New Jersey Outdoors

September, 1972

A Deer Is . . .

By Robert McDowell,
Public Information Assistant

A deer is . . . beautiful, alert, shy, graceful, a trophy, wary, gentle, sleek, fast, agile, delicate, delicious, cute, cuddly, soft, helpless, canny, spirited, a pest, wild, fleet, lovable, timid, and last but not least, a product of its environment. This last fact is the most important regardless of our views of the preceding descriptive words.

As a product of the environment the deer reflects the quality of the environment. This is quite similar to any product of industry; the product reflects the quality of materials and workmanship put into its manufacture. Deer reflect the quality and quantity of their food, the available cover, and the management, or workmanship, employed. Unlike any industrial product, however, deer are capable of destroying the life-giving factor, their habitat.

In practicing good deer management, we have three choices of action. First, we can allow the deer population to grow. This can only be done if the deer are in an area where the habitat can support greater numbers. We can determine this by looking at the product, the deer. If we find an area where the deer are large for their age, the reproduction rate is high and the bucks have large antlers for their age, we could allow the herd to increase by having the regular firearm season and a limited antlerless harvest.

A second course of action would be to allow the herd to remain stable. This can only be done if the deer are in good condition, the reproduction rate is normal, the antler development is good, and the number of deer is at the maximum the habitat can support for a long period of time. Stability can be accomplished by the annual firearm buck season and a permit season designed to harvest a number of deer equal to the normal number of fawns added to the population, each year, through reproduction.

Our third management choice is to reduce the number of deer. This would only be done if the deer were in poor condition, the reproduction rate was low, the antler development was poor, and overbrowsing and starvation were evident in the deer habitat. A reduction can be accomplished by the normal firearm season and a liberal antlerless season.

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New Jersey Outdoors

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The White-tailed Deer in New Jersey - 1972

At the Crossroads

By George P. Howard,
Assistant Chief, *Bureau of Wildlife Management*

Introduction

In reviewing facts relative to New Jersey's deer population and ranges, it is readily apparent that in 1972 New Jersey stands at the crossroads as far as the future of the New Jersey deer herd is concerned. We face problems which, if not solved in the next few years, could relegate deer once again to the curiosity they were in the early 1900's. On the other hand, if properly managed, deer will remain as a viable part of the New Jersey environment for years to come. The choice is ours and, in order to present this story to New Jersey citizens, it is planned to publish a series of four articles concerning New Jersey deer in the remaining 1972 issues of *New Jersey Outdoors.*

The following is the first of these articles and will deal with a brief history of the New Jersey deer herd from 1900 to the present; the herd as it exists today, and the problems facing deer management in New Jersey in 1972. In the October issue a detailed explanation of deer biology as it applies to deer everywhere, plus an explanation of biological and range conditions specific to New Jersey will be presented. The third article will appear in the November issue and will deal primarily with New Jersey's expanding deer research project. Facts related to New Jersey deer and deer ranges as well as future research needs will be discussed. The December issue will outline New Jersey's deer management program as it presently exists. It will contain a detailed explanation of New Jersey's deer regions, policies and annual harvest potentials as well as the predictable future of the deer resource in the various sections of the state.

←— *A New Jersey white-tailed deer photographed by Paul D. McLain*

. . . *Deer*

New Jersey's only big game animal, the white-tailed deer, is many things to many people. To the *sportsman,* he is a highly desirable trophy and one of our most precious wildlife resources. He is one of the last remaining representatives of the "good old days," an inspiration as well as a challenge. To the *farmer,* he may be a serious pest which, without proper management, can destroy crops at an alarming rate and in extreme circumstances be the difference between the success or failure of the entire farming operation. To the *preservationist,* usually unaware of the deer's ability to destroy its own range through overpopulation thus destroying the species itself, he is a thing of beauty whose right to live must be preserved at all costs. To the *rural landowner,* deer may be a joy to behold in the spring, summer, and fall months as they romp and feed during pleasant twilight hours. They soon become a source of real irritation, or worse, during the late winter when ornamental trees and shrubs are sometimes heavily browsed and even destroyed by marauding bands of hungry deer. To the *automobile driver* traveling on most highways through the state, deer are an ever-present hazard which, in an instant, can cause extensive damage to vehicles and people as the

To the automobile driver deer can be a hazard

result of all-too-frequent deer-auto collisions. (Over 5,000 annually in recent years.) To the *city dweller,* deer are a thing of beauty and a source of enjoyment whether observed on television, in a roadside park, or occasionally glimpsed in the wild on auto trips through rural areas. Finally, to the *wildlife manager* in New Jersey deer are truly an enigma. In New Jersey they are his only big game animal and the animal most familiar to the general public. Deer are one species which offers the problem of too many animals for the range to support, rather than too few as is the case with most animals he manages.

Deer possess the ability to exist and even thrive in the face of seemingly overwhelming odds. It is hard to comprehend the fact that in 1972, New Jersey can boast a fall deer population of approximately 75,000 animals and support an annual legal harvest of 10,000. This in the face of an estimated loss of at least 5,000 deer annually to deer-car collisions alone, plus unknown numbers to illegal poaching activities, mowing machines, disease, and other mortality factors. Rationalize a deer herd of 75,000 animals existing in the most densely populated state in the union; a state boasting (?) a human population of more than 900 people per square mile in 1970. A state which in 1900 supported practically no deer and today produces an annual legal archery harvest of 1,500 deer which is second only to Pennsylvania among the eastern states and second to none on a square mile basis. A state in which the recent annual harvests of 8-10,000 animals must be increased in the near future if deer are to be prevented from completely destroying their habitat.

In the early 1900's deer herds as we know them today were nonexistent in New Jersey. Our deer population consisted of a few family groups of whitetails scattered throughout the pine oak woodlands of South Jersey. During the period 1900 to 1915 an effort was made by the then Board of Fish and Game Commissioners (the forerunner to our present Fish and Game Council) to increase deer populations state-wide by the strict enforcement of regulations pertaining to deer, together with the reintroduction of deer in various sections of the state. Deer were purchased from Pennsylvania and Michigan, as well as from private deer preserves in New Jersey, and released in suitable habitat. The fact that habitat conditions at that time were highly favorable and could support a much greater deer herd, plus the effects of an expanded law enforcement effort resulted in a rapidly increasing deer population which probably reached the carrying capacity of the deer range as early as 1935 in certain areas of the state (the central pines area of Ocean and Burlington Counties).

The first deer season in modern times in New Jersey was author-

ized in 1909 and 86 buck deer were reported harvested. Deer damage to agricultural crops was noted as early as 1912, and in 1917 a law was passed whereby permits to kill deer could be issued to farmers suffering crop damage.

The first state-wide antlerless deer season was held in 1915 with the second not taking place until 1961—46 years later.

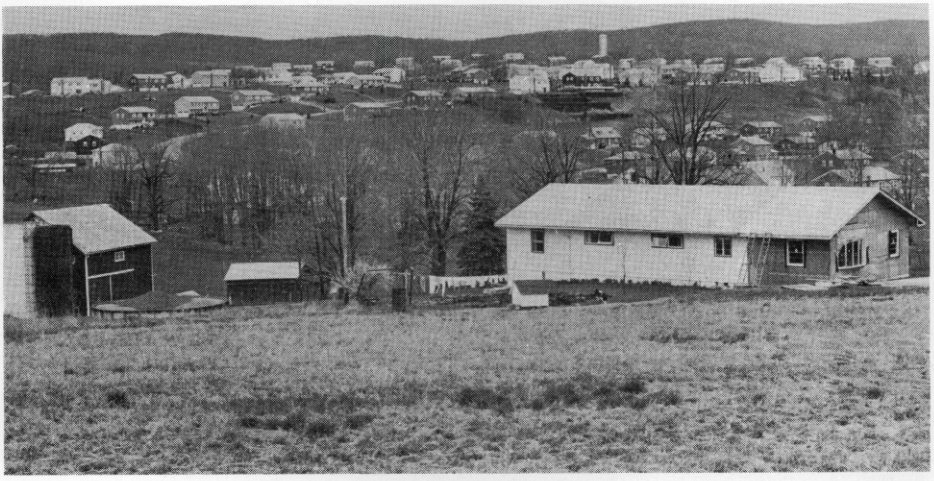
In order to understand the capacity of New Jersey deer to reproduce and expand their population providing habitat conditions are favorable, one has only to examine deer harvest records for certain counties during the period of rapidly expanding deer populations. During a time interval of 8 years, (1919 to 1926) the reported deer harvest in Ocean County increased from 76 to 460 deer (490 percent or 61 percent annually). Burlington reported a harvest increase for this same period from 77 to 627 animals or 710 percent (88 percent per year). Once the carrying capacity of the range for deer had been reached in these areas, population fluctuations occurred annually in direct relation to changing habitat conditions (acorn production, weather, frequency of wildfires, loss of range, etc.). The reported harvest for Burlington was 413 in 1927, 528 in 1930, 338 in 1932 and 709 in 1934. Similar fluctuations are recorded for other counties. Deer herds in other sections of the state reacted similarly to favorable conditions but at different time intervals. Atlantic and Cumberland Counties were the leading deer producers prior to 1919. Hunterdon County's harvest increased 820 percent (74 percent per year) from 111 bucks in 1946 to a peak of 1,025 bucks in 1957, an increase of 914 deer in just 11 years. The deer herd in Salem County today is experiencing a similar increase. The reported harvest for Salem increased from 29 to 139 in a period of 9 years (1963 to 1971) or 380 percent (42 percent per year).

New Jersey's first state-wide harvest of antlerless as well as antlered deer since 1915 took place in 1961 with a total of 12,406 deer being reported harvested during all seasons that year. The 1961 antlerless season harvest totals were 6,070 ranging from a high of 1,891 in Hunterdon, and 327 in Burlington, to a low of 2 in Salem. Deer harvest data indicates record firearm season buck kills were recorded in certain counties in 1963, two years after the 1961 season. Atlantic with 545 and Burlington with 856 were among the counties setting buck records in 1963. In the past five years, New Jersey's reported deer harvests have fluctuated between 7,545 and 9,943 depending upon the incidence and extent of antlerless seasons taking place.

With a few exceptions, Salem County and portions of a few others, practically all deer habitat in New Jersey is presently supporting

a deer herd either at or in excess of carrying capacity. In many areas this condition has existed for quite some time and is the direct cause of deer range problems presently being experienced in these areas. Whereas the deer herds in some areas of southern New Jersey reached the carrying capacity of the range as early as 1935, most of the state experienced this condition somewhat later, in the late 1950's in much of North Jersey.

Any effort to list problems important to the future of the deer resource of New Jersey must be headed by the ever-increasing loss of habitat taking place. However, there are also other problems which, if not handled properly, could also result in the loss of this valuable resource. It has often been said that the problem is not "deer management" but rather "people management." This is certainly the case in New Jersey. The actual



Former deer range lost to housing developments

Further complicating the picture of deer-habitat relationships is the problem of the extensive loss of deer range which has been occuring in recent years in certain sections of the state. The fact that Somerset County has lost 39 percent of its deer producing area to housing developments and industrial expansion since 1958, must certainly be considered when one attempts to evaluate deer management in that county.

encroachment of people and their houses, gardens, plants, pets, automobiles, and other possessions into the deer range itself is probably the first problem. Not far behind is the attitudes of people toward deer and the effects of these attitudes on the deer management program.

The misguided zeal of some protectionist groups assisted in some cases by the "sportsmen" themselves, have prevented deer harv-

ests aimed at maintaining deer populations at a level compatible with habitat conditions. Over-browsed deer ranges as those found on the Great Swamp National Wildlife Refuge in Morris County are a direct result of deer management based upon emotional rather than biological factors. These over-browsed ranges are deteriorating rapidly under the pressure of too many animals and will suffer irreparable damage as far as deer are concerned if a brake is not placed on the deer populations.

The loss of farming activity to the economics of taxes and development profits is another factor having a detrimental effect on deer populations in certain sections of the state. In many farming areas of New Jersey, deer populations too large for the habitat to support have subsisted for years on the surplus farm crops left in the fields each fall. In many of these areas corn and alfalfa are the principal foods of deer during most of the year. These deer are big and fat, reproduction is excellent, and populations are at a high level. With the curtailment of farming operations in these areas, deer populations invariably suffer a crash decline, with existing wooded areas, long over-browsed by too many deer, unable to support but a fraction of the population which formerly thrived when farming added to the carrying capacity of the range.

The ever increasing forested areas of the state, which in recent years have experienced a decrease in the number of acres harvested annually, together with a large increase in the acreage of pole sized timber present, are experiencing a declining carrying capacity for deer in many sections. The Kitta-

Over-browsed deer range on the Great Swamp National Wildlife Refuge in Morris County. Note the definite browse line

Author Howard with New Jersey deer that died of starvation

tinny Ridge area of Northwest Jersey is presently carrying only a fraction of the deer formerly present due primarily to the forest having grown out of the reach of the deer.

Deer have to eat to survive and must eat well if they are to remain healthy and multiply their numbers. When browse becomes unavailable deer must and will go. The present protectionists' attitude exhibited by a portion of the public which attempts to prevent any timber harvesting in our forests, and which fails to appreciate the fact that deer only feed to a height of about five feet or so, has also been a factor mitigating against deer populations in some areas.

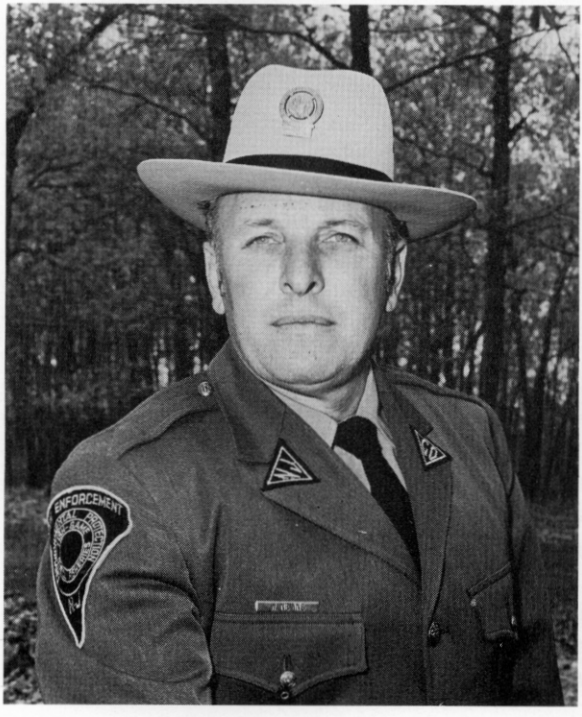
When one evaluates the present status of the New Jersey deer herd and tries to determine future trends, it soon becomes apparent that, short of a condition whereby New Jersey would become concrete and asphalt from the Delaware to the Atlantic, the situation concerning the deer resource need not be at all discouraging. The main thing we have going for us is the deer themselves, and their ability to survive and thrive under conditions which would eliminate most wildlife species. The fact that large forested areas of the state are now in public ownership guarantees potential deer range for the future, and although we are losing approximately 45 square miles of potential deer range annually to housing and development, the total forested acreage present in New Jersey is increasing each year. What we do, or allow to be done, to our deer range will determine future deer populations. If we continue to allow too many deer to destroy their environment, we will hasten the day when deer once again become merely a curiosity. The expertise to properly manage deer for the benefit of all of New Jersey citizens is presently available. What we must have if deer are to survive the increasing pressures being forced upon them by an ever-expanding human population, is the acceptance by the public of deer management based upon biological facts. #

New Jersey's New Look for the

Hunter Safety Course

By George M. Aber *and* William D. Nevins,
Hunter Safety Coordinators

New Jersey has been involved with the Hunter Safety Training program since 1954 and with the Bow and Arrow Safety Course since 1958. The Division of Fish, Game, and Shell Fisheries has followed the training procedures recommended by the National Rifle Association and has used the Instructor's Guide and Student Manual in all hunter safety courses. All manual and other material such as student report forms, class registration, and progress report forms have been provided by the National Rifle Association at a nominal fee. Various visual aids, wall and easel types, have been made available from the National Rifle Association and from some of the arms and ammunition manufacturers. In addition, some re-



Conservation Officer William D. Nevins, Hunter Safety Coordinator for South Jersey Districts 3 and 4

sourceful instructors have designed training aids useful in teaching firearm nomenclature and functions in addition to preparing mock-ups of blown-up shotguns and rifles demonstrating the wrong loads and improper safety procedures.

The minimum training requirements recommended by the National Rifle Association with regard to firearm safety has been four hours; covering the subjects of firearm equipment nomenclature and function, proper gun handling, shooting form, actual firing of .22 calibre rifle and shotgun, followed by a lecture of the hunter's responsibilities and a final examination. The minimum training requirements for the Bow and Arrow Safety Course are comparable with those of the firearm course.

In both instances, it has been suggested that the course be conducted in two separate sessions to give the student time to study the NRA Safety Handbook well in advance of the examination.

It was recommended that the course be conducted in locations where serious classroom atmosphere could be maintained, in addition to having range or shooting facilities available. In many instances, hunting club meeting rooms and trap and target ranges have been used with great success.

Conservation Officer George M. Aber, Hunter Safety Coordiator for North Jersey Districts 1 and 2

. . . *Hunter Safety*

Usually club members formed groups of instructors from within their ranks to conduct the courses at the club grounds. Courses held at this type of facility usually succeeded in providing conditions conducive to introducing the students to safety. Many of the dedicated volunteer instructors have conducted the course for smaller groups of students in their own homes. In both instances where either the individual or groups of instructors conducted the course, the degree of success was dependent upon the ability of the instructors themselves.

Experience indicated that group instruction based on the NRA—suggested 12 students per instructor, has provided the best over-all condition. In some areas where the course was conducted by an individual instructor, much of the subject matter was rapidly dispensed and little, if any, actual handling and firing of the firearm was experienced by the students.

A time consuming but necessary part of the course is the registration period. Where there were large groups, valuable training time was expended in registering students. This is a brief history of hunter safety in New Jersey and we feel that the safety course has served its purpose in helping to reduce the number of hunting accidents.

The demands of the present and future will continue to grow. With our increasing population and diminishing open hunting lands constantly changing field conditions, a great change in the hunter training program is needed. Therefore, we feel the following plan will help us toward that end:

The objectives of the State Coordinators is to coordinate the activities of the instructors with the requirements set forth in the law and to satisfy the needs and convenience of the public. After having studied the present procedures to determine what should be changed or be retained, we have begun to organize a standard course of firearm and bow and arrow instruction. We would first attempt to eliminate courses conducted by individual instructors. Many individual instructors conduct excellent courses. But, some enroll too many students per class, have inadequate classroom and range facilities and have few, if any training aids. No classroom atmosphere is created and little actual firing done.

Secondly, we would establish instructors groups with a recommendation of a minimum of five men per group. The pooling of talented instructors should assist in upgrading the course in addition to giving better and closer control of the student body. Children between the ages of 10 to 14 become impatient and unruly and discipline must be maintained, particularly during actual firing exercises.

With the assistance and cooper-

ation of the Public Relations Section, sets of slides are in preparation to cover each of the subjects provided in the revised hunter safety course. Therefore, the efficiency of the instructor will be greatly enhanced by the use of adequate visual aids and eliminate the need of transporting cumbersome training aids.

It will be necessary from time to time to up-date the course material and training aids to keep pace with changing times and conditions.

We should provide an adequate shotgun familiarization course. Instructor's who certify young students without first having given considerable actual range exercises (that is the physical handling and firing of the gun used) have failed in their responsibility to the student.

We do not yet know how much time will be consumed within the two 2½-hour sessions in the actual firing of the guns. Only time and experience will determine this. Our hunter safety workshop should provide the knowledge to make this determination.

Hunter safety instructions will be available to the public 12 months of the year. Presently, hunter safety courses are available in most counties approximately three months of the year: September, October, and November. This is one of the busiest seasons for the conservation officers who in the past have had to give up field

and enforcement time to deliver hunter safety supplies and check with instructors and classes.

Most instructors are hunters and this added season workload imposes on their time to enjoy hunting. Establishing year-round courses by pre-registering classes will assist in evenly distributing the workload not only of the conservation officers but the instructors as well. Class size can also be controlled by pre-registration and kept within the abilities of the instructors available. More individual student attention can be provided. This procedure should assist in avoiding last minute rush problems especially if more public information is issued advising of the course availability. Providing the course on a 12-month basis should eventually reduce the total number of

training centers needed. Consolidating these centers will provide training areas with optimum facilities.

An attempt will be made to make the course material more meaningful by providing subject matter to better acquaint the student with Division policies. Five hours of instructions should cover several other subjects such as: an introduction to the workings of the Fish, Game, and Shell Fisheries Division, including a brief resume of each bureau function with emphasis on hunting ethics and responsibility. A brief course of first aid, wildlife identification, and an introduction to wildlife management.

We would like to point out that the revised hunter safety project is greatly expanded and more pertinent. We are stressing the importance of the hunter and sportsman creating a better personal image. Today when anti-hunting and anti-firearm factions are so prevalent we must work together to make this program a success to perpetuate our right to continue the recreation of hunting. #

$24,300,000 Distributed to States

for Wildlife Restoration and Hunter Safety

Distribution of $24,300,000 in Federal Aid funds to the states for wildlife restoration and hunter safety programs has been announced by the Department of the Interior.

Of the total, $22,100,000 was distributed according to a formula based on hunting license holders and the area of each state, and may be used on approved state wildlife projects which include acquisition of land suitable for habitat, development and manipulation of habitat, and research to aid in managing game species.

The remaining $2,200,000 was distributed on the basis of state population and may be used for hunter safety programs, including construction, operation, and maintenance of public outdoor target ranges. The states, however, may use the total amount distributed for wildlife restoration projects.

New Jersey's share of the apportionment includes $154,191 for wildlife restoration and $66,000 for hunter safety for a total of $220,191.

Funds come from the 11 percent excise tax on sporting arms and ammunition and the 10 percent excise tax on pistols and revolvers. The funds are deposited into a special fund created by the Federal Aid in Wildlife Restoration Act of 1937 (Pittman-Robertson) and amended in 1970 to include the tax on pistols and revolvers. The distribution program is administered by Interior's Fish and Wildlife Service. #

Some questions and answers pertaining to

The New Jersey Deer Herd

and its management and future

By George P. Howard, Jr., *Assistant Chief, Bureau of Wildlife Management*
Robert C. Lund, *Senior Wildlife Biologist*
Rodgers Todd, *Assistant Wildlife Biologist*

1. What is the most important factor controlling the size of New Jersey's deer population?

   The quantity and quality of the habitat determine the size of the deer population. The incidence of good mast crops, logging operations, wild fires and farming activities all affect the size of the annual deer crop produced in New Jersey. Much deer habitat has been and is being lost through both the maturing of the forest and land development for industrial and residential purposes.

2. What are the principal threats to the deer population and the deer hunter in New Jersey?

   The primary threat to the New Jersey deer population is the loss of habitat presently taking place. The ever-increasing human population with its housing developments, industries, and highways, threatens the eventual elimination of deer from the New Jersey scene. The lack of any knowledge of deer biology and management exhibited by some misinformed organizations and individuals who have interfered with the proper management of the New Jersey deer herd is also a threat to deer populations of the future.

3. Is the deer herd in New Jersey increasing or decreasing and why?

   The deer herd in New Jersey is presently decreasing on a statewide basis due to habitat conditions, habitat losses and improper management in the past. However, there are some areas where deer populations have increased annually in recent years (Salem and southern Warren Counties). In many areas of the state the deer herd presently exceeds the carrying capacity of the range available.

4. How large is the annual road kill and what effect does it have on the total harvest?

   The annual known minimum road kill is over 3,000 animals, and field reports would indicate a kill of approximately 5,000 a year. These deer are a wasted resource which, if added to the

hunters bag, would be better utilized. A greater harvest of deer by the licensed sportsmen in some sections of the state would minimize this waste.

5. What is the Division of Fish, Game, and Shell Fisheries doing for deer and the deer hunter?

   The Division has purchased approximately 130,000 acres of land throughout the state, a large portion of which is excellent deer habitat. Many thousands of dollars are spent annually by the Division in the improvement of deer range. The Division conducts a statewide deer research program under the federal-aid-to-wildlife Pittman-Robertson Act. One of the primary aims of the deer project is to maximize deer populations and harvests in New Jersey, while at the same time insuring future deer populations.

6. Why does the Division recommend a permit system for the harvest of antlerless deer as opposed to some other system?

   The Division feels that the county quota permit system allows a greater degree of control and flexibility over the actual number of antlerless deer to be taken. Permits can be allocated to areas of need based on the size of local populations and the carrying capacity of the habitat.

7. Would not increasing the length of the buck season permit more bucks to be harvested and thus reduce pressure on the food supply?

   The number of antlered bucks comprises only a small portion of the total population (15 percent to 20 percent). Since bucks and does are born at approximately equal numbers and the annual production may be as high as 30-40 percent, population control can never be achieved with an "antlered buck only" season.

8. If populations and buck harvests are down in some areas due to habitat deterioration, why not improve the habitat and reduce or close the season?

   Improve the habitat, yes. But population control is necessary whether or not habitat improvement is accomplished. Population control must be carried out if the benefits of habitat improvement are not to be immediately lost to hungry mouths.

9. Have deer starved to death in New Jersey? Where and why? If deer are starving, why not feed them? How does starvation and malnutrition affect the deer herd?

   Yes, deer do starve in New Jersey. In recent years starved deer,

mostly fawns, have been located by deer project personnel in certain sections of Sussex, Warren, and Burlington Counties. It is also a fact that this condition exists in other areas where the deer populations exceed the food supply. Supplemental feeding treats a symptom (starving deer) not a cause (too many deer for available feed). Winter feeding merely aggravates the problem by concentrating deer and may lead to even greater losses. Starvation and malnutrition put a brake on deer populations through the actual loss of deer to starvation and the loss of reproductive potential through fetal loss, still births, and the loss of newborn fawns. Antler production is also affected by periods of starvation and the percentage of mature males having legal antlers is less in chronic starvation areas.

10. Why has the Division adopted a mandatory deer checking station system?

    The increasing public demands on the deer resource require tighter management programs and more precise information. Due to lack of compliance, the present system failed to reflect the actual annual hunter related mortality, threfore the mandatory system was inaugurated. The new system will also supply needed information relative to sex, age, and condition of deer throughout the state of New Jersey.

11. What is the purpose of the Division's deer tagging program? If I shoot or find an ear tagged deer, what should I do?

    The primary purpose of the Division's deer tagging program is to collect information relative to deer movements, range, and conditions. The value of wintering areas to certain deer populations can also be determined. Anyone coming across a tagged deer should notify the Trenton Office of the Division, giving name, address, date, location of recovery, tag numbers, together with the lower jaw of the animal.

12. Does fire destroy deer range?

    Yes and no! Some fires, such as slow burns, which burn the understory but not the canopy, destroy deer habitat. Hot fires may improve deer range by eliminating the overstory and setting back succession to early food producing stages.

13. How is the age of a deer determined and how is deer aging information used by the Division?

    Two methods are presently used to age New Jersey's deer:

    (1) The eruption and wear of the teeth of the lower jaw
    (2) Sectioning and staining of incisor teeth in order to count cementum layers.

Aging information is important in determining the number of young animals in the herd and the age structure of the population. This indicates whether or not a population is increasing, decreasing, or is stable. The data is used in setting seasons and permit quotas designed to keep deer populations in balance with food supplies.

14. Why is it necessary to have so many rules and regulations pertaining to deer in New Jersey?

    Too many people! More and more demands are being placed upon a resource which is dependent upon a shrinking land base. With increasing demands, more stringent regulations are necessary in order to provide not only a proper an equitable harvest but also deer for the non-consumptive user.

15. What is the sportsmen's role in deer management? What can I do to assist in New Jersey's management program?

    One of the principal ways in which sportsmen can assure the future of the deer herd is to obey the regulations in effect relative to deer and deer hunting. The reporting of deer violations to the proper authorities is becoming an ever-more important facet of sportsmen-state relations. Providing information and material requested by deer research biologists is another area in which the sportsmen can aid in proper deer management in New Jersey.

16. What is the estimated population of deer in New Jersey?

    The estimated 1972 fall population of deer in New Jersey will be approximately 75,000 animals. The annual loss of deer to all causes in the state is estimated to be 25,000 providing a breeding population of 50,000 animals in the spring of 1973. However, deer are not evenly distributed throughout the state and approximately ⅓ of the deer population is presently located in the northern counties of Hunterdon, Warren, and Sussex.

17. What is the future of deer hunting in New Jersey.

    With an ever-increasing human population making more and more demands on the habitat, it is probably true that in the not-too-distant future, deer hunting as we know it today will become merely a memory throughout much of the state. Management programs including hunting will become much more restrictive and highly regulated. However the present trends need not continue unabated. The choice is yours. Which is most important to you. Will it be farms, a housing development, forests, or factories. It's up to you. #

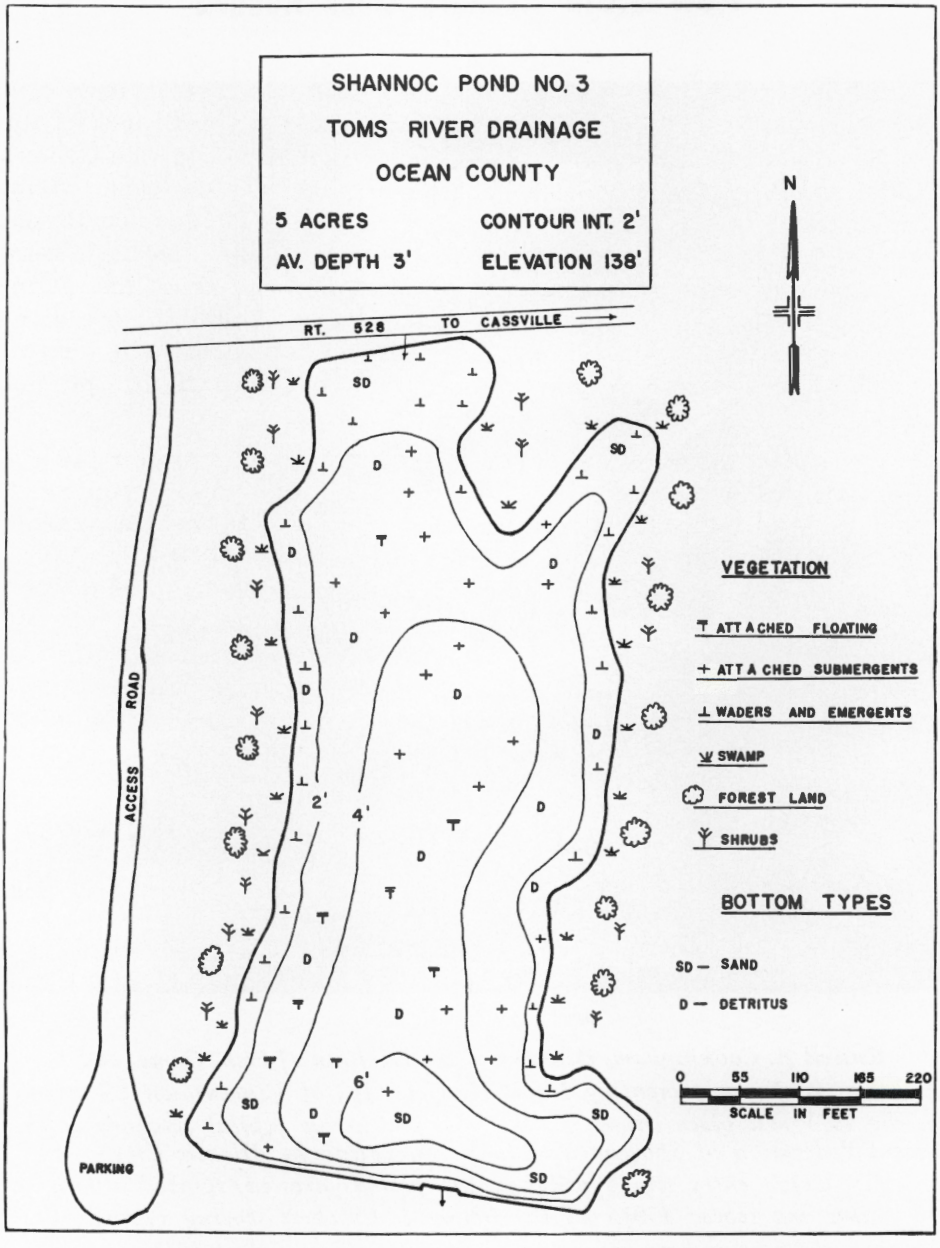
Award presented for

New State Archery Deer Record

Russell A. Cookingham, Director of the Division of Fish, Game, and Shell Fisheries is shown presenting Lewis H. Uetz, Jr., of Vincentown his award as the 1971 first place winner in the bow and arrow typical category at the recent Federation of Sportsmen's Club's convention in Atlantic City.

Mr. Uetz's entry which weighed 195 pounds dressed, sported a rack of 13 points and scored 150¼ by the Boone & Crockett scoring system. This becomes the new archery record surpassing the old record of 141⅞.

This program is an annual affair sponsored jointly by the Federation of Sportsmen's Club and the Division of Fish, Game, and Shell Fisheries


SHANNOC POND NO. 3
TOMS RIVER DRAINAGE
OCEAN COUNTY
5 ACRES
CONTOUR INT. 2'
AV. DEPTH 3'
ELEVATION 138'
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RT. 528 TO CASSVILLE
ACCESS ROAD
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WADERS AND EMERGENTS
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Shannoc Pond #3

Ocean County

Shannoc Pond #3 was the third and largest of three ponds constructed primarily to serve as waterfowl habitat by personnel of the Division of Fish, Game, and Shell Fisheries in 1942 on the Colliers Mills Tract, a state owned Public Wildlife Management Area. The lakes were formed by impounding the waters of Shannoc Brook, a small tributary of Toms River. The waters forming these lakes were impounded by raising the height of existing dikes and dams, and permanently flooding former cranberry bogs. During a hurricane the dikes were broken and for several years the ponds remained partially drained. In 1964 the dike on this lake was repaired thus forming the present impoundment.

The Division has been monitoring limnological conditions and the developing fish population since 1965 to develop information upon which to base a sound fisheries management program. The eastern chain pickerel is the principal game fish and management objectives have been oriented toward this desirable species. The management procedure that appears worthwhile is partial aquatic vegetation control. This will allow pickerel greater access to forage species and thus hopefully increase their average size, as well as rate of growth. In addition, these open areas will facilitate angling. At the same time care will be taken to maintain areas in vegetation since it is essential to pickerel production.

Location:

Approximately three miles west of Cassville, along highway 528.

Physical Features:

Area:	5 acres	Maximum depth:	6.5 feet
Elevation:	138 feet	Mean depth:	3 feet

Chemical Features:

Oxygen: sufficient to a depth of at least 3 feet at all times of year.
pH: Acid

Biological Features:

Vegetation: Extensive areas of attached submerged and floating (water lilies) aquatic vegetation cover approximately 75 percent of the pond.
Water Color: amber

Fish and Fishing:

E. chain pickerel: Seasonally fair but good during the early spring.

. . . *Shannoc Pond #3*

Growth rate is average when compared to similar waters in South Jersey. Fish in excess of 20 inches occasionally appear in anglers' catches.

Yellow bullhead: Excellent population available with a good proportion greater than seven inches in length.

Mud sunfish: Good population, but angling techniques generally ineffective.

The 14 species of fish present are as follows:

E. chain pickerel
Redfin pickerel
Pumpkinseed sunfish (extremely rare)
Mud sunfish
Sphagnum sunfish
Bluespotted sunfish
Pirate perch
Yellow bullhead
Madtom
Mudminnow
Creek chubsucker
Swamp darter
Golden shiner
American eel

Robert W. Stewart,
Bureau of Fisheries Management

BOWHUNTER'S CREED

As a BOWHUNTER it is my responsibility to:

Be active, by whatever means I can, in all Conservation Programs to protect game.

Observe and Obey, always, the hunting laws applicable to the areas in which I hunt.

Welcome constructive criticism and seek to better, however I can, my sport and my participation in it.

Help others develop an interest in the sport of Bowhunting.

Use the proper type of hunting equipment in a sensible and humane manner.

Never engage in a hunt, using broadhead arrows, unless the blades are SHARP.

Train myself to handle my weapon in the correct manner.

Exercise the utmost caution and follow the rules of safety at all times.

Respect, in a sportsmanlike manner, the rights, privileges and property of others.

Hackberry

(Celtis occidentalis)

Hackberry, sometimes called sugar-berry or false elm, thrives in rich moist soil. It is often found in fence rows, and it will grow on gravelly soils. This tree usually grows alone—not in a pure stand.

Range:

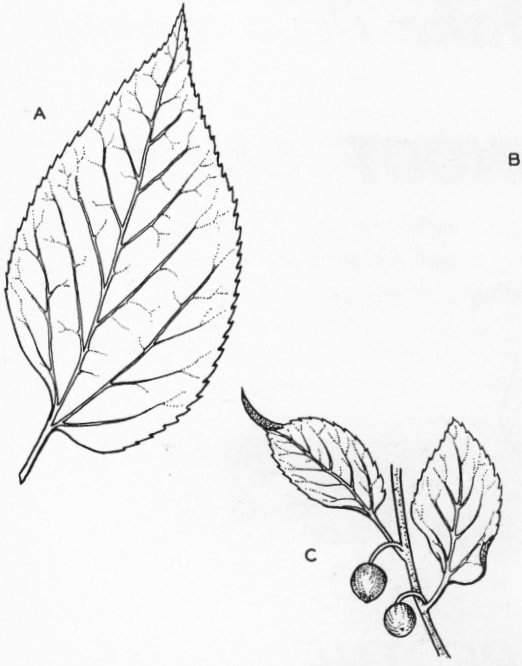
Covers most of the eastern half of the United States, except portions of New England and the Lake States and portions of the South Atlantic and Gulf States.

Leaves:

Deciduous, simple, alternate, 2 to 4 inches long, 1½ to 2 inches wide, sharply serrated with an accuminate apex and with a somewhat heart-shaped base. (See figure A.)

Twigs:

Slender, zigzag, shiny reddish-brown covered with raised lenticels.



Hackberry

A. Leaf

B. Twig, with buds

C. Fruit, on twig

(See figure B.) The twig has a chambered pith. The bark on older trees is grayish brown and smooth to rough and warty.

Flowers:

Appear with the leaves in spring. Greenish flowers are borne on

drooping stalks. Male, female, and sometimes perfect flowers occur on the same tree.

Fruit:

A berry-like, dark-purple drupe that ripens in the fall. The thin pulp of the fruit covers a single bony nutlet. The fruit is ¼ to ⅓ inch in diameter, and it is borne on a slender stalk. Sometimes it hangs on the twig until winter. (See figure C.)

Uses:

Hackberry is a small tree; however, on river bottom sites, it may grow 70 feet tall and 18 inches in diameter. It is of little commercial importance. The wood resembles elm and is used for furniture and containers, such as boxes and baskets. The fruit is a favorite of birds, which give the seeds wide distribution. #

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

The Common Bittern

Species:

Common bittern—*Botaurus lentiginosus*

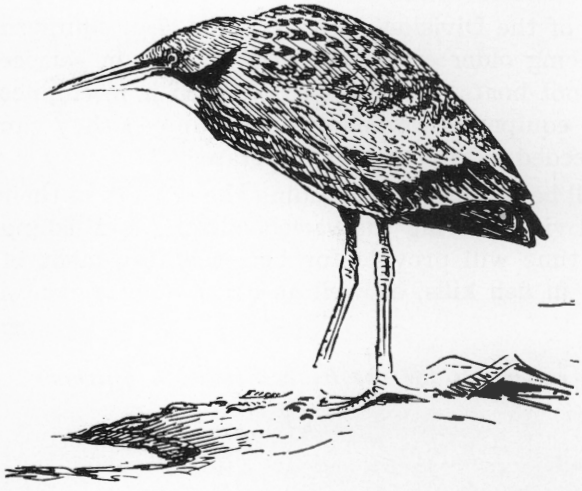
(Formerly known as the American bittern)

General Characteristics:

A medium-large (23-27 inches) brownish shore bird. Found skulking in marsh vegetation, but seldom seen in trees. When alarmed, it stands still with its sharp beak straight up, when it is easily mistaken for a post or a clump of vegetation. These birds are usually seen singly, never in a flock.

Range:

Breeds in marshes and edges of wetlands throughout northern United States and southern Canada. Winters south of New Jersey



The common bittern is a stocky brown bird with a black neck mark. Characteristically, when it is standing still, it holds its bill pointing up toward the sky

to Panama, but occasionally some try to remain in the Garden State over winter, only to perish in severe weather.

Life History:

This "stump-pumper," so-called because of its curious call which sounds like a post being driven into the mud, is a shy bird. It feeds on various animal life, such as fish, frogs, meadow mice, eels crayfish, lizards, and insects, but little, if any, vegetation. Its method of feeding is to remain quiet, or move very stealthily along the

edge of a marsh or waterway, and spear unsuspecting prey with a quick thrust of its long, sharp, powerful beak. The female usually lays 4 or 5 eggs (range 3-7) which are placed on a flimsy mat of vegetation, usually only a few inches above the water level, and hidden in old cattails or other similar emergent vegetative growth. The eggs hatch in about 28 days and the young remain in the nest for another two weeks or so. The parents bring food in a partially digested state, regurgitating material for each nestling.

This bird is completely dependent on the preservation of marshes and wetlands, as it is here that feeding and the rearing of young take place. The best management of this species is the protection and preservation of wetland areas throughout the state and the rest of this bird's range. #

Law Enforcement Notes

New Runabouts for Officers

Conservation Officers, of the Division, have recently been equipped with new runabouts, replacing older craft which have been in service many years. The new 18-foot boats are equipped with 85 h. p. engines and a full line of auxiliary equipment. Being trailer equipped they can be used by officers when needed in any area of the state.

The new equipment will be most useful in aiding the officers in their patrol and enforcement activities during the varied hunting and fishing seasons, and at the same time will provide for better enforcement of pollution matters resulting in fish kills, as well as other environmental violations. #

One of the new 18-foot runabouts for use by conservation officers

The Federal Aid Corner

Operation Flopper at Manahawkin

By Paul D. McLain,
Federal Aid Coordinator

Photographs by the Author

During the last week of June the Division's five newly employed Conservation Officers, Barksdale Bush, Steve Schuster, Earl Henderson, Robert Klaus, and Gary Sawhill who were undergoing an intensive eight-week inservice training program, assisted the waterfowl research biologists in a drive trapping and banding program for mallards, black ducks, teal and gadwall produced on the cooperative wildlife and mosquito control impoundments on the Manahawkin Fish and Wildlife Management Area.

Ocean County Mosquito Commission Director Frederick Lesser, set up a drive trap and catching cage with two long wire leads running out into the newly created 55-acre impoundment.

A helicopter inspection revealed about 150 young ducks living in the impoundment and feeding on the tremendous volume of aquatic insect life created through the scientific waterlevel control and management programs.

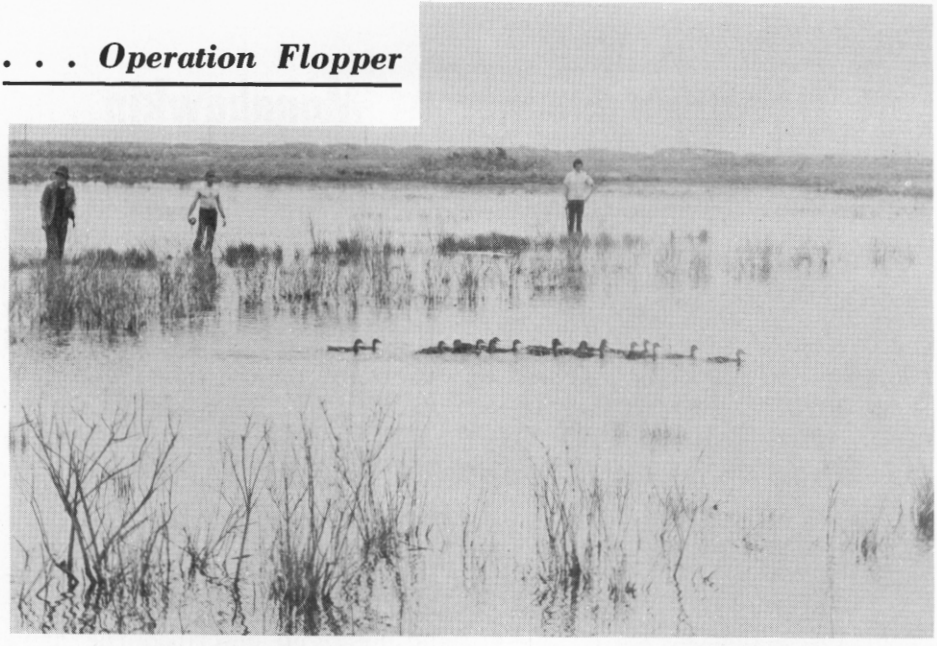
Fred Ferrigno, Division Federal Aid Waterfowl Research Project Leader, worked with Mr. Lesser in designing a driving technique employing the five new Conservation Officers. The group deployed along one edge of the impoundment to coordinate their driving with "spotters" on the dikes who kept the "drivers" lined up forcing the ducks to stay in the pond rather than jumping the dikes and escaping into the other flooded impoundments.

During the briefing in the Mosquito Commission's office Lesser and Ferrigno described the drive trapping technique which involved walking the flooded marsh and gently pushing the flightless ducks toward one end of the pond where the wire trap had been set up several days in advance. The secret was to keep the birds moving without stampeding them into diving and swimming back through the drivers.

The drive went off without a hitch. Over 50 flightless mallards and black ducks were carefully herded out of the heavy cover in the pond and into one corner where they walked single file into the waiting trap.

In less than an hour the birds were in the trap and in another hour 45 young ducks were banded and released. The new Conservation Officers learned to identify the various waterfowl species, sex and age the young birds, how to band

. . . Operation Flopper



Drive trapping of flightless waterfowl involves walking slowly through the marshland and impoundments and gently pushing the young birds toward a trap with wire leads

The cooperative mosquito control fish and wildlife management impoundments on the Manahawkin Wildlife Management Area produced over 200 young black ducks, mallards, teal, and gadwall in 1972. The newly created 50-acre impoundment provides a tremendous volume of aquatic insects on which the young ducks feed

The drive trap is set at one end of the impoundment and the flightless birds follow the lead wires and then walk single file into the trap. Over 45 young ducks were trapped and banded in the two-hour drive trapping operation

Fred Ferrigno, Waterfowl Project Leader, holds a young mallard as Fred Lesser attaches a band. Conservation Officers Steve Schuster and Gary Sawhill watch as Waterfowl Biologist Ferrigno explains the purpose of banding the flightless, locally reared waterfowl and what information can be expected from this banding

. . . *Operation Flopper*

and some of the information the state and federal governments expect to gather from this type of banding.

This particular operation represents one of the most successful bandings of locally produced wild ducks ever accomplished on the New Jersey tidal marsh.

Although the five new Conservation Officers were wet to the neck, and suffered a few scratches from the wire trap, they had a first hand opportunity to work with the wildlife and mosquito control biologists to learn about cooperative mosquito and wildlife management and see first hand some of the end results of the cooperative management. #

10 LITTLE HUNTERS

10 little hunters, feeling fit and fine . . .
One forgot his safety catch, and then there were 9.

9 little hunters, flirting with their fate . . .
One started clowning, and then there were 8.

8 little hunters, in a shooters' heaven . . .
One was "triggered" by a fence, and then there were 7.

7 little hunters, wise to feathered tricks . . .
One used a faulty gun, and then there were 6.

6 little hunters, glad to be alive . . .
One looked down a gun barrel, and then there were 5.

5 little hunters, skilled in woodland lore . . .
One took to drinking, and then there were 4.

4 little hunters, feeling mighty free . . .
One had an "empty" gun, and then there were 3.

3 little hunters, tramping through the dew . . .
One shot a shadow, and then there were 2.

2 little hunters, shooting on the run . . .
One tripped upon a rock, and then there was 1.

But 1 little hunter is still alive to tell
That following sound safety rules guards a hunter well.

—Isaac Walton League

. . . *A Deer Is* *Continued from Inside Front Cover*

Reduction of the deer herd is always a temporary objective with one of the other two choices being the final goal. A reduction in the deer herd may not mean a reduction in the deer harvest. It should eventually result in increased annual harvest since a reduction in the total numbers will mean more young bucks with legal antlers and an increase in the reproduction rate of the remaining does.

To increase, to stabilize, or to reduce, we have no other choices. A look at the deer produced by the various deer habitats of our state will tell us what management technique we must follow to practice the good workmanship necessary to produce a quality product.

As natural resource managers, hunters, or deer lovers, we must realize that the future of our deer population is dependent on our willingness to employ the management indicated by the deer.

A deer is—a natural resource and as such we are morally obligated to take the steps necessary to insure its perpetuation. #

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Guide to the

Peaslee Tract

Cumberland County

The Peaslee Fish and Wildlife Management Area is one of the largest in the state comprising over 13,000 acres of pine-oak woodlands and low-lands bordering the upper reaches of the Tuckahoe River in Cumberland County. This tract is located between Routes 522 and 49, about seven miles east of Millville. The eastern boundary is the Tuckahoe River.

Acquisition of the area was begun in October 1954. With the exception of 4,276 acres obtained through the Green Acres Program, the area was purchased with money from hunting and fishing license fees.

Upland Game

Developmental activities have resulted in the clearing of 20 fields, having a total of 150 acres of wildlife food and cover planting. Quail, cottontail rabbits, and grouse are common on the tract. Quail are stocked during the hunting season.

Deer

This tract attracts and holds a sizable deer herd throughout the year. The planting of wildlife food and cover crops has resulted in some of the best deer hunting, both archery and gun, to be found in the state.

Waterfowl

The old April cranberry bogs and the Tuckahoe River provide excellent wood duck and black duck shooting.

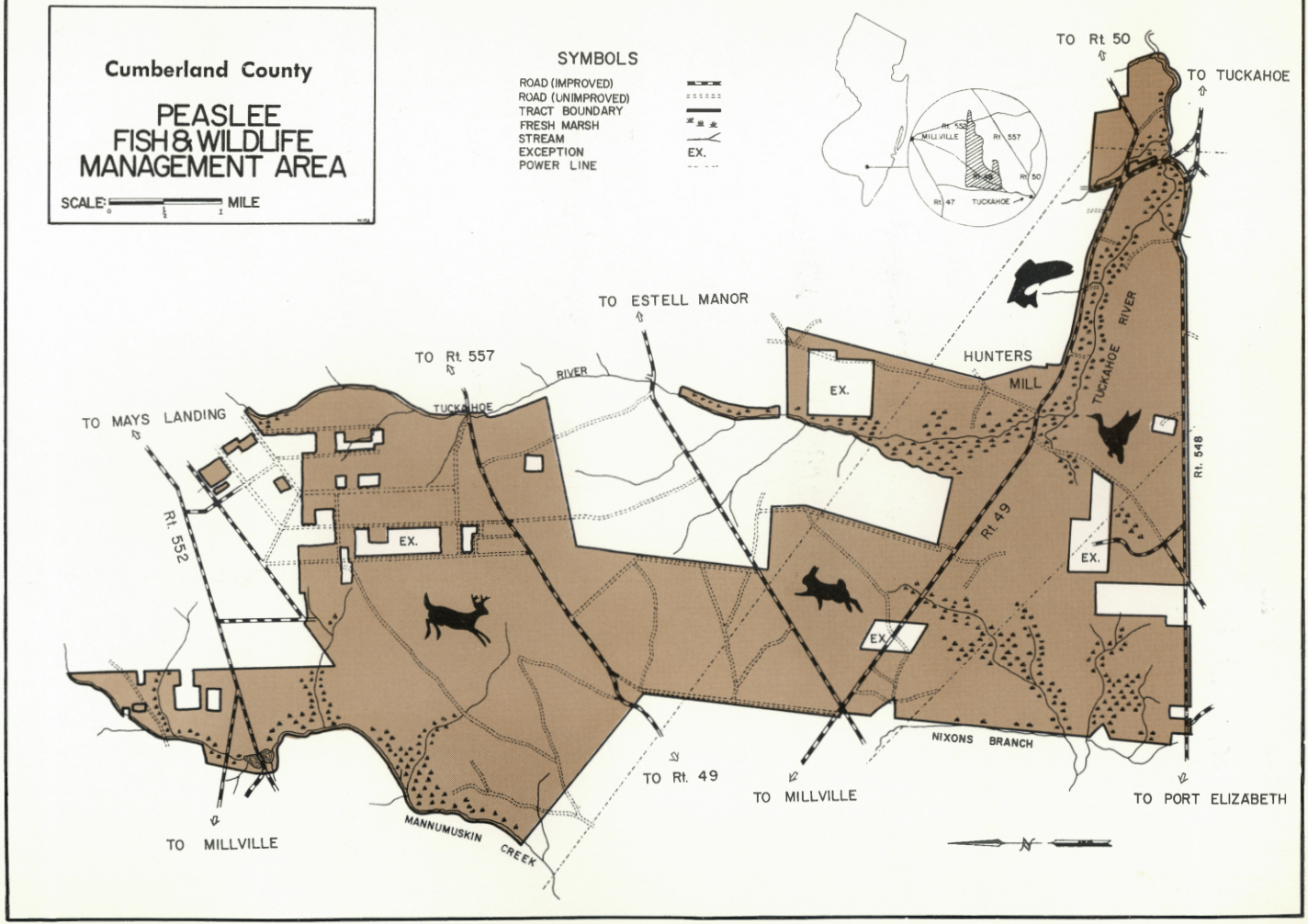
Fishing

There is presently a limited amount of fresh water fishing due to the loss of the Bennetts Mills and most of the April bogs. However, plans are underway to restore these impoundments and pickerel and bass fishing will be available.

Field Trial Course

On the Peaslee Tract the Division has cleared and planted a bird field trial course offering both hour and half hour heats. This course has been popular with the quail hunters who enjoy working their dogs on the native and stocked quail which utilize the plantings.

This area is being maintained by the Division for the licensed sportsmen of the state, although many citizens make use of it for other forms of outdoor recreation. Its program is financed by hunting and fishing license money of the sportsmen. #


Cumberland County
PEASLEE
FISH & WILDLIFE
MANAGEMENT AREA
SCALE: 0 ½ 1 MILE
SYMBOLS
ROAD (IMPROVED)
ROAD (UNIMPROVED)
TRACT BOUNDARY
FRESH MARSH
STREAM
EXCEPTION
POWER LINE
EX.
MILLVILLE
Rt. 552
Rt. 557
Rt. 49
Rt. 50
Rt. 47
TUCKAHOE
TO Rt. 50
TO TUCKAHOE
TO ESTELL MANOR
TO Rt. 557
TUCKAHOE RIVER
HUNTERS MILL
TUCKAHOE RIVER
Rt. 548
TO MAYS LANDING
Rt. 552
EX.
Rt. 49
EX.
EX.
NIXONS BRANCH
TO Rt. 49
TO MILLVILLE
TO PORT ELIZABETH
TO MILLVILLE
MANNUMUSKIN CREEK
N

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