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Wildlife and our changing environment

By Russell A. Cookingham, *Director*



The ecological niche that fish and wildlife species occupy, or fail to occupy, in our present day environment represents a clearly definable biological phenomenon. Modern fish and wildlife biologists understand why animal populations respond to environmental stresses or changes; they clearly relate wildlife productivity and distribution to land utilization. Furthermore, they can project future changes in animal populations through planned or anticipated changes in land use patterns.

Where the biologists have often failed is in their inability to transmit scientific knowledge to a concerned public, a public which sometimes confuses personal or emotional biases with biological facts. Even our well-educated youth of today are exposed to only a pittance of information pertaining to animal population dynamics, especially as it relates to productivity, population turnover, and the key role of habitat in the maintenance of wildlife resources.

Many people still think of wildlife management in terms of sanctuaries, predator control, artificial feeding, and housing, to name only a few easily definable popular programs. These so-called "welfare" programs, as a whole, are of little significance except in very specific situations and have rarely been responsible for the perpetuation of animal populations in their natural environment.

The maintenance, protection, enhancement, and acquisition of fish and wildlife habitat, coupled with regulations based on biological fact, spell the only real success story. The role of quality habitat to provide the year-round life history requirements of each species of fish, bird, or mammal can not be too strongly emphasized. Regulations, enforcement, and habitat management all are important tools used to maintain maximum wildlife populations in quality habitat. However, they play an insignificant role when applied to lands with limited wildlife production capabilities.

Our changing environment, resulting from society's ambitious, and sometimes questionable, social and economic ventures, requires imagina-

Continued on page 15

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In This Issue

Wildlife and Our
Changing Environment Inside Front Cover

Fly Fishing on the Flat Brook 2

Fly-Fishing-Only-Regulations 3

Know It All Fishermen 8

Record Fresh Water Shad 9

Fishing in New Jersey 10

Spinning Reels 11

Support for Earth Week '72 12

Sweet Revenge 12

The Common Egret 13

How Old Is Old 15

The Whittingham Tract 16

Cover—"Kingfishers"—National Wildlife Federation

Kingfishers are a fairly common sight along many of New Jersey's better fishing waters and are familiar to most fishermen. The pair of kingfishers, more precisely eastern belted kingfishers, on the cover of this issue are at their nest site, a hole in a stream bank. The male, with one breast band, is perched on the stub, while the female, with two breast bands is in the nest cavity.

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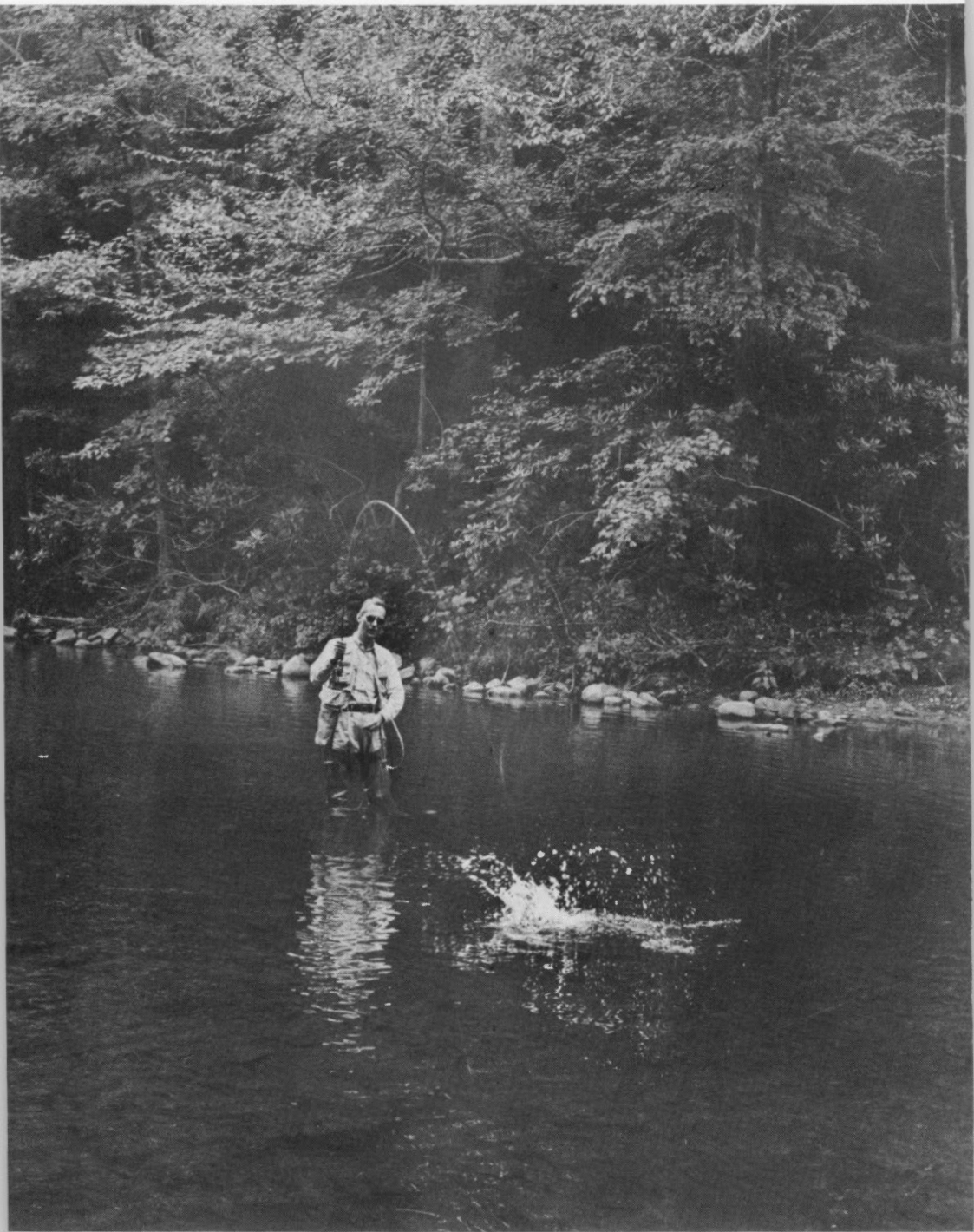
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Fly Fishing on the Flat Brook—By Harry Grosch

Fly - Fishing - Only Regulations

By A. Bruce Pyle,

Assistant Chief, Bureau of Fisheries Management

Summary

A recently released report entitled "Flat Brook Trout Studies" recommends the abolishment of fly-fishing-only areas as they exist in New Jersey (i.e., solely for the purpose of providing for fly fishing) and because of public response, primarily from fly anglers to this recommendation it was deemed appropriate that the basic reasoning and study results pertinent to it be publicized.

This article explains why there is no need and no biological justification for fly-fishing-only regulations in areas where put-for-take stocking is practiced. Essentially, this is because (1) fly fishermen are as proficient, if not more so, as anglers employing other techniques, (2) they also enjoy a higher success rate than other anglers, and (3) the release of caught trout as practiced primarily by fly fishermen contributes little to angling opportunity because of the depleting action of nature upon trout that are stocked in superabundance over the carrying capacity of the stream.

The effects of the fly-fishing-only regulation have been to (1) substantially reduce angler use of the area where it was in effect, (2) provide for a more restricted number of anglers with special interest that fish more frequently than the average angler, (3) unnecessarily deny non-fly-fishermen their right to angle for fish that they contributed funds for, etc.

As a result, it reiterates the recommendations of the "Flat Brook Trout Studies" report which, in addition to seeking abolishment of the fly-fishing-only regulations as they exist, calls for the establishment of a natural area on a major stream where a native trout population can be maintained, observed, studied, serve diverse purposes, and employ fly-fishing as a management tool if appropriate.

. . . Fly-Fishing-Only

Recently a report entitled "Flat Brook Trout Studies" by the author and Robert H. Soldwedel, Assistant Fisheries Biologist, was completed and made available for distribution. This report presents the results of an extensive three-year study of the Big Flat Brook Drainage that includes, among other things, an evaluation of fly-fishing-only regulations. Since release of the report there has been considerable comment, and this primarily from organized fly fishermen, upon the statement of General Conclusions and Recommendations that calls for the abolishment of fly-fishing-only areas as they currently exist (i.e., solely for the purpose of providing for fly fishing).

The evaluation of the fly-fishing-only regulation was carried out using two study areas, one a 0.7 mile stretch located in the Division-owned Haney's Mills Tract and the other a 0.8 mile stretch immediately below Three Bridges on the Roy Tract. The first served as the "control" where any type of angling was permitted, and the second was subjected to the fly-fishing-only regulation starting about May 1st each year following a period covering the earlier part of the season when angling by any means was permitted.

These regulations had been in effect on these study areas and the larger areas that they represent for many years—the fly-fishing-only regulation dates back to 1949.

Both study areas were treated alike and the techniques employed included physical, chemical and biological assessments of the aquatic environment; creel census to gain information on angler habits and utilization of the study area, and catch rates; and trout tagging to gain information on the harvest and movement of the three species of trout employed in the stocking program.

The study found that (1) there is no need for fly-fishing-only areas for the sole purpose of providing for fly fishing and (2) that there is no biological basis upon which to justify a fly-fishing-only regulation in an area stocked on a "put-for-take" basis.

The effects of the regulation are (1) to unnecessarily deny the right of non-fly-fishermen to angle for trout that they have contributed money through their license fees and trout stamps to have reared, stocked, and protected; (2) to provide for the interests of a special interest group, a precedent that could prove a disadvantage to the Division in dealing with requests for similar special regulations by other special interest groups in the future; (3) to cause the Division to deviate from its policy to adopt restrictive regulations only when necessary; and (4) to cause the Division to overlook the need to establish "natural" trout areas on the false assumption that such areas already exist on major streams in the form of the year-round fly-fishing-only areas.

The position that the fly-fishing-only regulation is not necessary is based upon the results of the study which showed that fly anglers are relatively more proficient than anglers that use the usual assortment of baits, lures, and so forth.

these data show that fly fishermen were certainly not less proficient than other anglers. Thus it is concluded that fly fishermen do not require an exclusive section of stream.

Studies to evaluate fly-fishing-only regulations at Lawrence

Table 1. Catch-rate Results, Big Flat Brook, 1962, 1963, and 1964

Roy Tract	Catch/hr.
Period II	
Trout stocked weekly, open to all angling gear	.43
Period III	
Trout stocked weekly, fly-fishing-only regulation in effect	.41
Haney's Mills Tract ("control")	
Period II	
Trout stocked weekly, open to all angling gear	.54
Period III	
Trout stocked weekly, open to all angling gear	.39

Statistical analysis of these data found that there was a relative increase in the catch rate of the Roy Tract with the application of the fly-fishing-only regulation as compared to the Haney's Mills Tract where the regulation was not imposed. In other words, if fly fishermen were not more proficient than anglers using all types of bait, etc., then the decrease in the catch rate for the Roy Tract from Period II to III should have been approximately the same as was found for the Haney's Mills Tract (the "control" area). But the decrease in the Roy Tract was slight in comparison to that of the Haney's Mills Tract, and this is interpreted as meaning that the fly fishermen were more proficient. And further,

Creek, Wisconsin, also found that fly fishermen enjoyed a higher catch rate than non-fly-fishermen.

And further, the fact that the percentage of successful angler trips (defined as trips during which at least one trout was caught) increased in the Roy Tract with implementation of the fly-fishing-only regulation shows that the high catch rate was not the result of the efforts of a few highly proficient fly anglers, but rather an increased number of proficient anglers.

No Biological Justification

Stocking of the magnitude practiced in "put-for-take" recreationally oriented trout management programs has no biological basis.

. . . Fly-Fishing-Only

In fact, it violates biological principals in that it superimposes upon streams quantities and sizes of fish far in excess of their carrying capacities. And Mother Nature in her attempt to keep things in balance begins to act as soon as the trout are stocked. The period of time that it takes for the trout population to be reduced to the carrying capacity of the stream is apparently quite short. In the Flat Brook this was about four to six weeks. Therefore, the practice of releasing caught trout, regardless of the manner in which they are caught, has little value to future angling and, in actuality, can act to reduce the percentage of stocked fish that are caught by prolonging the time that inferior fish must persist in the "peck order" before they can dominate the better and more heavily fished sites in the stream and be caught. And, this would act to decrease harvest as well.

In the Flat Brook, fly fishermen were found to release an exceptionally high percentage of trout beginning with the eighth week of the season, seemingly to provide fish for angling after stocking was discontinued. This, however, provided only limited benefits insofar as prolonging the angling and within the four to six weeks following the cessation of stocking the stream annually was found to contain about the same number of catchable size trout, which is considered its approximate carrying

capacity. Therefore, the releasing of caught trout "to fight another day," so to speak, has little, if any, value and certainly has no biological basis, in a "put-for-take" stocking program.

Effects of the Regulation

The most significant effect of the fly-fishing-only regulation found in the "Flat Brook Trout Studies" is that it causes the loss of angling opportunity. The relationship between the 0.8 mile study area of the Roy Tract and the 0.7 mile study area of the Haney's Mills Tract in respect to their average daily angler use during Periods I and II was quite constant. The rate at which usage decreased from Period I, which represents the opening day and almost two weeks of the trout season, to Period II was similar for both study areas. And theoretically they should have remained similar through the remaining two Periods. However, they did not and the annually typical decrease experienced in the Roy Tract study area concurrently with implementation of the fly-fishing-only regulation is considered the result of imposing the regulation.

The decrease experienced represents a daily loss of about five angler days of usage for Period III and four for at least a part of Period IV. Overall it represents a loss of about 175 angler days or about 25 percent of the theoretical usage of the Roy Tract study area during Period III and about 120 additional angler days during 30

days of Period IV. However, the magnitude of the loss cannot be fully appreciated until these figures are projected to the full length of the fly-fishing-only stretch of about five miles. A conservative estimate of the magnitude of the loss is 1,500 to 2,000 man-days of angling, a significant figure on practically any of our trout stocked streams.

An additional effect of imposing the fly-fishing-only regulation is to reduce use of the restricted area to fewer individual anglers that fish more frequently than the average. This is shown by the increase in the percentage of anglers that were found to make repeat trips to the Roy Tract study area when the fly-fishing-only was in effect. Prior to imposing the restriction, the percentage of repeat anglers in the Roy Tract study area was 6.9, and with the regulation it was 20.2; corresponding figures for the Haney's Mills "control" area were 11.6 and 11.9. That the fly fishermen fished more frequently is brought out by the above information and the fact that the total hours fished and the average length of the fishing trip remained about the same for both of the study areas during Period III.

The results of the considerations of matters deemed necessary to justify a fly-fishing-only regulation, and the effects of such a regulation, are of such nature as to consider them appropriate for other so-regulated streams. Therefore, the recommendation of the "Flat Brook Trout Studies" report that

fly-fishing-only areas that are maintained solely to provide for angling with flies, which is all of them, be discontinued, is reiterated.

Natural Areas Fly Fishing

This, however, does not necessarily mean that areas where only fly fishing is permitted will not exist. Fly fishing has been proven to cause the least amount of mortality among the various angling techniques available, and it is considered a potentially valuable tool in the management of natural trout populations where harvest and kill must be controlled to maintain a maximum sustained yield.

New Jersey's public streams, and certainly all of those of major stream status that are capable of supporting trout, have been included in the Division's trout stocking program. The result is that there are no streams of size where one can find a reasonable facsimile of

The establishment of a natural area on a major stream has been recommended



. . . Fly-Fishing-Only

a natural trout population for purposes of observation, study, angling, or anything else that is reasonable. It is anticipated that such areas would prove useful to persons with diverse interests, and that the native trout would provide angling challenge and experiences that conditions offered by stocked trout cannot. Trout populations in such streams might need the protection that fly fishing can

provide and the recommendation of the second part of the General Conclusions and Recommendations of the "Flat Brook Trout Studies" report dealing with fly-fishing-only areas is also reiterated, i.e., that consideration be given to the setting aside as a natural area a section of stream that has a good trout population.

These recommendations are considered to be in the best interests of the resource and the general angling public. #

'Know It All' Fishermen

Did you ever notice how the fisherman who "knows it all" is usually the one with the fewest and smallest fish at the end of the day? He is also the guy who does not ask any questions, and probably would not accept advice, no matter how well-meaning it is.

Our unfortunate angler's problem is that his knowledge gets in the way of his ability to observe and ask questions. For this is the way most successful anglers learn what is happening. They do not assume they know everything.

Fortunately, most good fishermen are eager to pass their knowledge onto others. This has special significance to anglers about to try out unfamiliar waters. One of the best ways to find out what fish are biting, and when and where to go, is to be at the dock when fishing boats return from a day on the lake.

A few minutes spent conversing with today's lucky anglers may enrich your fishing tomorrow. Not that they will tell all their secrets, of course. But, you can usually pick up enough information to make tomorrow's trip more productive.

Also, since most anglers end the day fishing with the lure that has brought them the most success, you will gain added information by noticing what plugs are still hanging from the rods.

Bait fishermen can take advantage of docks with fish cleaning stations by inspecting the fish caught that day and seeing what they have been eating.

The real knowledgeable fishermen are those who know they do not know it all. #

Record Fresh Water Shad

A new category has been added to the New Jersey State Record Fish with the recognition of the fresh water shad taken by first-time fisherman Richard Lepes of Hamburg, The big shad weighed in at 7 pounds and 13½ ounces, and was 26 inches in length and 16¾ inches in girth.

Mr. Lepes, a sixth grade teacher in Newton, was fishing with Con-



Richard Lepes with his 7-pound, 13½-ounce record shad

servation Officer James R. Parrish one mile above Dingman's Ferry on the Delaware River on May 11, 1971. He was using a shad dart and a six-pound test line.

Incidentally, the salt water record shad, which weighed an even seven pounds, was caught by Rodger G. West in Great Bay in 1967. #

Any fisherman who catches a fish that could be a state record is invited to write to the Trenton office of the Division for record fish application forms and rules.

Fishing in New Jersey

By Paul D. McLain, *Federal Aid Coordinator*

New Jersey may be small, but it is surrounded with good fishing from the Hudson River at the north east, down the Atlantic coast, and up the Delaware Bay and River. In addition, there are thousands of lakes and ponds, and miles of rivers and streams where the serious angler can catch fish 12 months a year.

In winter, there is good saltwater ice fishing for white perch in Collins Cove on the Mullica River just west of the Garden State Parkway Bridge.

Early April starts Jersey's spring fishing. The great schools of striped bass that winter in the Mullica begin to drift down into Great Bay and Barnegat Bay. For over a month there is excellent light-tackle fishing for stripers up to 12 pounds. Weakfish move into the bays in May, followed by the schools of bluefish. Late May to mid-June is excellent for stripers, blues, and weaks.

Atlantic surf fishing for stripers peaks in mid to late May when the schools of striped bass head north along the coastline.

June brings the great schools of big chopper blues to the Jersey offshore waters; trolling and chumming for them usually holds up into late October. During the summer, tuna, dolphin, marlin, albacore, bonito, and other ocean gamefish are within easy reach of the charter boats out of Monmouth, Ocean, Atlantic, and Cape May County ports.

Up in Sandy Hook Bay and just outside of Sandy Hook there is some monster striper fishing from May until late summer. Best time is May and June for stripers over 40 to 60 pounds. Charter boats sail from Atlantic Highlands.

There is also spectacular weakfishing from May to October in the Delaware Bay down in Cape May and Cumberland Counties. On the Cape May County east coast there is some excellent jetty, inlet, bridge, and Inland Waterway fishing for big weakfish starting in late summer and lasting until November.

Winter flounder fishing starts in March and extends to May, when the big summer flounder (fluke) move into the tidal bays, rivers, and estuaries from Sandy Hook to Cape May Point.

Freshwater anglers have plenty of opportunities inland. Two of the newer hotspots are 1,290-acre Spruce Run Reservoir and 2,350-acre Round Valley Reservoir in Hunterdon County. Fishing peaks in April, May, and June for rainbow trout to 5 pounds and browns to 7. There is also good smallmouth bass fishing in these reservoirs. For information, contact Lebanon State Fish Laboratory, Lebanon (201) 236-2313.

The Delaware River shad run usually hits Trenton and points north in late April and May. One of the best spots for camping and shad fishing is the Worthington State Forest in Warren County.

April, May, early June, October, and early November are the most productive pickerel and large-mouthed bass months. Up in Sussex County, Lake Hopatcong's 2,685 acres offer fine pickerel and bass fishing.

Down in Cape May County, in the Tuckahoe Wildlife Management Area impoundments, there is excellent large-mouthed bass and pickerel fishing. In the vast pinelands of South Jersey the thousands of cranberry bog reservoirs support good pickerel fishing. The Wading, Mullica, Maurice, and Tuckahoe tidal rivers harbor some real lunker pickerel.

For general information, write the Dept. of Environmental Protection, Division of Fish, Game, and Shell Fisheries, Dept. F, Box 1809, Trenton, New Jersey 08625. #

Spinning Reels Are Adaptable

A spinning reel is a useful tool. With it a fisherman can do things he cannot do with other rod and reel combinations.

The spinning outfit allows him to throw lighter lures for greater distances, as well as cast flies and live and artificial bait, or troll.

With the addition of a small plastic bubble a fisherman can cast wet or dry flies for amazing distances, controlling the depth of the retrieve by adding or subtracting an amount of water to or from the bubble. There are times when this is essential, such as when the fish are biting out in the lake or river but not close to shore.

Perhaps the most attractive feature is that a spinning outfit can be adapted to almost any situation and still provide a bundle of enjoyment to the user. In the small stream, trout country, quite a few fishermen prefer spinning rods to any other gear, because of adaptability. With a spin rod the angler can reach into spots that would be inaccessible with an ordinary fly rod, and still present his fly in a natural manner. A favorite method is to cast a floating plastic bubble with a trailing dry fly to the head of a pool, letting the current carry it down, naturally and attractively. It catches trout.

In bass fishing, where a doll fly or medium-sized plug must be cast, a spin rod will do a great job of getting the lure out to where the fish wait.

Few fishermen have thrown away their tried and trusty fly rods and bait casting rods, because while spinning will fit many situations, it will not fit all of them perfectly. #

Support for Earth Week '72

The National Wildlife Federation, with which the New Jersey State Federation of Sportsmen's Clubs is affiliated, will join thousands of schools and communities throughout the state and the nation during April 17-23 to celebrate Earth Week '72.

As was the case last year, the Federation and other conservation groups are urging participation during the week at the community level, with local and statewide groups utilizing their own resources and establishing their own priorities. Since the environmental issue has come of age, Earth Week can provide an opportunity to learn something about that issue.

For instance, the citizens of one area of the state or country may need to start a community recycling center. In another, local air and water pollution problems should be focused upon and studied, perhaps through artwork. The ideas are as limitless as the problems. Grass-roots actions all across the country can focus new attention on air and water quality, land and resource use, transportation, technology, and urban and population growth.

In addition, global pollution concerns are especially timely in 1972 in view of the NWF "Uniting Nations for BioSurvival" international symposium to be held in conjunction with the United Nations Conference on the Human Environment in Stockholm, June 10-12.

Due to the grass-roots emphasis of Earth Week '72, there will not be a national headquarters. Interested persons and groups should contact environmental and citizen organizations at the state and local level in order to make their own Earth Week plans. #

Sweet Revenge

An Arizona cattle rancher discovered that vacationing campers had pitched their tent on a corner of his property during a 2-week period when he was away on business.

The campers left the area strewn with newspapers, cans, bottles, paper plates and napkins, plastic spoons and forks, cardboard boxes, milk cartons, and comic books.

Poking through the refuse, the rancher found an envelope with the name and address of a man who lived in the East. He wrote a letter, explaining that campers had left some "personal belongings" behind and that he'd be happy to send them if they would pay shipping charges. His offer was accepted with thanks.

The rancher jammed all the litter into a wooden packing crate and shipped it East, express collect. The bill was \$33. #

The Common Egret

Species:

Common egret—
Casmerodius albus
(Formerly known as American egret)

General Characteristics:

A large sized (37-40 inches) white heron with a yellow bill and black legs and feet. Usually found singly (occasionally in a group where food is especially abundant) on the ponds and tidal creeks of the salt marsh. Also found in fresh streams and marshes.

Range:

Breeds from South America, Central America, and southern United States to New Jersey in wooded areas such as the rookeries at Stone Harbor and Margate. Wanders after breeding season northward occasionally as far as southern Canada. Winters in warmer areas of southern United States, Central and South America.

Life History:

Like its smaller relative, the snowy egret, the common egret was hunted relentlessly for its plumes between 1850 and the early 1900's. Thanks to early conservationists and strict law enforcement, it has become more common, being readily seen on the wide salt



The common egret is a large white heron with a yellow bill and black legs and feet. It is a stately bird that usually stands quietly waiting for a passing fish

. . . Common Egret

marshes of the state in summer months. It is nowhere as numerous as the smaller snowy, which it resembles. The common egret is a stately bird, acting more "dignified" than the snowy. It does not usually actively chase minnows across the flats, but chooses a location and awaits a passing fish, or else slowly steps along, carefully examining the adjacent water for food.

The common egret is a colonial nester, choosing lower branches of medium height trees. The nest is a crude affair, composed of sticks and twigs, occasionally with some grass, usually containing



The white egret flies with its neck crooked back and its long legs trailing behind

three or four pale bluish green eggs. The period of incubation is about 23 or 24 days and is attended to by both parents. After the young are born, apparently both parents care for the growing young, feeding partially digested material to very young birds, and gradually changing the diet until fresh fish, crabs, etc. are presented to the nestlings.

Food includes fish, snails, fiddler crabs, grasshoppers and other insects on the salt marshes, and frogs, snakes, lizards, mice, and crayfish, in fresher areas. These birds apparently do not feed at night, but resort to heronries when breeding, or to selected roosts on the marsh in low brush such as high tide bush, or to edges of upland pools in low tree branches, after the young are fledged.

Weather has little effect on these birds, except, for high winds which can cause damage to nests, or injury to birds themselves. Also, occasionally, some birds delay fall migration too long, and are caught in a freeze, as with the snowy egret, the best management in New Jersey is protection of the few rookeries, and protection of the marshes where these attractive birds feed. #

A most unusual observation was made by personnel of the Division's ecological study in south Jersey when six pairs of eiders were observed swimming and feeding in the ocean off Loveladies.

. . . Changing Environment *Continued from inside front cover*

tion on the part of modern wildlife conservation professionals. They must play a major role in all local, regional, and statewide land use planning programs if wildlife resources are to receive proper consideration. Unfortunately, the low priority and inadequate lead time allowed for fish and wildlife resource planning often result in permanent damage to wildlife habitat, damage which should have been averted, or at least mitigated in part.

One of the high priority, long-range objectives which the Fish and Game Council has authorized is the active participation of Division personnel in all state, regional, and local programs which in any way influence the state's fish and wildlife resources. Personnel limitations often make such an ambitious undertaking difficult. However, most employees of the Division are challenged by the job which must be accomplished, that of responsible action in protecting and enhancing our ever changing wildlife environment. #

How Old Is Old

It is said, one man's middle age is another's youth, or something like that. This is especially true among the various species of animals. While most realize giant tortoises (they look like big turtles, but really are not) reach a pretty ripe old age (circa 150 odd years), it is a bit startling to find out swans have lived as long as 102 years.

<i>Animals*</i>	<i>Years</i>	<i>Animals*</i>	<i>Years</i>
1. Giant tortoise (R)	152	15. Grizzly bear (M)	32
2. Box turtle (R)	123	16. Bison (M)	30
3. Swan (B)	102	17. Lion (M)	30
4. Parrot (B)	80	18. Bullfrog (A)	30
5. Elephant (M)	69	19. Cobra (R)	28
6. Great horned owl (B)	68	20. Tiger (M)	25
7. Alligator (R)	68	21. English sparrow (B)	23
8. Snapping turtle (R)	57	22. Elk (M)	22
9. Eagle (B)	55	23. Cottonmouth (R)	21
10. Giant salamander (A)	55	24. Mountain lion (M)	20
11. Horse (M)	50	25. Beaver (M)	19
12. Hippopotamus (M)	49	26. Wolf (M)	16
13. Chimpanzee (M)	40	27. Squirrel (M)	16
14. Toad (A)	36	28. Chipmunk (M)	12

* M - Mammals; B - Birds; R - Reptiles; A - Amphibians

(Note: These examples of old age have been chosen from the reliable records of zoos and aquariums all over the world; it is entirely possible certain species have achieved older ages in their native environment.) #

Whittingham Tract

Sussex County

The Whittingham Fish and Wildlife Management Area is one of the newest areas acquired under the state Green Acres Program. The tract was assigned to the Division in March of 1966.

This area contains 1,514 acres and is located in Fredon and Green Townships, Sussex County, just south of Newton and west of Rt. 206.

The Division's management program encompasses 1,114 of these acres for upland game and deer. The other 400 acres have been set aside as a refuge area to remain in its natural state. Here one can observe beaver, otter, and many species of waterfowl.

Office

The office or headquarters is located on Greendell Road and provides the residence for the game manager of the tract.

Parking

Licensed hunters and fishermen are welcome to use the area during open season. They are requested to use the designated parking areas, as no road parking is permitted.

Upland Game

The management program consists of plantings, hedgerows, and cuttings to provide suitable upland habitat. The principal native species found are grouse, woodcock, rabbit, and squirrel. Pheasants are also available through the Division's program of pre-season and in-season stocking.

Deer

This area is natural deer range and a large herd is found on the tract. Bow hunters and shotgun hunters find it to be an excellent area.

Waterfowl











The marshy area provides a limited amount of duck hunting for wood ducks, mallards, and black ducks early in the fall migration period.

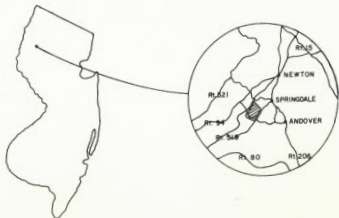
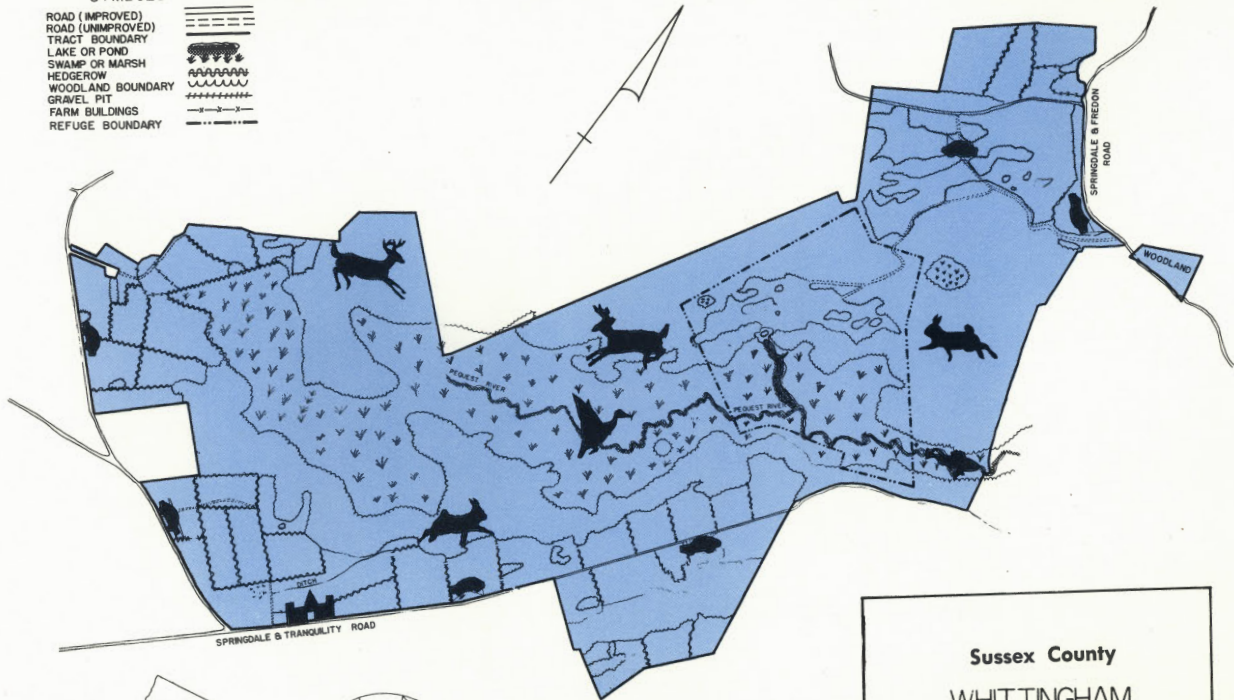
Fishing

Fishing is rather limited, but available, east of the refuge area in the Pequest River. The principal species is trout, a result of the Division stocking program.

The Division welcomes all sportsmen to make use of these facilities maintained by license money of the sportsmen. #

SYMBOLS

- ROAD (IMPROVED) 
- ROAD (UNIMPROVED) 
- TRACT BOUNDARY 
- LAKE OR POND 
- SWAMP OR MARSH 
- HEDGEROW 
- WOODLAND BOUNDARY 
- GRAVEL PIT 
- FARM BUILDINGS 
- REFUGE BOUNDARY 



Sussex County

**WHITTINGHAM
FISH & WILDLIFE
MANAGEMENT AREA**

SCALE:  MILE

Remember

**your fishing license
does not give you
any right
or privilege
to trespass
on another's land**

**Always Ask
Permission**

**New Jersey Outdoors
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