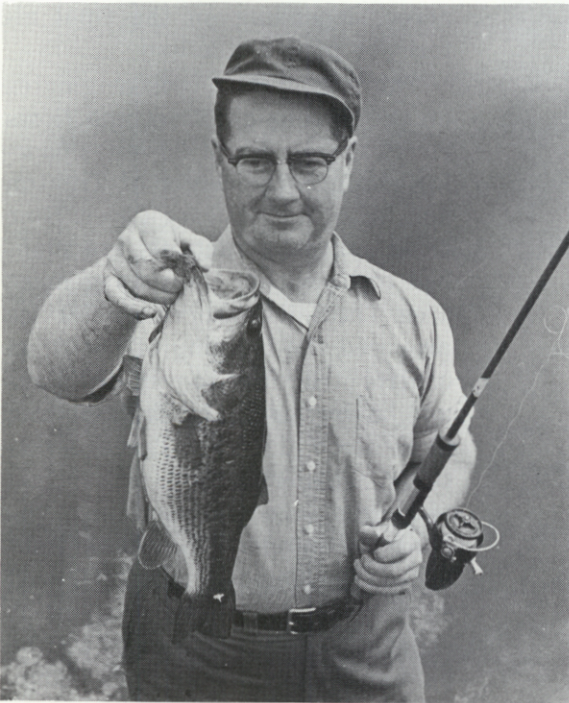
The Assunpink Creek originates on the Assunpink Tract and flows westward for about 20 miles passing through the center of Trenton and into the Delaware River. Five flood control structures are planned to be within the management area. The Soil Conservation Service proposed the building of the flood control structures to protect homes and businesses in the Trenton area from flood damage. Three structures are designed as lakes and two are planned as dry basins. The lakes are intended to provide fishing and waterfowl areas, as well as flood control storage areas. A share of construction costs will be paid by the Division of Fish, Game,

### . . . Assunpink Tract

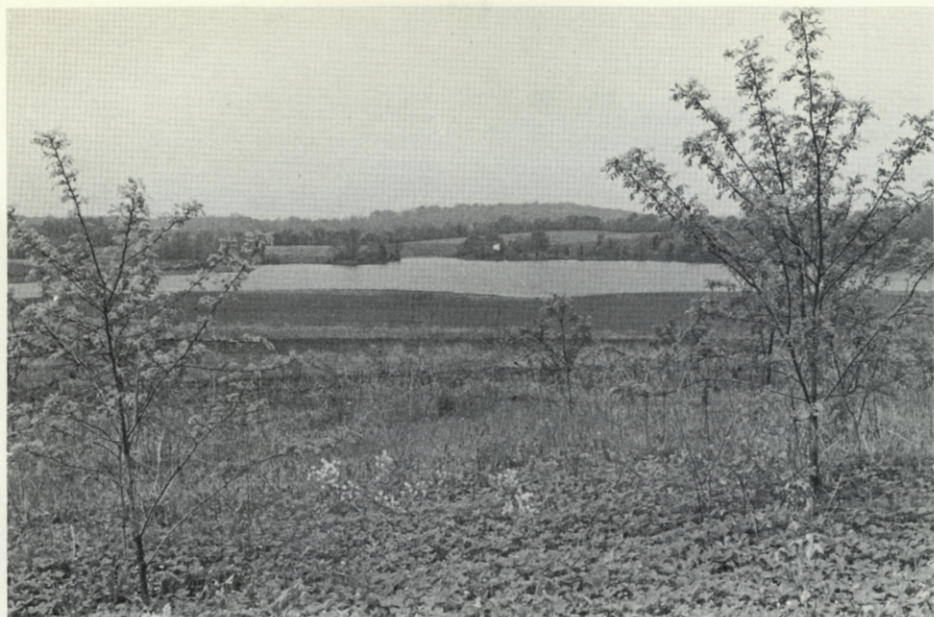
and Shell Fisheries and the U. S. Fish and Wildlife Service. The water surface area of the three impoundments will total about 350 acres. The Division of Fish, Game, and Shell Fisheries' share of the construction costs amounts to \$116,000 or about \$350.00 per acre of water surface area. The lowland within the basins of the two dry sites will remain undisturbed except for small impoundments which can be flooded for waterfowl production use.

The management area is composed of one-half farmland and the remainder in wood lots, hedgerows, and low swampy areas. Past farm-

ing practices included potatoes, corn, soybeans, and small grains. The area is now being maintained and managed as a farmland ecosystem oriented toward hunting, fishing, and related activities. A leasing arrangement with local farmers has made this possible and offers the most practical and economical method of wildlife management. Tillable land is leased on a three-year rotational basis (the normal rotation being corn or soybeans, followed by wheat and wheat stubble, then to annual weeds). Payment by the farmer for use of the land is in the form of leaving 15 percent of the crop standing unharvested for wildlife food. Other management tech-

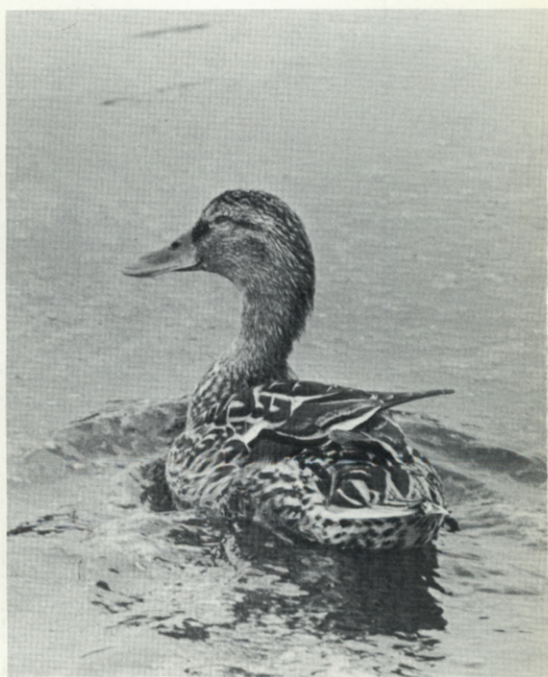


*The lakes resulting from dams on the Assunpink Tract are intended to provide waters and facilities for fishing*











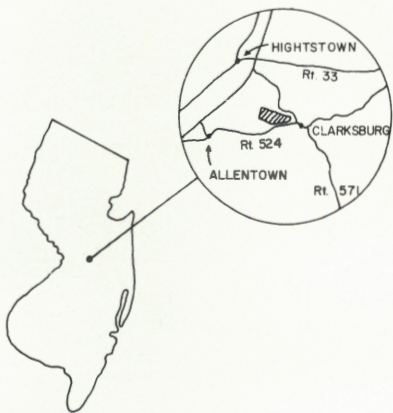
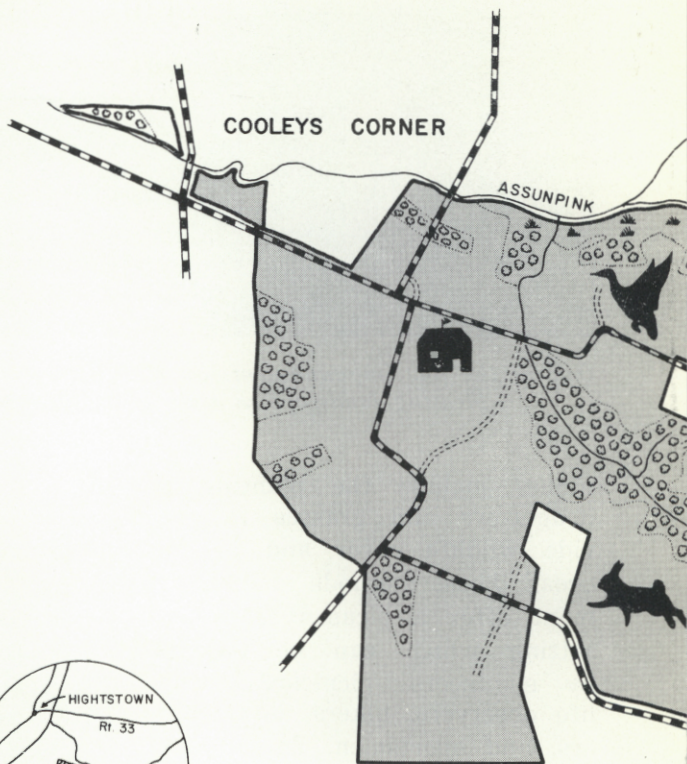
*One of the fine impoundments on the Assunpink drainage that results in a pleasing landscape as well as producing waterfowl habitat*



niques include the planting of hedgerows and grasses to provide wildlife cover and nesting areas. These methods of management offer a pleasant farmland setting which can be enjoyed by sightseers, picnickers, wildlife observers, hikers, dog trainers, and sportsmen. Small game is abundant on the tract and provides excellent dog training opportunities and good hunting when supplemented by in-season wildlife stocking. An illustration of the growth in the popularity of the tract is indicated by the increase in the hunter utilization on the opening of the small game season since 1967; 1967 - 726 hunters; 1968 - 975 hunters; 1969 - 1,145



# SYMBOLS

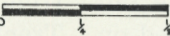
- ROAD (IMPROVED) 
- ROAD (UNIMPROVED) 
- TRACT BOUNDARY 
- POND 
- STREAM 
- FRESH MARSH 
- WOODLAND 
- WOODLAND - FIELD EDGE 



TO ALLENTOWN   Rt. 524

Monmouth and  
Mercer Counties

# ASSUNPINK FISH & WILDLIFE MANAGEMENT AREA

SCALE:  MILE

W-108

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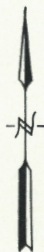
CREEK



Rt. 524

TO CLARKSBURG

STONE TAVERN



### . . . Assunpink Tract

hunters; 1970 - 1,500 hunters; 1971 - 1,688 hunters.

Waterfowling is becoming popular in the area and is expected to increase as additional waterfowl production use areas are purchased and constructed. Good numbers of wood ducks are found in and along the swampy areas during the fall migration. Waterfowl observed on one newly completed flood control impoundment, the day before the opening of the waterfowl season, included over 200 Canada geese, black ducks, mallards, ruddy ducks, canvasbacks, redheads, pintails and coots.

With the exception of the two newly completed impoundments, there is little angling opportunity in the Assunpink drainage. Other impoundments in the general area are in poor condition because of aging, eutrophication, excessive weed growth, etc. They cannot meet the increasing demand for good public fishing areas arising from the rapid growth of the Trenton metropolitan area. It is felt that the impoundments at Sites #4, #18, #19 will help meet this demand. It is anticipated that utilization of these impoundments will be from 25 to 30 man days/acre/year for a total of nearly 10,000 man days/year. A fisheries

*Frank Tourine sadly examines the aftermath of people problems*





*The Assunpink Tract includes many acres of prime woodland and field cover that are being managed for wildlife*

management program has been prepared for the three impoundments. Sites #18 and #19, completed in 1971, will be managed for a warm water fishery of largemouth bass and bluegill with stockings of both species already made.

It is anticipated that Site #4, when completed, will be stocked with largemouth bass and bluegills. Electrofishing of the Assunpink Creek in this area during the summer of 1971 found chain pickerel, golden shiners, and bullhead in what are assumed to be sufficient numbers to provide the nucleus for a fishable population when the stream is impounded.

Quality wildlife habitat within a reasonable distance of urban areas is often difficult to acquire because of costs or planned development. The New Jersey sportsman is fortunate to have the Assunpink Fish and Wildlife Management Area under the administration of the Division of Fish, Game, and Shell Fisheries. He can be assured that the management and utilization of the area will be oriented toward wildlife production, hunting, fishing, field trials and related wildlife activities along with other multiple use activities compatible with a wildlife management program. #

## Law Enforcement Corner

### Operation Short Lobster

Late this summer, Conservation Officer Karl Kristiansen received word of a boat handling large amounts of illegal size lobsters in the Sandy Hook area. Having a career background of knowledge and experience in the ways and practices of fishermen and lobstermen, Kristiansen was able, after many hours of almost daily surveillance, to figure out the illegal operation.

The availability and good price of lobsters unfortunately tempt lobstermen and fishermen to keep undersized lobsters, a practice which could reduce future lobster populations. (Under the Fish and Game Code, lobsters measuring more than 3 and  $\frac{1}{8}$  inches "from the rear end of the eye socket along a line parallel to the center line of the body shell to the rear end of the body shell" or the area called the carapace, may be legally taken.) The penalty for each illegal lobster is twenty dollars.

A plan devised to apprehend the boat taking short lobsters was settled upon but inclement weather postponed the operation several times. When the weather was finally suitable, a coordinated effort by members of several agencies was put into effect. Division Director Russell A. Cookingham supplied a helicopter as a means of observing the entire operation. U. S. Game Management agents, conservation and deputy conservation officers both in uniform and plainclothes, an unmarked Fish and Game patrol boat, and state patrol vehicles all participated. A backup radio system on land was supplied by the U. S. Game Management agents. Division of Forests and Parks personnel with radios were aboard the helicopter. Conservation Officer Kristiansen directed the operation from the helicopter, all areas were sealed off, the boat boarded by officers, and the skipper of the boat apprehended with numerous short lobsters in possession. #

#### *Editor's Comment:*

Monmouth County District Court levied a fine of \$1,250 against the skipper of the boat. It is hoped that other lobstermen and fishermen will resist taking illegal size lobsters and help insure a thriving lobster population for the future.

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**When you purchase a fishing or hunting license be sure to obtain a copy of the compendium of fish or game laws.**

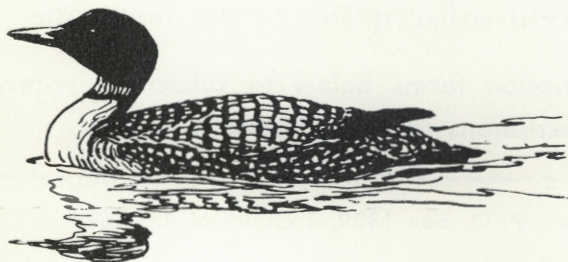
# Common Loon

## Species:

Common Loon—*Gavia immer*

## General Characteristics:

A large (28 - 36 inches) diving bird, seen in our New Jersey waters during the winter, or in loose groups of a few birds on migration. The winter plumage is grayish, with throat, lower neck, and under parts whitish. Flies with slower wing beats than most other waterfowl, does not flap and glide as do cormorants. In flight the head is held low, giving a curved effect to the neck. Somewhat larger than the redthroated loon, with no white spotting on back, creating



*The loon on the water appears long-bodied and low-lying*

a darker appearance. The bill is considerably heavier than that of the redthroated loon. The wild "laughter" or call of the loon on a lonely lake in summer is the "voice of the wilderness." Once heard it is not soon forgotten.

## Range:

Breeds on lakes in northern United States and southern Canada. Overwinters along the coasts of the United States and the Gulf of Mexico.

## Life History:

Loons usually nest in solitude along the shore of some remote lake. They are not colonial nesters, nor do they collect in any but small groups at any time. The nest is made, usually on the shore or in shallow water, on a pile of vegetation, sometimes with a shallow depression in the center. From one to three eggs are laid in early June. A.C. Bent reports that usually two eggs are laid, one of which is often infertile, which means that the brood is frequently

## . . . Common Loon

composed of one chick. The period of incubation is about 29 days, with both parents apparently sharing in the nesting chores. The diet is composed predominantly of fish, but some aquatic insects, lizards, frogs, and vegetation may be taken. The young are fed fish by the parents.

The loon is an excellent diver and can travel long distances under water, propelled by its large webbed feet. It also has the ability to slowly sink out of sight. This bird is protected by international treaty and should not be molested in any way. #

—Robert E. Mangold,  
Bureau of Wildlife Management

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## Cooperation Results on Naval Air Station



*Lakehurst Naval Air Station Conservation Club entertained John E. Hunt, 1st District Congressman; Russell A. Cookingham, Director, Division of Fish, Game, and Shell Fisheries; and State Senator James M. Turner, Salem-Gloucester Counties, on a pheasant hunt on the air station. The Conservation Club cooperates with the Division in a habitat management program to provide better hunting and fishing on the station. The air station hunting area is open to the public by registration during the regular hunting season*

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## Lead Shot on Way Out

By P. D. McLain,

*Federal Aid Coordinator*

*Photograph by the Author*

Lead shot in shotgun shells may be a thing of the past within the next few years. Studies conducted by the Illinois Natural History Survey and others interested in lead shot poisoning in waterfowl show that the lead shot ingested by feeding waterfowl results in a sizeable mortality of ducks, geese, and also upland game birds. Estimates vary on the mortality rate, but it is between two and three percent of the fall population of 100 million waterfowl, which amounts to a mortality of two to three million birds.

The lead shot problem arises when the millions of small lead pellets from the shotgun shells settle on the mud and sand where ducks and geese forage for food. The birds ingest these pellets, which remain in the gizzard, where they are slowly ground away, producing the soluble lead salts which pass into the birds' digestive systems and then throughout the body. The primary toxic effect is a partial paralysis of the gizzard, which leads to starvation. The birds usually die within three or four weeks after ingesting the pellets.

The problem is severe when 16,000 ducks die of lead shot poisoning, as they did at the Claypool Reservoir in Arkansas in a two-month period. Several thousand geese in Maryland died of lead poisoning in a few weeks on shot-saturated lake bottoms where they were feeding.

Most of the detailed studies have been conducted on the Mississippi Flyway, where four percent of the mallard population dies annually of lead poisoning. Of 39,610 gizzards examined, 8.4 percent of the mallards contained lead shot.

It is not surprising that waterfowl ingest quantities of lead shot when you realize that 6,000 tons of lead are discharged at waterfowl a year. The popular shooting points and blinds on ponds, lakes, bays, rivers, and other gunning areas are shot over year after year. Lead does not oxidize, and builds up over the years rather than disappearing.

To kill a duck, it takes only six No. 6 pellets to be fatal 50 percent of the time. Only one No. 6 shot will kill a duck nine percent of the time. Anything over six pellets is



*The days of these hunters using lead shot may be numbered. Recent studies show that between two and three million waterfowl die annually from ingesting spent lead shot while feeding around shooting points. Iron shot, which is non-toxic, will probably replace the lead pellets*

almost always lethal. There is little question that lead shot is resulting in a sizeable mortality of waterfowl which are being wasted in an agonizing, slow death.

The answer the ammunition companies have been searching for is a replacement for lead. Gold seems to be ballistically similar to lead, but too costly. Iron shot will probably be the replacement for lead but not without some problems. Iron shot has a Diamond Point Hardness of 65 to 80, while lead ranges from 0 to 15 DPH. The softest iron shot is about four times harder than the hardest of lead.

The big worry was the damage the iron shot might do to gun barrels and the delicate chokes. Sec-

ondly, many people felt that iron shot lacked the killing power of lead pellets and would cripple more birds. Others cried that retooling, production, distribution, and public acceptance of iron over lead would be monumental problems.

Actually, the new plastic sleeves or collars which surround modern shotgun loads will do a lot to protect the gun barrels against abrasion. Today's scatter gunner or wildfowler would have to do a lot of shooting with iron shot to wear out a gun barrel hunting.

Ballistic research at the Patuxent Research Station, where shot shells containing 1- $\frac{1}{4}$  ounces of lead shot were tested against shells containing the same weight and number of pellets of iron shot,

### . . . Lead Shot

indicated that the iron shot killed ducks about one yard further than lead shot, but that the lead shot was only slightly more effective in bagging ducks. The final results of the studies showed little difference in range or killing power of lead over iron shot.

This year throughout the United States, on eight national wildlife refuges, iron shot will be tried under controlled conditions. In Maryland there is a big push toward the use of iron over lead shot. If these

experimental efforts show a decrease in waterfowl mortality due to lead poisoning, it's a safe bet that the Federal authorities will go all out for the elimination of lead shot for waterfowl hunting within the next few years.

There may be a great hue and cry from the ammunition companies and sportsmen. But, realizing that between two and three million ducks and geese die annually from lead poisoning, anything which will help to alleviate this wasted resource is a step in the right direction. #

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## **Study Shows N.J. Residents Approve of Deer Hunting**

An unpublished poll conducted in New Jersey indicates that the majority of residents of the nation's most populous state approve of deer hunting and nearly one fourth of them have hunted at one time or another, according to the Wildlife Management Institute.

The study was conducted by the Eagleton Institute for Practical Politics for the Rutgers University Wildlife Biology Department. The results are especially interesting in that a handful of people have obtained a court injunction halting a proposed public deer hunt on the Great Swamp National Wildlife Refuge in New Jersey. Refuge biologists had requested the hunt to reduce the number of deer and prevent further habitat and private property damage.

The study shows that 54 percent of New Jersey's residents approve of deer hunting, 38 percent disapprove, and 8 percent are undecided. Some 24 percent had hunted, 76 percent had not. When asked if they would vote for a referendum outlawing deer hunting in the state; 41 percent said they would, 47 percent said they would not, and 12 percent didn't know. Responding to whether there are a 'lot of deer' in New Jersey or 'not many', 29 percent said there are 'a lot', 37 percent said 'not many', and 34 percent were undecided. There are about 45,000 deer in the state. Asked what the coat of a new-born fawn looks like, only 29 percent answered spotted, flecked, etc.; 71 percent had no idea. #

# The Hungarian Partridge

The Hungarian partridge is an exotic, protected bird that is less frequently seen in New Jersey than it was some years ago when it was frequently stocked in attempts to establish it in the state. Incidentally, under 23:3-28 of the fish and game laws "partridge" means the species commonly known as Hungarian partridge and Chukar partridge. The Chukar partridge is a distinct species for which an open season is currently provided.

Perhaps the ornithologists were running out of names when *Perdix perdix* was christened. Why else would they have given him the same name twice? Unless, of course, as some of his most avid boosters would like to believe, it was done to emphasize the fact that he's twice



*Although the Hungarian partridge is a grayish bird, it appears to be russet-colored when flying because of the rufous tail and the brownish hue of the wings*

as good as the run-of-the-mill game bird. Few sportsmen who have successfully hunted *Perdix perdix*, or Hungarian partridge as he is better known, would argue the latter contention. For the Hun is a fast-flying target on the wing, sporty enough to test the mettle of any expert scatter gunner, and on the table, a succulent treat able to excite the taste buds of any gourmet.

Originally, the Hun or more properly the European gray partridge, was introduced to our shores just prior to the turn of the century.

## . . . Hungarian Partridge

After a number of unsuccessful plantings were made, this worthy immigrant finally got a firm foothold in the northwestern states and in several Canadian provinces. Since most of the plantings that took hold were birds imported from Hungary, the name Hungarian partridge, or simply Hun, naturally evolved. Gregarious throughout most of the year, Huns congregate and travel in coveys. Grains such as wheat, oat, and millet make up the chief staples of the bird's diet, though at peak periods of insect activity, locusts, potato bugs, grasshoppers, and other common varieties are readily gobbled up.

During the nesting season, which is in late spring, and through the incubation and brooding periods, both cock and hen share the business of raising the family. Mature Huns run about 12 to 14 inches in length, weigh between 12 and 13 ounces and are predominantly gray in color. Their wings are of a brownish hue, however, and the hunter first shooting Huns is often mystified to find that what appeared to be a russet-colored target on the wing turns out to be a gray bird on the ground.

For those hunters fortunate enough to be able to go to where Huns may be hunted here are a few notes.

Most Hun shooting is open country shooting, for the Hun's preferred habitat is the cultivated grain field. A close-bored 12 gauge shotgun, #6 shot, and a fast, wide-ranging setter or pointer are essentials for consistently putting *Perdix perdix* in the hunter's game pocket. #

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### “Going Home”

A tagged channel catfish, which had originally been captured in the Delaware River and subsequently stocked in Greenwood Lake in 1964, was caught eight years later by an angler fishing in Wanaque Reservoir in July 1972. The catfish when tagged measured 9.5 inches in total length and weighed about one-half pound. At the time of capture it weighed three and one-half pounds.

The interesting fact, aside from its years of freedom, is that this fish had traveled a distance of approximately six miles, via the Wanaque River which joins these two water bodies, from the initial stocking location to final point of capture. Evidently it was “going home.”

— Robert Stewart,  
Assistant Fisheries Biologist  
Bureau of Fisheries Management

# Bigtooth Aspen

(*Populus grandidentata*)

Bigtooth aspen prefers rich, moist soils but will grow on poor, gravelly sites. This tree frequently seeds-in naturally on abandoned fields and areas that have been logged or burned. It commonly is found growing with wild cherry, birch, aspen, and scrub oak.

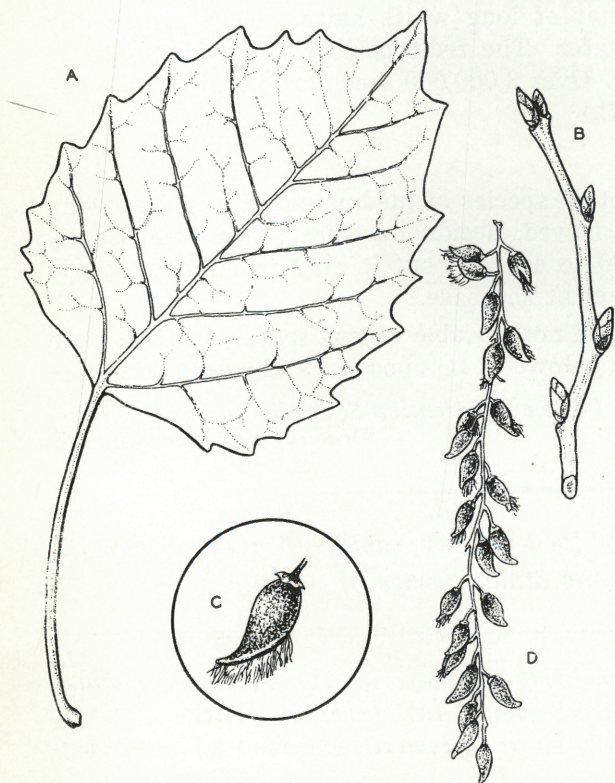
Other common names are largetooth aspen, popple, poplar, and aspen.

## Range:

Northwest from Nova Scotia to the Gaspé Peninsula, west through southern Canada and the Lake States to northeastern North Dakota, and throughout the northeast and eastern mountains to Tennessee.

## Leaves:

Alternate, simple, 3 to 4 inches long and nearly as wide. They are a smooth, dark green on top and a lighter green on the bottom. The



## Bigtooth Aspen

- A. Leaf
- B. Twig
- C. Fruit
- D. Catkin

## . . . Bigtooth Aspen

definitely flattened leaf stem is about the same length as the leaf is wide. The margin of the leaf has large serrations or teeth. It is from the large teeth that the tree derives its name. (See figure A.)

### **Twigs:**

Medium stout and brownish gray. Sometimes they are covered with a woolly down that appears to be dirty. Terminal and lateral buds are dull gray. (See figure B.) The pith is star-shaped.

The bark on older trees becomes very dark in color, thick, and hard. Between the deep fissures the bark is in flat ridges.

### **Flowers:**

In early spring before the leaves appear, male and female flowers are borne on different trees. The male catkins are 1½ to 2½ inches long. The female catkins, when mature, reach 4 to 5 inches in length. (See figure D.)

### **Fruit:**

A small capsule which holds the tiny, dark brown seeds. The seeds are surrounded by a mat of long white hairs. Seeds are readily carried by wind and water. The fruit usually ripens 1 month to 6 weeks after flowering. Over 3,000,000 seeds are required to make a pound. (See figure C.)

### **Uses:**

Bigtooth aspen is one of 30 species of medium-sized, rapid-growing poplars. They are short-lived, deciduous trees. This tree usually grows to a height of 30 to 40 feet, but it may reach 70 feet and have a diameter of 2 feet at the base.

The wood is soft and not durable unless treated with certain chemicals. It is used for pulpwood, box boards, and match sticks. #

—Austin N. Lentz, *Extension Specialist in Farm Forestry*  
*Drawings by Aline Hansens*

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*Bigtooth aspen is utilized for food by deer, rabbits, beaver, porcupines, grouse, and many other species of wildlife.*

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*If you are in the process of refinishing your boat for the season, don't neglect to repaint the registration number. Separate letters from numbers and make sure the solid part of your letters shows plenty of contrast with the color of the hull.*

local police officials in conservation laws, and consulting with local officials on matters pertaining to conservation laws and hunter safety. He is called on frequently for technical advice in fish and wildlife management and often finds himself implementing many diverse conservation programs with both youth and adult groups. He has become increasingly involved with exotic species of wildlife, endeavoring to implement new federal and state laws relating to the transportation and possession of species classified as rare or endangered and those species representing disease threats to our indigenous wildlife and domestic animals as well as to humans.

Administrative efforts are being made to relate this "new role" of the conservation officer to an updated job specification, thus, professionalizing the position under state civil service requirements. Law enforcement will always be the first concern of the conservation officer. On the other hand, the reasons behind the law, and the public concern and need for a better environment must be integrally related to the conservation officer's role both now and in the future. Without this new concept, our conservation law and law enforcement programs will have little meaning. #

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### **Kenneth Werkman Joins Division as Consultant**

Kenneth Werkman, a licensed professional engineer, has started work for the New Jersey Division of Fish, Game, and Shell Fisheries as a part-time, civil engineering consultant, a first for the Division.

Through his professional training and broad background in New Jersey conservation and engineering projects, Werkman will provide the engineering input to help the Division with land and water development projects, land surveys, access site design and development, re-vamping of the fish hatchery, and other important engineering projects on state fish and wildlife management areas.

Werkman graduated from the University of Virginia in 1934 with a degree in civil engineering. He started to work for the U.S. Soil Conservation Service in 1936 and was employed by the federal government continually until he retired in July of 1970. For 18 years Werkman was responsible for all S.C.S. engineering in New Jersey. During this time he served two seven-month periods in Washington, D.C. on the Investigations Staff on the House Appropriations Committee on Corps of Engineer projects in Missouri and the proposed Tocks Island Project here in New Jersey. #

# Black River Tract

In March 1964, the State Green Acres Program acquired 2,186 acres and turned this area, known as Black River, over to the Division for administration.

The area is managed primarily for upland game species by planting of annual food patches and hedgerows.

## Office

The office and headquarters complex is located on North Road, Route #513, 2 miles northeast of Chester. Equipment storage buildings, maintenance shop, deer enclosure, and employee residences form the complex.

## Parking

Parking is permitted only in designated areas; roadside parking is prohibited by Chester Township. Four parking areas are now available, with additional areas planned as the need arises.

## Upland Game

Numerous management activities, including hedgerow planting and maintenance, annual and perennial plantings, are oriented toward the production of upland game species. Cottontail rabbit, ruffed grouse, gray squirrel, and woodcock are common. A good native pheasant population is supplemented with substantial numbers of penreared birds liberated during the open season.

## Deer

Deer hunting opportunities are excellent. Bow hunters especially find the area well adapted to their sport, as harvest records indicate. Firearm hunters annually harvest several good bucks.

## Waterfowl











Limited waterfowl hunting is available during the early portion of the season. Wood duck is the principal species available, followed by black and mallard. Some good pass and jump shooting can be found along the six-mile section of the Black River which flows through the tract.

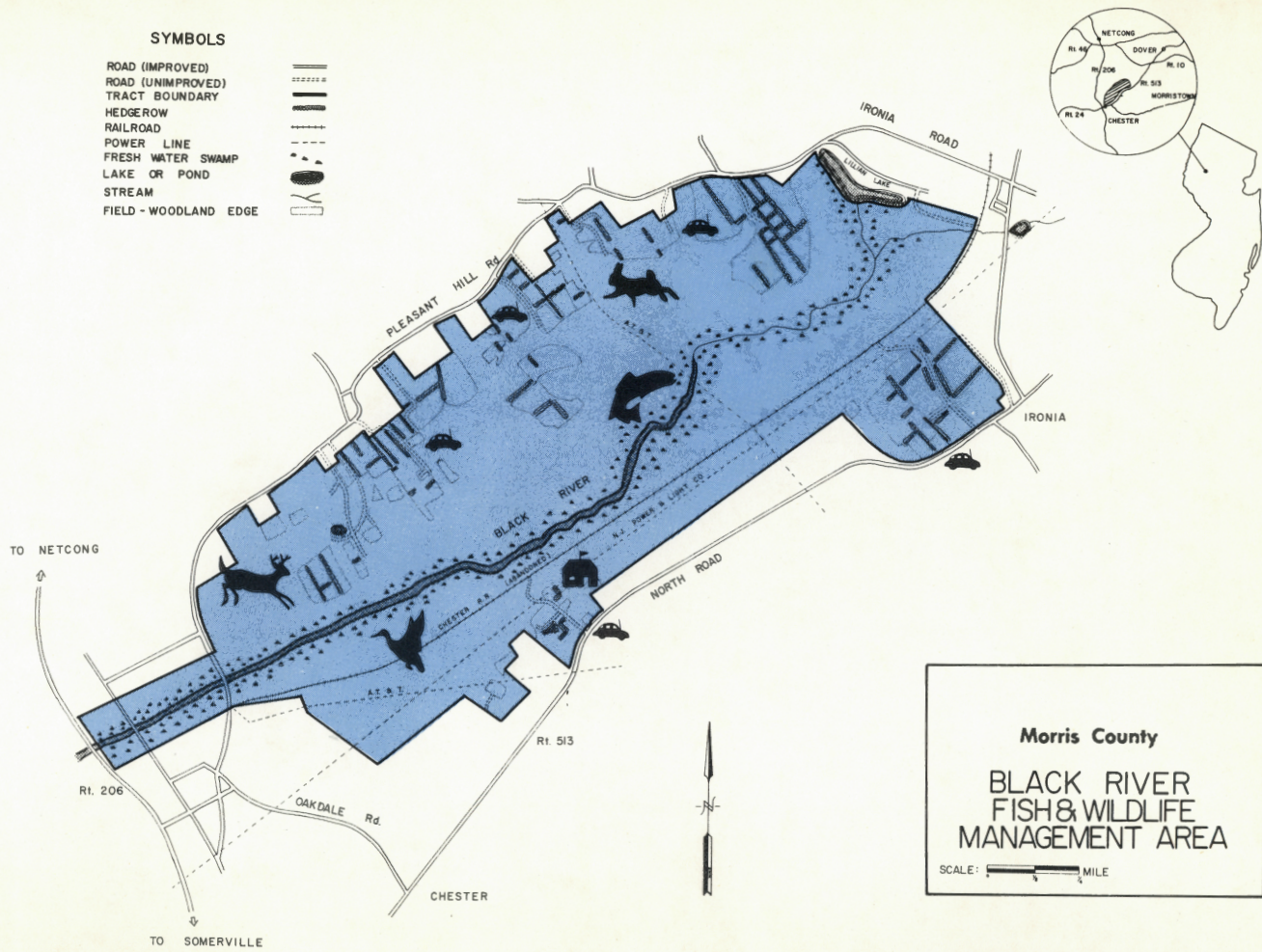
## Fishing

Fishing opportunities are limited, with some bass and panfish to be found in the small ponds interspersed throughout the area. Trout are stocked in the Black River, approximately 2 miles west of the tract's southwestern boundary.

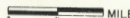
This area is maintained and supported by the sportsmen's license money. #

**SYMBOLS**

- ROAD (IMPROVED) 
- ROAD (UNIMPROVED) 
- TRACT BOUNDARY 
- HEDGEROW 
- RAILROAD 
- POWER LINE 
- FRESH WATER SWAMP 
- LAKE OR POND 
- STREAM 
- FIELD - WOODLAND EDGE 



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**BLACK RIVER**  
**FISH & WILDLIFE**  
**MANAGEMENT AREA**

SCALE:  MILE



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