Kirtland’s Warbler

Discovered in 1851 and named after naturalist J.P. Kirtland, Kirtland’s Warbler is one of those wildlife species that, because of specialization, was never really abundant. Its breeding range is restricted to a small area in the jack pine forest of north central Michigan. Young trees six to 18 feet tall that sprout up after a fire are chosen nest sites. It winters in the Bahamas, so look for it in Florida during migration—April, early May and late September to early November. A low-ranging bird, it frequents pine and oak stands, spending much time on the ground searching for insect food. A tail-bobbing habit helps to identify it. Only two other warblers tail-bob—the Palm and Prairie Warblers.

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The Cover
Two wild turkey gobblers respond to the urgings of the spring season with the strutting of the mating ritual while a hen feigns indifference as she saunters by.

From a painting by Wallace Hughes

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**American Attitudes Toward Wildlife**

**Part 2**

With the appearance of national periodicals like *American Sportsman* (1871), *Forest and Stream* (1873), *Field and Stream* (1874) and *American Angler* (1881), a new impetus was given to the sportsmen's struggle against commercial exploitation of wildlife. While the nation as a whole poured forth a steady stream of propaganda against specific offenses, the main technique used was to teach the American public the ethics and responsibilities of sportsmanship.

In addition to opposing the commercial destruction of wildlife itself, sportsmen deeply regretted the loss of "their" hunting and fishing grounds to the insatiable appetite of commerce. While most other Americans saw land only as a commodity of geographical entity like the Adirondacks in New York State or Currituck Sound in North Carolina. But whatever and wherever his "territory," it was part of the fiber of every sportsman's existence.

In the love for the outdoors, sporting authors of the last century were, of course, influenced by the same Romantics that touched every major American writer from Thomas Jefferson to Walt Whitman. Sportsmen, too, paid tribute to nature and derived inspiration from wild grandeur. Even when it came to basic guidebooks, hunting and angling locations were continually rated in terms of their picturesque qualities. But despite these similarities, there were significant differences between the Romantic movement and the sporting tradition as they evolved in the United States. For one thing, the Romantic movement in the arts originated in Germany and France late in the 18th century, while the American sporting tradition originated in the British Isles and dates back at least to Inak Walton in the 17th century—indeed, many would take it back to the ancient world.

Another difference is that Romantics often seemed merely to stroll through a "sylvan glade" and contemplate the "beauty" around them, while sportsmen wished to involve themselves personally in the rhythms of nature by pursuing and capturing a momentary fragment of that beauty in the form of a ruffed grouse or brook trout. The Romantics appear almost voyeuristic, while the sportsmen were participants. This is undoubtedly one reason why the latter group often combined serious scientific inquiry with their love of nature, while Romantics were usually little more than dilettantes in science and some- times, as in the case of Ralph Waldo Emerson, even hostile to it because of the fear that its application might unravel the mysteries of nature.

Another example of the "voyeur-versus-viewer" participant analogy is the fact that most Romantics only had eyes for the "beautiful" and "scenic" in nature. Like their modern counterparts, they had little use for "ugly" topography like inland swamp and coastal marsh. To the sportsman, however, so-called wastelands were frequently the repositories of fond memories and keen anticipations. Indeed, the word "swamp" is still a synonym for worthless land, a place often considered to be fit only for dumping garbage. As their financial support proves, 20th century waterfowl hunters have had a very different notion of its value.

Though we could spend much more time discussing the impact of early sportsmen, it is sufficient to say that once the organized sportsmen's movement of the 1870s came into existence, this group's power continued to grow and its viewpoint eventually dominated almost all discussions and policy decisions relating to wildlife. This became even more apparent in the 1930s, and later, with the development of the science of wildlife management and Aldo Leopold's idea that wildlife is a crop that should be managed and harvested like corn or cattle.

This does not mean that other approaches to wildlife had not been offered. Wildlife refuges existed in sizable numbers—Theodore Roosevelt had set aside over 60 such units and the system was enlarged when his cousin, Franklin, came into office in the 30s. Yet, even these areas were opened to so-called "harvests" when biologists and wildlife management specialists argued that "surplus" wildlife on the refuges would be "wasted" if it was not used.

Thus, what we see in the period after 1963—when Leopold's book *Game Management* appeared—is the growth of a huge biological-recreational system supported by sportsmen's money (hunting and fishing licenses, duck stamps, taxes, etc.) and staffed by biologists, wildlife management experts, and federal and state game commissioners.

On the whole, this system has worked amazingly well. Not only has a vast amount of recreation been provided, but game animals and birds have prospered as well. White-tailed deer are more common today than when Columbus landed, and species like elk and wild turkey, which seemed to be heading for extinction in 1900, have been restored to large areas. Just one example of bird management is the mourning dove, *Audubon* magazine reported that "200 million doves die annually from natural causes, and 20 million fall to hunters. Yet the dove population remains healthy and stable at 400 million."

Yet, despite the successes of this wildlife management system, the entire structure has recently...
come under fire from what might be called the "new environmentalists," who first made their public appearance in the 1960s. City-bred, well-educated, and convinced of its own moral righteousness, this new movement's knowledge of wildlife appears to derive almost completely from television and movies and its actual experience with the natural world seems small, and in many cases, nonexistent. Almost all of its members find hunting distasteful, if not immoral, and even sport fishing has come under attack because it deliberately prolongs the fish's supposed agony.

Many environmentalists, following Cleveland Amory and other vocal spokesmen of this "new" environmentalism, seem to possess a highly Romantic, even anti-intellectual, response to everything pertaining to the natural world, and even though this group's power appears to be waxing somewhat with a general trend toward greater conservation in the late 1970s, these new self-proclaimed "conservationists" undoubtedly will play a larger role in decision making then they did in the past.

Despite my dislike for their self-righteous refusal to accept the reality of wildlife dynamics and the fact that certain species do produce surpluses that can be used by another species, the predator Homo sapiens, I am perfectly willing to accept at least one of their arguments. The fact that sportsmen can accept at least part of the other's argument, that a common ground might be reached. Hunters who break the law with abandon must be apprehended and their hunting rights taken away; it is also true that the federal government has to start spending as much money for songbird habitat as it does for so-called "duck factories," and their proponents of Cleveland Amory's moral approach to wildlife conservation might try learning something about the ecology of the species they profess to love and accept the fact that in order to live, everyone continually has to kill, directly or indirectly. And this is just as true for the vegetarian as it is for the hunter.

This situation is not unique to Florida. A check of the records of the state Game and Fresh Water Fish Commission who have been devoting time and energy to spreading the conservation message across the state. As members of the Office of Informational Services (OIS), their work is helping people understand man's part in the delicate web of life.

The message is carried through many media—talks, articles, exhibits, television, radio and personnel appearances. It is also one which, tradition ally, has not received adequate funds to reach all audiences.

This situation is not unique to Florida. A check with information offices in just about all state conservation agencies will reveal this part of the conservation story is often at the bottom of the financial totem pole. Education of Floridians to the role played by man in his natural environment is essential to preserving it for generations to come. And one area where OIS works to develop a positive attitude toward man and his natural environment is through educational programs of the Commission's Youth Conservation Camps.

In 1952, under canvas tents at a borrowed campground near the Ocala National Forest, the first youth camp was held in the state. Since that time, two permanent facilities have been built, one near Lake Eaton in the Ocala National Forest and the other in the Corbett Wildlife Management Area near West Palm Beach. From the start they have operated on a little bit of money, a lot of love for the job and an awful lot of ingenuity to get the program going. Habitat which once belonged to the state's wildlife becomes that of its children of today, the citizens of tomorrow, who will be futur e conservation counselors. Fees have been kept low to make it possible for every child to attend and several organizations have sponsored kids who might not otherwise have been able to attend.

The goals of the Office of Informational Services are consistent with the philosophy of the Commission's Department of Education. The questions these kids will ask us after they leave will define the natural resource values with which we have been blessed.
Match Boat to Water
what the natives use is most often the best craft for local conditions

By CHARLES WATERMAN

Call them "drift boats," "float boats" or whatever you will, the craft used by fishermen to go downstream with are almost as varied as the geography they're found in.

Of course it depends partly on the kind of water they're used in, Florida not being noted for roaring rapids and Idaho not being noted for glassy glides, but as with other kinds of craft the local style makes a difference.

Last summer while chasing trout through the West I noted more and more "float guides" using what's known as the McKenzie boat. It's high bow and stern, it's run with oars and it goes down a river at the rate of the safest of all rigid hulls in swift water, and the change of course is a matter of just taking the tourists for a ride through white water it's the big rubber raft that does the job.

Actually, I suppose the inflated boat is safest of all although it's apt to be wet and uncomfortable. Westerners have a carefree attitude about rivers and quite a few of them drown. Honest! Almost any weekend on the medium-speed rivers you'll find a few boatmen clinging to willows and a boat or two hung up on a bridge abutment. Water-filled canoes coming downstream alone don't get much attention.

Much as I love canoes I must admit they're a poor choice to fish from in fast water. The principle is simple: You gain your steerage with a canoe from its forward motion and instead of holding it slower you must drive it faster than the current to steer it. Thus you have your current speed plus your paddle speed and the trees go by like a pickle fence. It's fine for hurrying from one good fishing spot to another and for most Florida streams it's fine as a drift boat.

Now if anyone wanted to rig one with oars and row it upstream it might work for fast-water fishing but I think I'd go to something else.

Many of the old round-bottomed rowboats would do pretty well for drifting in streams of modest speed but most of them were pretty heavy. Where paddles and oars used to do the job on slow rivers the electric motors are in charge now.

Long time ago there was some argument as to whether fish sleep or not. At about that time they were just starting to use fathometers and some of the early electronic equipment showed big schools of fish of various kinds seemingly dormant near the bottom or suspended somewhat higher. They wouldn't bite.

We still find large numbers of fish that won't bite on certain days but we're too sophisticated now to mention sleep.

In the case of bass, for example, I have had veteran guides swear that patience would win.

"You know they're going to feed some time every day" they'd announce.

I accepted that as gospel. Now we know that there are many days when many fish don't feed at all. The reasons they won't feed would fill a considerable volume. The biggest challenge of the fish student today is not so much what a fish will take but when he will and when he won't. And some of them are coming up with some pretty good answers. They'll get better.

Do fish sleep? I don't know that it makes much difference whether they do or not.

"Nervous water" is a common term among Florida Keys fishermen. When looking for working fish they see some movements that are too vague to actually be called "wakes" but are certainly caused by something alive. Even the gentle fin movements of loafing fish can cause "nervous water" if it's shallow enough. But there's a special variety of it that intrigues me.

Years ago when hunting tarpon in the Everglades with an experienced guide I was staring across the placid surface of a bay and seeing nothing of consequence when the guide announced:

"There's a big one over there. I saw him shiver."

He finally pointed it out to me. It was a patch of water that seemed to vibrate at intervals. From a distance you might mistake it for the tiny waves put out by an insect that had accidentally fallen in, but it wasn't. There was a big loofing tarpon under the quiver all right and I've seen it many times since. I guess they really do shiver but it isn't a widely used description of what happens. Nobody has told me what causes it.

For years I have been fighting a losing battle with editors of outdoor publications, Florida Wildlife ones excepted for some reason.

For one thing, most editors refuse to accept the word "hammock" as applied to a patch of high ground in the South. This one they are going to change to hummock, come hell or high water (and I'd rather be on a hummock if the creek does rise). Hammock refers to a larger patch of ground, generally covered with forest. A hummock is a lump of ground you stand on with your feet close together. At least I think that's the way it is. After 30 years of seeing my hammocks come out as hummocks, I am beginning to get a bit uneasy myself.

And then there is the trot line business. Everybody south of Iowa should know that a trot line is a heavy piece of cord strung out through the depths with lighter pieces suspended from it, each carrying a hook. The thing is a bit similar to the longline used by commercial fishermen in the oceans but that's immaterial. It is not, dammit, a trot line as my trot lines generally appear in print. This one has reached a point where I almost refuse to write about trot lines.

And there is the "rising fish" business. Otherwise (continued on next page)
persnickety grammarians seem to go berserk when a fisherman throws a lure and a fish comes up he rose a fish. Any fifth grader should know that a fish rises and that when you make him come up you raise him to your lure. The fish rose but you raised him.

And there's the fish that lies under a rock. The danged fish does not lie there he lies there. You might lay him under a rock (don't see much point in it but once he's there he's lying under it.

The fact is I am not writing this to entertain you readers at all. I am writing it so that when the magazine comes out I can make copies and send them to every editor I know. There is added cre­dence to something that's been printed. (Ed's note: We agree. Common usage makes it acceptable.)

At one time or another almost everything from mudfish to killer whales has been touted as the answer to an angler's prayer. I'm something of a dolphin fan myself and there'd be more of us if dol­phin were caught on lighter tackle. Their rep­utation suffers from people hooking them when looking for something bigger.

They run fast, jump high and yank hard but you seldom hear anyone announce that he's a dolphin specialist. Maybe it's because dolphin can get too easy sometimes.

My first experience with dolphin on a flyrod was up off North Carolina's Cape Hatteras. The skipper trolled until he found a school of small dolphin that jumped in the wake like painted spray. The mate left one of them on a hook to keep the rest of them interested. After that I hooked and caught small dolphin on fly rods and spinning tackle until and a 20-pounder might be floating under a stick that wouldn't hide a spawned-out crappie. It's fun to cast to such cover.

Why do they like floating things? Well, it's partly because baitfish are likely to stick around such shelter but I suspect that floating reference points are valued as a sort of home base.

Anyway, some time when you're clear out there to a most rewarding hobby.

A fellow I knew had a private trout pond up north. It was impossible for him to understand why certain fishermen preferred to seek wild trout when he had such big ones that were so easy to catch, and he made it as plush as possible with manicured lawns and chairs about his pool.

The next time I got into dolphin with a fly rod it was with Bob Montgomery, the Key West guide, and Ray Donnersberger of Summerland Key. That time Bob trolled up a good-sized female with heavy tackle and I thought he'd have a streamer fly to the bull which accompanied her. That one nearly uprooted my arms, kept me busy for an hour and won a local fishing contest.

There's a rather special thing about dolphin in that they're found next to floating objects ranging from five miles of seaweed to an old orange crate — and a 20-pounder might be floating under a stick that wouldn't hide a spawned-out crappie. It's fun to cast to such cover.

Why do they like floating things? Well, it's partly because baitfish are likely to stick around such shelter but I suspect that floating reference points are valued as a sort of home base.

Anyway, some time when you're clear out there to a most rewarding hobby.

Do you remember the stereotyped birdwatchers of several years back? Cartoons pictured them as "little old ladies in tennis shoes." Well, times have changed. Birdwatching, or birding, is now a top ranking recreational activity across the entire United States. More and more people are taking to the woods to breathe the fresh air, get some exercise and enjoy birds. Why don't you join the ranks?

You'll benefit by getting out of doors and coming into close contact with nature. An early morning walk combined with birding is one of the best forms of physical exercise and mental relaxation there is. Observing birds in their natural environment will provide delightful insights into the behavior of wild animals. You'll begin to notice and appreciate the delicate relationship between man and wildlife. And you'll realize that without the presence of wild animals and natural areas our existence on planet earth would be much less enjoyable.

There are several hundred different species of birds found in Florida. With that many species to observe, birding may at first seem very difficult. Where should one look for birds? How can anyone identify these tiny, flighty creatures? How in the world do you use binoculars? Does anyone else do this sort of thing? These are questions most often asked by beginning birders. The answers are sim­ple, and once understood will lead you on the way to a most rewarding hobby.

Birds are found everywhere, from the middle of large cities, to the ocean, to the deepest forest. They are the most abundant, colorful, and visible form of life on earth. It is impossible for him to understand why certain fishermen preferred to seek wild trout when he had such big ones that were so easy to catch, and he made it as plush as possible with manicured lawns and chairs about his pool.

However, there was one big ledge that made a shaded hideyhole for some of the bigger fish and you couldn't cast back in there.

"I have it all worked out," he told me triumphantly. "I'm gonna' rig it so I can give them a little electrical shock back there when I want them and they'll come out where I can catch 'em."

Ah, wilderness! •

By Rick Schroeder
wildlife that most people see in their daily lives. You don't have to live in the country to find birds. The average backyard is home to twenty or thirty different species during the year. Local parks, greenbelts, and open fields are all good places to birdwatch. The best birding spots contain a variety of plant types and plant growth forms. Areas with an interspersion of trees, shrubs, grasses or marsh will have the largest variety of birds. Florida's national and state parks, and wildlife refuges are excellent places to observe and enjoy birds. So, you know where to look, now—how do you identify the birds you see? A pair of binoculars and a field guide are the only pieces of equipment you'll need. Going out with an experienced birder is a good way to begin. Many communities have local bird clubs, with expert birdwatchers as members. These folks are usually more than willing to take along an inexperienced birder and "show him the ropes". The best time of day to observe birds is in the morning hours. Birds are most active then and can be seen more easily. Upon spotting a bird, watch it for as long as you can. Note its coloration, size, shape, and activities. What type of habitat is it occupying? Listen for its song or call notes. Study as much as you can about the bird and try to classify it down to the "family" level. Is it a sparrow, thrush, small shorebird, hawk, etc.? At this point open your field guide and try to identify the bird exactly. Go to the section containing similar birds and check coloration and markings. Read the narrative for helpful hints, such as song or habitat descriptions. Many beginning birders see a glimpse of a bird, and immediately flip through their field guide and attempt to identify it. When they look up, the bird has long since vanished, its identity unknown. A fleeting glimpse of a blue-colored bird may tempt you to grab your bird book. After all, how many bluish birds can there be? Several ... including the indigo bunting, blue grosbeak, black-throated blue warbler, blue-gray gnatcatcher, and eastern...
Once you decide to pick up your binoculars and field guide and give birding a try, don’t be shy. You’ll be surprised to learn how many other people are discovering birds too. Evidence of the boom in birdwatcher numbers can be seen in the membership of such groups as the National Audubon Society. In 1960, the Society had only 32,000 members. Today they number over 300,000. Sales of bird books, binoculars, and bird seed are blossoming into large scale figures. And the end is not in sight.

An excellent way to get more involved in birding is to participate in the annual Christmas Bird Count. Experienced and novice birders combine forces in late December to count as many species as possible in designated areas. The count is taken during a twenty four hour period, and is a good source of both scientific data and good companionship.

Florida has over thirty organized counts covering all parts of the state. One of the most successful counts (in terms of numbers of species) is at Cocoa. Over 160 species have been sighted there in recent years, ranging from bald eagles to ruby-throated hummingbirds. For a complete listing of count sites in Florida and the rest of the United States, check your library for the April issue of the American Birds Magazine, published by the National Audubon Society. This issue contains a complete list of count sites, numbers and species of birds, and participants.

Today’s increased interest in birds is not just an accidental occurrence. People are more concerned about their environment than ever before. Everyone, it seems, is more aware of nature and the delicate relationship between man and his surroundings. Studying and enjoying birds is one way to be involved and to keep in touch with the natural world.

A day doesn’t pass when you’re outdoors and don’t see a wild bird. For a small investment in time and money you can embark on a hobby that can be done anywhere, anytime. Don’t let that “old lady in tennis shoes” image fool you. With over 20,000,000 birders in the United States you won’t be the first one to turn on to birds.

The coloration and the unusual spatula-shaped bill easily identify the rosate spoonbill, left. The southern end of the peninsula and the Keys are the most likely areas to see this species. White ibis, above, is a standout with its long, down-curved bill, and the adult’s white plumage. Perhaps the most often encountered of the large birds of prey is red-shouldered hawk, left. Bold pattern of the adult bird marks it well.
If you've ever tried to capture an armadillo by hand, you know that the critter is a skilled broken-field runner, and possesses surprising strength and energy. As table fare, the hairy-foot rates at least a couple of stars.

By Steve Nesbitt

extending its range in Florida since 1920

As all Latin scholars know, Dasypus novemcinctus is the "nine-banded, hairy-foot." The rest of us know it by its Spanish name, armadillo. But how did this species of the southcentral United States, Mexico, Central and South America get into Florida?

The armadillo has been spreading its range north and east, but the Florida population resulted from at least three accidental or deliberate introductions. The first occurred about 1920 near Hialeah. Then during a 1924 storm, several animals escaped from a private zoo near Cocoa. When a circus truck overturned near Titusville in 1936, additional armadillos were liberated. The armadillo has since spread over all of peninsular Florida.

The armadillo has been labeled a nuisance by many. Their burrows represent a potential threat to livestock. They divert hunting dogs that should be giving their attention to more serious business. An imagined necrophilic tendency has given rise to the nickname "grave diggers."

Armadillos have been accused of eating the eggs of ground nesting birds and severely limiting populations of quail and turkeys. Though many of the armadillo nuisance qualities are undeniable, egg eating has been proven inconsequential. Many studies of the armadillo's diet, some specifically aimed at egg eating, have proven that, though the armadillo will eat eggs, it does it so infrequently that the impact on ground nesting birds is negligible.

Population increases of armadillos may follow a wet year when feeding is good, during such times (continued on next page)
quail and turkey production have simultaneously suffered reduction. These dips are actually caused by a more complex environmental interaction and the increase of armadillos is only circumstantial, but they invariably get the blame for reduction in the quail and turkey populations.

For several years, field personnel with the Game and Fresh Water Fish Commission have been collecting armadillo stomachs to analyze foods of the species in Florida. Recently the results were compiled from an examination of 172 stomachs collected over the entire range of the animal in Florida. The most common item in the diet of the Florida armadillo was found to be larval and adult may beetles. Larval march flies and fungus gnats were also commonly eaten as were ants of several species, including the imported fire ant, various species of crickets, roaches and larval moths. Other main components of the armadillo's diet were found to be millipedes, centipedes, and earthworms.

Some surprises occurred in examining the 172 stomachs; one was full of baby cotton rats, many contained tree frogs, toads or skinks. Armadillos were also found to eat a good deal of vegetable matter, mainly blackberries, palmetto berries and various types of seeds.

From looking at the diet, the armadillo is not a nuisance animal at all. Rather it is a useful control on many species of insects regarded as pests. It is interesting that the foods of this animal, exotic to Florida, closely parallel what they eat in their native habitat.

In Florida, the armadillo is doing about what it does elsewhere in the United States and generally being misunderstood for it.
CHARTING A COURSE FOR CONSERVATION

For the first thirty years after the Florida Game and Fresh Water Fish Commission became a constitutional agency, on January 1, 1943, it carried out its programs with revenue derived from the sale of hunting and fishing licenses. During the early years of the Commission, this was appropriate, as the programs of the agency were primarily directed to benefit hunters and fishermen. However, over the years, particularly during the past decade, the Commission has become increasingly involved in matters affecting and benefiting not only the hunter and fisherman but the general citizenry: protection, research and management of nongame species of wildlife; boating safety; civil regulations; and development of a recreational program for the Everglades.

Realizing that these activities benefited the general public rather than exclusively hunters and fishermen, in 1973, for the first time, the Legislature appropriated $2,036,737 in general revenue funds to assist in the Commission’s overall program. Subsequently, the 1974 Legislature appropriated $5,196,711 in general revenue funds to carry out the expanded responsibilities of the Commission. Of this amount $1,735,164 was for capital outlay projects, primarily for development of recreational facilities in the Everglades. The 1975 Legislature appropriated $3,534,290 for the same purpose. Finally, the 1976 Legislature appropriated $4,620,279 for statewide application of progressive conservation projects. These funds have been put to good use, as can be ascertained by a review of the various programs and accomplishments set forth in this report.

In general, the Commission accelerated its management of the state’s wildlife and fresh water fisheries resources to insure optimum wildlife and fish populations for the recreational and aesthetic benefit of the public. Such management encompassed the promulgation of codes and regulations for the protection of the resource; enforcement of these codes and regulations and those provided by Florida statutes; habitat improvement; research directed toward solving resource problems; regulation and inspection of wildlife importation; regulation and inspection of wildlife exhibitors; control of aquatic vegetation; biological inspection and reporting of construction and development projects which could affect fish and wildlife resources and their habitats; acquisition and development of public recreation areas; and a conservation information and education program.

The Commission appreciates the support of the Legislature, the sportsmen, and other outdoor-oriented citizens of the state, and intends to justify that support.

(continued on next page)
The Law Enforcement Division is charged with the responsi-
ability of protecting Florida’s wildlife, fish, water aquatic life, and the environment. This is accomplished by preventive patrol of lands and woods and the apprehension and arrest of persons violating laws relating to hunting, fishing, littering; the sale, use, possession and importation of wild animals and fish; en-
forcement of federal and state fish and wildlife laws; assistance to other public agencies; maintenance of public order during natural disasters and civil disorders; undercover investigations and procurement of evidence. The Division also has statewide re-
sponsibility for all search and rescue operations under Florida’s natural disaster plans. Certain landowners are afforded addi-
tional preventive patrol in order to maintain over five million acres of lands open to public hunting and recreation.

Program: UNIFORM WILDLIFE LAW ENFORCEMENT
Florida Wildlife Officers are responsible for uniformed patrol of our vast water and land areas 24-hours a day, seven days a week in order to enforce wildlife and environmental laws. Due to the “shiftless” nature of Wildlife Officers, a unique degree of general law enforcement protection to wilderness and rural areas while on wildlife patrol.

Progress:
This highly trained select force has effected approximately 9900 arrests during the past fiscal year covering a broad spe-
motors and trailers for a combined total of $29,842.46 receipts.

Program: PURCHASE OF EQUIPMENT AND SUPPLIES
Servicing to achieve the greatest return for each dollar spent is the primary goal of purchasing.

Progress:
Controls on expenditures and prompt attention to financial obligations are vital to the overall operations. A total of 9,960 purchase orders, 216 formal and legal bids along with 226 mobile equipment requests were processed.

Program: PERSONNEL
This operation involves the employment and the processing of all pay, insurance and leave records for all Commission employee, accountability in accordance with rules of state, and with the screening and processing of applicants seeking Commission em-

Progress:
As a result of the Commission reorganization as a department, new organizational charts and job descriptions for each of the 671 positions were prepared and submitted to the Department of Administration. In addition to routine pay and other personnel actions, approximately 150 announcements of job openings were published and distributed, and more than 860 job applica-
tions were reviewed and evaluated. During the drafting, certification and filing of all Commission rules and regulations as required by the Administrative Procedures Act were per-

THE CORNERSTONE OF CONSERVATION

"NEVER HAS THE WORLD OWED SO MUCH TO SO FEW."
Winston Churchill

trum of violations. Although the majority of cases were wildlife and environmentally related, also included were arrests for traffic, drugs, hunting; safety; arson, burglary, grand larceny, cattle rustling, auto theft and rape. Wildlife Officers also devote a great deal of their enforcement efforts toward “non-game” areas such as “endangered” and “threatened” species protection and bird rookery patrol.

Specialized equipment is necessitated for patrol of otherwise inaccessible wilderness areas, therefore, airboats, helicopters, and four-wheel drive vehicles are utilized, as well as conventional patrol sedans.

In order to achieve maximum effectiveness, experience has shown that a ratio of “one officer, per county, per shift” is necessi-
tated. Through legislative funding this year we have attained 61% of this goal, thus approximately 30 hours of a 24-hour period can be covered. However, in order to properly respond to the public around the clock, these eight hour shifts are neces-
sary. This goal cannot be realized without the “one officer, per county, per shift” complement.

Program: AVIATION
The aviation program of the Commission is responsible for

Florida Wildlife.

Program: UNDERCOVER INVESTIGATIONS
This specialized team of plain clothes officers is designed to assist uniformed wildlife officers in coping with organized market hunting and large scale commercialization of waterfowl. Being able to shift a shift schedule, investigators provide the wildlife enforcement program with capabilities for conducting lengthy and difficult investigations. As the state leads the nation in the investigation of illegal activities, this special team of investigators, known as the "undercover" or "avatar" unit, has been responsible for the investigation of numerous cases.

Program: WILDLIFE INSPECTIONS
The Wildlife Inspectors are Florida’s "first line of defense" against the illegal importation, possession and the release of potentially dangerous foreign wildlife and fish. These specialized enforcement officers are charged with ensuring compliance with the myriad of technical state and federal laws governing the vast wildlife trade and wild animal attractions.

Program: WILDLIFE TRAINING
The Training operation provides the Law Enforcement Division with program evaluation, curriculum development, research, seminars, workshops, and publications. It is an integral part of an efficient and effective organization, especially in a law enforcement agency where officers must be kept abreast of a constantly changing society and its laws.

Program: WILDLIFE TRAINING
DURING the fiscal year, 21,800 manhours were spent in seminars, workshops, and recruit training. A criminal law seminar, defensive tactics training and precision and pursuit driving course was instructed to all law enforcement personnel on a statewide in-service basis. An extensive 160-hour supervisory management seminars were held for all law enforcement super-

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Fisheries Management

A broad spectrum of applied and basic research is the foundation for sound management of Florida's freshwater fishery resources. It is a never-ending challenge, with our wealth of lakes and streams and the changes brought on by urbanization. Thus, the Division of Fisheries continually searches for ways of improving fishing and enhancing our aquatic environments.

Sport fishing is improved in many ways: the renovation and restocking of lakes and ponds, the management of rivers and streams; surveys, documentation, management and control of exotic species; creel census; and studies of fish and fish food. The Division of Fisheries is also responsible for those administrative functions related to freshwater fisheries and aquatic weed control programs.

AN EMPLOYMENT FOR MY IDELE TIME, WHICH IS THEN NOT IDLE SPENT.”
Sir Henry Wotton

“THERE IS CERTAINLY SOMETHING IN FISHING THAT TENDS TO PRODUCE A GENTLENESS OF SPIRIT, A PURE SERENITY OF MIND.”
Washington Irving

Program: REGIONAL FISH MANAGEMENT
Regional fish management programs involve the application of research findings. They are the programs readily identified by the general public, and include management of public waters for better fishing, commercial harvest programs on under-utilized fishery resources, construction of fish attractors, lake drawdowns and stocking sport fish such as the striped bass or sunshine bass. Additionally, the program is devoted to consultation with fishing groups, clubs, and owners of private lakes.

Program: LAKE OKEECHOBEE
Fish population monitoring was continued along with the development of the Lake Okeechobee Fisheries Utilization Plan designed to better utilize and manage the fishery resources of this great lake.

Program: LAKE JACKSON STUDY
Lake Jackson, the popular big bass lake located near Florida's capital city, has suffered from the effects of urbanization and highway construction in recent years. This program is designed to document the changes that have occurred and determine corrective measures or improvements programs for resource enhancement.

Program: LAKE TALQUIN STUDY
Lake Talquin, Florida's largest manmade impoundment, located west of Tallahassee, continues to be a popular fishing lake. The objective of this program is to study the fish population and maintain sport fishing for both freshwater game fish and striped bass.

Program: NORTHEAST FLORIDA STREAM PROGRAM
This program was developed to study the fisheries habitat and provide a means of improving fishing in northeastern Florida rivers.

Program: LAKE MELBURN PROGRAM
Lake Melburn is one of the newest and largest impoundments in Florida. It was created due to highway construction in recent years. This program is designed to study the effects of urbanization and highway construction on habitat quality and fisheries.

Program: LAKE TALQUIN STREAM PROJECT
This program was developed to study the fisheries habitat and provide a means of improving fishing in northeastern Florida rivers.

Program: LAKE LYNX PROGRAM
Lake Lynx is a popular bass lake located near Orlando. This program is designed to study the effects of urbanization and highway construction on habitat quality and fisheries.

APPLYING SOUND RESEARCH THROUGH PROGRESSIVE MANAGEMENT FOR THE FUTURE OF FISHING

Program: OKLAHAWA BAY FISHERIES RESEARCH
A research program designed to investigate and document environmental changes affecting habitat quality and fisheries of the Oklawaha River Basin.

Program: GRASS CARP RESEARCH
The grass carp or white amur was imported into Florida as a control agent for aquatic vegetation. No one can dispute the ability of the fish to devour large quantities of vegetation; however, this program is designed to study the effects of urbanization and highway construction on habitat quality and fisheries.

Program: APPALACHIAN MOUNTAIN STREAMS PROJECT
This program was developed to study the fisheries habitat and provide a means of improving fishing in the Appalachian Mountains.

Program: LAKE DEEP PROGRAM
Lake Deep is a popular bass lake located near Tallahassee. This program is designed to study the effects of urbanization and highway construction on habitat quality and fisheries.

Program: LAKE GRIFFIN PROGRAM
Lake Griffin is a popular bass lake located near Orlando. This program is designed to study the effects of urbanization and highway construction on habitat quality and fisheries.

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Program: LAKE CONWAY PROGRAM
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Program: LAKE CHIEF JOHN PROGRAM
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Program: ARTIFICIAL FISH ATTRACTIONS
A program designed to create effective artificial cover and food attractor to attract and concentrate fish for better fishing.

Program: Exotic Fish Research
In 1971, an exotic fish research station was established at Florida Atlantic University to evaluate the ecological significance of non-native fish. Some 25 foreign species are now well established in Florida. This research program has been designed to (1) evaluate the effects of non-native fish, (2) identify specific environmental limiting factors, e.g., temperature, and (3) to develop and coordinate management practices aimed at minimizing the biological effects of exotic fishes in Florida.

Program: Exotic Fish Research
A 1900 gallon research system was designed, constructed, and put into operation for identifying lethal temperatures for selected non-native fishes. Evaluations of walking catfish and blue tilapia on bass and bluegill were initiated. A thorough review of the known status of the blue tilapia in Florida was completed and new field studies planned. Preliminary investigations into the laboratory rearing of snook were completed. Snook reared in these studies have been stocked into a tilapia infested lake to determine how well they can utilize and control the tilapia. Plans for permanent facility improvements at the Research Center were finalized and the construction begun.

Program: Exotic Fish Research
A year's work was devoted to tilapia research. The boundaries of the strain's infestation were defined. However, the tilapia is still expanding its range. It has been found in both the St. Johns and Kissimmee River drainages. There was some commercial usage of the tilapia as 550,000 pounds were harvested and marketed.

Program: Water Level Manipulation
Natural fluctuation of water levels is a major force in maintaining water quality and sport fish populations. Florida's lakes and streams were once subject to drastic water changes, however periods of flood or drought brought hardships to the human population and water populations and levels were stabilized. This program was designed to return designated bodies of water to periodic cycles as a means of controlling water levels and water level manipulation will come under the purview of this program.

Program: Water Hyacinth Control
The majority of operational control effort is devoted to chemical applications to control and maintain control in problem areas. A spray plane is used for aerial spraying of extensive infestations. New polymer mixtures are presently being tested to various airboats in highly populated areas to minimize spray drift damage. Other new types of application equipment have also been installed to update present equipment.

Program: Water Hyacinth Control
The program has continued to maintain hyacinth populations at acceptable levels under an approach of surveillance and control. Small, local areas that would expand into major problems were identified and treated. Over 36,000 acres of hyacinth were treated in 1971. This was carried out by an operational force of 18 airboat crews and the spray plane strategically stationed around the state in known problem areas.

Program: Hydroziza Control
Hydroziza jambs typically form in some rivers during the rainy season. These jams are broken up and sprayed as to little inconvenience and damage as possible to the blockage of navigable areas. The jam was carried out by an operational force of 18 airboat crews and the spray plane strategically stationed around the state in known problem areas.

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The annual deer trapping and relocation program resulted in the relocation of 107 deer from Cape Kennedy and 58 deer from the Joe Bud WMA. A hog trapping program on Merritt Island Refuge produced 137 hogs, 58 of which were released on Rich- land 79 on Guana River WMA. Hog trapping from Myakka State Park produced 68 hogs for the J. W. Cottrell WMA, 59 for Three Lakes and 17 for Bull Creek.

Habitat management work accomplished during the year involved control burning of 175,350 acres, the planting of 24,800 oak seedlings, and 1,153 acres of annual forage food plots. In addition, a total of 205 acres were planted for dove fields to provide public hunting. Other activities included the maintenance and improvement of 30 miles of access roads, operation of check stations, maintenance of camp sites on 17 areas and the continuing repair and erection of signs on management areas. Waterfowl improvements located on the Auclla, Guana River, and Aven Park were maintained and managed. On the Webb WMA quail feeders were maintained to improve the resident quail population.

Technical guidance and assistance was provided to landowners from approximately 375 requests received for assistance in developing wildlife management plans, wildlife food plantings plans for the cementing of populations and for the harvest and control of nuisance wildlife. The above listed areas have been maintained and operated throughout the year. Sample counts were obtained in 107 hunting-harvested deer on 19 wildlife management areas and a scientific count of partridges made. Sample were grouped with average partridge counts calculated for each area. In addition, the relation-ship of the deer herd to the carrying capacity of its habitat was established for each area. The study has developed a correlation between the average partridge count for an area and the deer population’s status for that area.

During the year, 13 wildlife management specialists were sent to junior colleges in the vicinity of their residences to obtain Police Standards training. These specialists will augment the Law Enforcement Division’s activities on wildlife management areas during the regular hunting season.

Program: WILDLIFE MANAGEMENT AREA MAINTENANCE AND DEVELOPMENT

The Commission currently and historically has responsibility for nearly five million acres of land in 45 wildlife management areas, providing technical assistance to landowners and conducting management studies to improve wildlife.

Program: PUBLIC HUNTING

As an on-going program to provide public hunting, the Division has established a land lease program to provide protection and habitat improvement in cooperation with landowners in exchange for public hunting rights. To supplement the program, the legislature appropriates funds to be distributed to the land owners on a pro rate basis according to the need of hunters utilizing the designated management areas.

Program: WILDLIFE RESEARCH

Progress:

- On February 17, 1977 the Wildlife Research Laboratory at Gainesville was officially dedicated. This modern facility was constructed in cooperation with funding from the Pittman-Robertson Federal Aid to Wildlife Restoration Program, in cooperation with the Fish and Wildlife Service, U.S. Department of the Interior. The lab is located on the northern edge of the Paynes Prairie State Preserve.

Program: WILDLIFE SURVEY

The hunting surveys are statistically developed mail-out surveys sent to hunters in the state to provide facts and figures as to the number of hunters and their success on public hunting areas.

Program: HUNTER SURVEY

Information derived from the return of the questionnaires provides the basis for determining the hunter harvest success of all species during the year.

Program: LAND ACQUISITION

From each ten dollar wildlife management area stamp sold, the sum of three dollars is set aside for the purchase of lands for public hunting, fishing and other outdoor recreational uses.

Program: ALLIGATOR MANAGEMENT

The alligator, once endangered, has made a remarkable recovery since it was placed under full federal protection. Last year’s report estimated that 500,000 alligators may inhabit the state today. Also in that year, the Commission received between 8,000 and 10,000 alligator complaints. The established program of capturing and transplanting ‘gators has become ineffective as all suitable areas for transplanting are now approaching full capacity and the number of ‘gators in need of being moved has increased to near impossible proportions.

Program: WILDLIFE RESEARCH

Early in the year a pilot program for harvest of problem alligators was implemented by the Commission. The program involved contracting with six professional trappers to operate under specific direction of research biologists in the northeast portion of the state. Problem alligators were investigated and if...
signed the task of removing vest over a longer period of the fiscal year the program has proceeded on schedule. Vide biological information from the dead animal. By the end of the fiscal year the program has proceeded on schedule.

Program: QUOTA HUNT SYSTEM

The quota hunt system was designed two years ago to improve the quality of public hunting and to spread out the wildlife harvest over a longer period of time. Earlier evidences had shown that most areas were experiencing extremely heavy hunting pressure during the first two weekends of the hunting season.

Progress:

Quotas were continued on the forty-five wildlife management areas to regulate the number of hunters during the first nine days of the season. Again, sportsmen were required to obtain a free permit on a first-come, first-served basis for the area of their choice. Quotas during this second year of the program were continued as derived for last year's hunt. Again, the response from the public was overwhelmingly in favor of continuing the program. This year a separate permit application form was printed for use in obtaining permits for the special hunts, that is, primitive weapon hunts (archery and muzzleloader). A total of 61,123 permits were issued during the 1976-77 season. A special postseason spring gobbler hunt was conducted on the Lykes Brothers Fishing Creek Wildlife Management Area.

Program: ENDANGERED SPECIES

Eight-sixty species which occur in Florida are listed by the State of Florida as being either endangered or threatened. Twenty-six of those species are also included on the Federal Endangered and Threatened Species List, giving Florida the dubious distinction of harboring more endangered and threatened species than any state outside Hawaii. While conservation measures regarding a few of those species were taken many years ago, intensive endangered species conservation/research management has only very recently begun.

Progress:

An endangered species cooperative agreement between the State and the U.S. Fish and Wildlife Service was entered into on October 1, 1976. Florida thus became one of the first states to take advantage of earmarked federal funds provided for by provisions of the Endangered Species Act of 1973. Research projects undertaken and ongoing include those on alligator, bald eagle, brown pelican, Florida panther, and red-cockaded woodeecker. Also funded under the agreement was the publication of a seven-volume report by the Florida Committee on Rare and Endangered Plants and Animals, entitled "Florida and Endangered Biota of Florida." Four of those volumes are nearing completion.

An act entitled the "Florida Endangered and Threatened Species Act of 1977" was passed by the Florida Legislature and became effective 27 June 1977. The Act created a Florida Endangered and Threatened Species Advisory Council and provided for means of monitoring the progress of endangered species management and conservation in Florida.

Federal Recovery Team operations are ongoing for ten endangered species management areas. A new position was developed to work on management plans and development of criteria for priority species. The potential for evaluating ecological relationships and management strategies is beginning. The Florida Endangered Species Act of 1977 includes an authorization to undertake a "gopher hunt" to obtain biological information through experimenting on the impact of hunting on the survival of an endangered species. The first gopher hunt is planned for this fall.

Program: HABITAT ASSESSMENT—PUBLIC WORKS PROJECTS

This program is designed to improve input into proposed developments in wetlands of the state by providing wildlife habitat assessments for permits under consideration by the Department of Environmental Regulation and U.S. Army Corps of Engineers.

Progress:

Field biologists examined 1,002 permit applications requiring approximate land use changes (1976-77). Habitat evaluations were submitted to the appropriate permitting agencies with each application. Considerable priority is placed on our efforts to provide good biological information for decision-makers in the permitting process. In so doing we are able to help conserve many acres of wetlands, our most important wildlife and fisheries habitat.

Program: HABITAT ASSESSMENT—PUBLIC WORKS PROJECTS

Federal public works projects such as dams and levees for flood control, priority highway projects, and coastal highway projects are reviewed for possible effects on fish and wildlife resources. Suggestions are made encouraging the least damaging methods of construction. This is an important program because input into major Federal projects can have long-lasting effects on significant numbers of fish and wildlife.

Program: HABITAT ASSESSMENT—PUBLIC WORKS PROJECTS

All projects requiring federal funding are circulated for review to internal and external agencies for recommendations to the Department of Administration. Considerable effort in this program was directed this year toward providing for the development of the Statewide Land Plan presently under development by the Department of Administration. Input into this important state plan can and will have impacts for years to come. Our efforts should help maintain quality habitat for wildlife through implementation of policies outlined in the state plan.

Program: FISH AND WILDLIFE TECHNICAL ASSISTANCE TO ENVIRONMENTALLY ENDANGERED LANDS

The area of concern is of increasing importance because of the significant long-range impacts of major land use planning on fish and wildlife habitat. The Office of Endangered Species provides technical guidance to land planners and serves as a watchdog in an attempt to prevent land use plans or decisions which will adversely affect wildlife populations in future years.

Program: FISH AND WILDLIFE TECHNICAL ASSISTANCE TO LOCAL DEVELOPMENT

Regional planning councils, water management districts, county commissions, zoning boards, consultants, and developers can often include a much higher level of fish and wildlife consideration in development when properly advised before their plans become final. This program is designed to provide this advice to local planning and development entities.

Program: DEDICATED TO TODAY AND FOR TOMORROW

March-April 1978
In creating a better understanding of conservation

Information & Education

The Information and Education Division is charged with the responsibility of spreading the conservation message across the state with a goal of creating a better understanding and appreciation for wildlife and the natural environment. The task can take many forms with all media utilized from personal appreciation for wildlife and the natural environment. The task throughout the state, the message is sent out. Areas of attention include the audio-visual section, youth conservation appearances to magazine stories.

Program: AUDIO-VISUAL

Believing that a picture can effectively tell the story, the Audio-Visual section is the eyes and ears of the office, providing the sight and sound of the conservation message. Be it still photography or graphic arts, the color and spectacle of our priceless natural heritage comes alive in their hands.

Progress: The production of color slide lecture series has accelerated. The series, which feature taped narration, have received tremendous response from the varied audiences which have viewed them and can be produced at considerable savings over films. Among the topics completed and now available for use include an in-depth look at the whys and hows of the Lake Okeechobee Fishery Utilization Program, a documentary on the Commission and its activities and a look at the future of the Apalachicola River. In addition, a wide range of audio-visual services were provided to Commission personnel, newspapers, magazines, radio and television. As the need to communicate conservation information has grown, new opportunities in the areas of electronic media have been explored.

Program: YOUTH CONSERVATION CAMPS

Since its humble beginnings under canvas tents in 1945, the youth conservation camps have grown in size and popularity. This marked the 24th year for the facility in the Osceola National Forest and the seventh for the newcomer in the J.W. Corbett Wildlife Management Area.

Progress: The two camps enjoyed another successful year as more than a thousand boys and girls passed through the gates for a summer of experiencing Florida's woods and water. The return rate of repeat campers again was high with some of this year's counselors rising from the ranks of previous campers. The camps did not idle after summer was gone. Youth groups from science clubs utilized the facilities for activities during the other months and environmental instructors found them a perfect outdoor workshop.

Program: HUNTER AND FIREARM SAFETY TRAINING

Although coordinated by five regional Hunter Safety Specialists, the backbone of the Hunter and Firearms Safety Training Program are the volunteer instructors. Coming from every walk of life, these dedicated volunteers contribute time and effort to instill all ages in the safe and proper means of handling firearms. The program is not designed to turn out sharpshooters, but to instill the respect and responsibility firearms command.

Progress: This program received national recognition when more than 25,000 persons were certified as Florida Safe Hunters. An average month will see more than 400 men and women from 10 years of age up take the minimum 12-hour course. The course includes not only firearm handling and terminology but basic wildlife identification, survival and first aid tips and hunter ethics. The importance of such training has become more evident across the state and many secondary schools are planning to include it in their curriculum. The program proudly points to the decrease in the number of hunting accidents during the years the instruction has been available.

Program: WILDLIFE RESERVE

In Central Florida, some 60 men and women have been quietly giving up their free time to assist the Commission. They are members of the Wildlife Reserve, a dedicated group of citizen conservationists who let their concern for Florida's wildlife and freshwater aquatic resources take the shape of positive actions. These volunteers provide their own uniforms and transportation to a variety of tasks and, in turn, free Commission employees for other responsibilities.

Progress: During any 12-month period, it is not unusual to see more than 20,000 hours logged by these Reservists, at a savings to the Commission of more than $80,000. Efforts this year included active participation in the pilot alligator management program to the extent they were responsible for relocation of all nuisance alligators in the Orange County area. Answering complaints has always been one of the services they render, along with manning check stations, posting boundaries, assisting in fishermen creel surveys and helping search and rescue operations. Some of the Reservists have spent their own time and money to become qualified through Police Standards in order to assist the law enforcement division in patrols. If there is a task to be done, whether large or small, a Reservist is there.

PLANNED USE OF A UNIQUE WILDERNESS

Everglades Recreation

"IF EYES WERE MADE FOR SEEING, THEN BEAUTY IS ITS OWN EXCUSE FOR BEING..."

Ralph Waldo Emerson

Florida's Everglades never ceases to attract people to enjoy this disappearing wilderness. But, without a plan for development, the rich habitat and wildlife resources could be lost forever. It is to this task the Everglades Recreation staff concentrates its efforts. Their job is to develop, operate and maintain the area for the use, enjoyment, appreciation and learning by the general public. This can range from providing the law enforcement power to protect the resource to planning and construction of recreational facilities to keeping with the heritage of the area.

Program: UPGRAADING AND EXPANDING EXISTING FACILITIES

Taking what is now available to the public and making it even better is an ongoing project. This growth is always coupled with a concern for the habitat and wildlife resources.

Program: DAY USE FACILITIES

Excursions to the Everglades don't necessarily mean camping for a week or weekend. Much of the wilderness area is within a few hours drive from major urban areas, making it perfect for an afternoon of fishing or picnicking.

Program: Co-ordin. with the South Florida Water Management Div. led to the construction of two new boat ramps located at the S-8 pump station. Along Tamiami Trail temporary facilities (continued on next page)
were constructed at 30-Mile Bend and at the junction of levee 30 to provide access during the widening of the canal. Permanent access facilities will be constructed on a cooperative basis following the canal widening.

**Program: EXOTIC PLANT CONTROL**

The unique Everglades ecosystem has been threatened by the unchecked growth of non-native plants. Research continues on how to check the spread of such plants without harming the habitat and resources of the Everglades.

**Progress:**

The Melaleuca has been the subject of much of the research this year. The trees have been spreading at an alarming rate and have proven resistant to the chemicals used to control Melaleuca at critical locations within the Conservation Areas.

**Program: PRESCRIBED BURNING**

During periods of drought, massive fires sweep through the Everglades, destroying millions of acres of vegetation as well as animal life. One way to reduce the number of fires each year has been through carefully controlled burning of sawgrass during certain times of the year.

**Progress:**

Everglades project staff, wildlife management personnel and State Division of Forestry personnel burned approximately 50,000 acres in Conservation Area 3-A.

**Program: HABITAT IMPROVEMENT**

The Everglades offers a variety of habitats for wildlife, but due to the nature of the area upland habitats are restricted to a small portion of the area. Fires have further reduced these elevated islands in recent years and efforts have been made to create artificial wildlife islands and to enhance spoil banks created during canal construction projects.

**Progress:**

A total of 45 islands were created in Conservation Area 3B. These islands were seeded with Pennisetum Bahio grass and planted with native trees obtained from local nurseries.

[Financial Statement]

**FINANCIAL STATEMENT**

July 1, 1976 through June 30, 1977

<table>
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<tr>
<th>Source of Revenue</th>
<th>Amount</th>
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<td>Licenses and Permits Funds</td>
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<td>Aquatic Weed Funds</td>
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<td>Recreation &amp; Parks Funds</td>
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**Expenditures**

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<td>Fish &amp; Wildlife Management</td>
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<td>Law Enforcement</td>
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**Cash on hand at 6-30-77** $239,016

**Unencumbered for Land Purchase** $187,052

**Unencumbered** $52,584

**Administrative Staff 1976-77**

**Dr. O. E. Frye Jr.**

Director

E. H. Wallance

Deputy Director

Robert Brantly

Deputy Director

James E. Heath, Director

Administrative Services Division

John W. Woods, Director

Fish Management Division

Fred W. Stanberry, Director

Wildlife Management Division

Brantly Goodson, Director

Law Enforcement Division

James T. Floyd, Director

Information & Education Division

R. Danial Dunford, Chief

Environmental Protection Bureau

**ENDANGERED SPECIES**

School children examine a young green turtle, soon to be released.

**SAVING The GREEN SEA TURTLE**

By Dr. Ronald Howells

Six years after they scratch their way out of the nest, the Atlantic Green Sea Turtle (Chelonia mydas) travels as much as 1,200 miles to return to a small stretch of sand to start the cycle anew. From feeding grounds in the south, the egg-bearing female turtle will navigate the open waters of the Atlantic to return to the same beach where she nested two or three years earlier. These giants of the sea, among the heaviest of all living reptiles, have been known to weigh over 800 pounds. These gentle creatures have joined with the whale in becoming over-exploited by man and driven to the point of becoming an endangered species. Prized for their delicious flesh, best of all marine turtles, they have been hunted in the warm Atlantic, from Florida, through the Gulf of Mexico into the Caribbean, and off the shores of both Costa Rica and Nicaragua. Green turtle soup made from the cartilage between the body and shell is very popular both here and in Europe. Turtle nests in the sand are dug up, the eggs removed and made into delectable omelets.

Foremost among the hunters have been the Miskito Indians of eastern Nicaragua. Their annual slaughter of green turtles was estimated at over 9,000 in 1972. Traditionally, the Miskitos took by harpoon only, turtles for family use. In recent times, world-wide demand for the meat has caused the development of turtle processing plants along (continued on next page)
The House of Refuge, above, is on Hutchinson Island on the Atlantic side of the peninsula near Stuart. At right above, a sand flea’s view of a sea turtle’s eggs being deposited in the moist sand of the beach. At right is a close-up of a young green at the age of release, somewhere between nine months and a year. At far right, young turtles scramble for the relative safety of the briny deep.

During World War II, the House of Refuge served as a base for guarding against enemy intrusion, and for observation of Nazi submarine activity. Today the property, which has been restored by the Martin Historical Society, also serves as a refuge for the turtles.

Female turtles return every two to three years to the beaches of Martin County to lay their eggs during the months of May through October. The egg layers crawl out of the surf around 10 p.m. to a spot in the sand well above the high tide water line. Here, the female digs a hole and deposits up to 125 leather-like eggs, then covers them with sand and returns to the sea. Numerous “turtle watchers” are attracted to the beaches for these annual events, with many bringing photographic equipment.

It has been estimated by the local authorities that up to 90 percent of the turtles would not reach one year of age without the intervention of volunteers. During the 60-day incubation period, the eggs may be washed away by an exceptionally high tide or storm, or dug up by raccoons or other animals, namely man. Once they hatch, the baby turtles are easy prey for birds (especially the frigate bird) as they crawl toward the open sea. There, the tender morsels are swallowed by fish. The work of the volunteers and the turtle keepers at the House of Refuge has greatly enhanced the turtles’ chances for survival. The eggs are carefully removed from the nests and are hatched in protected sand areas. The new hatchlings are then placed in large saltwater tanks at the Refuge.

Twice yearly, young turtles between the ages of 9 months and one year are taken from their tanks and brought to nearby Stuart public beach to be released in the ocean. At the time of the release each turtle is tagged with a metal band which will help researchers follow its movements throughout the Atlantic.

The most recent release occurred in March 1977, when 135 9-month-olds were brought to the beach. A crowd of 1,500 natives and tourists watched as the volunteers and area school children removed the turtles from buckets and pointed them toward the ocean. Protected with almost a year’s growth, the young turtles waded into the surf, to be washed out on each wave. In a short time, all that could be seen were the tips of their noses, as the beautiful little creatures surfaced to breathe.

The Nicaragua coast, and the use of nets by the Indians. These enormous nets are laid over a vast area with two Indians placing over thirty nets in one day. Turtles returning to the shoals from their daily feeding on “turtle grass” are caught up in the nets as they surface to breathe. This over-exploitation by the Indians has greatly affected their own lives. The Indians have turned from their farming, fishing and hunting, to the cash rewards of turtle catching. Lured by the money, more and more Miskitos are engaged in the hunt, resulting in a lower daily catch. Now they are dependent on the turtles for money, and must buy food for their families in the marketplace.

Some strides have been made to protect the remaining turtles from joining the ranks of their cousins the Ridley, Hawksbill, and Leatherback, who are on the verge of extinction. Both the United States and Costa Rica have passed protective legislation. Laws have been passed prohibiting the removal of turtle eggs by poachers. Several national and international groups have operated research projects with the goal being to assure the survival of the species.

One of the most active and effective programs in researching and repopulating the green sea turtle, is located on Hutchinson Island off the coast of Stuart, Florida, on the Atlantic Ocean. Here, in 1956, a program under the guidance of the State Department of Natural Resources was begun at the House of Refuge. The House, originally constructed in the 1870s by the Federal Government, was a haven for shipwrecked sailors.

During World War II, the House of Refuge served as a base for guarding against enemy intrusion, and for observation of Nazi submarine activity. Today the property, which has been restored by the Martin Historical Society, also serves as a refuge for the turtles.

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An experiment in quality

Spring Gobbler Hunting

Want a crack at spring gobble hunting the way it was meant to be? If you like to match wits with Old Tom, you may want to get in on the spring hunt at Fisheating Creek Wildlife Management Area.

The spring hunt there is as much a social experiment as it is a turkey hunt. It has been designed with two major purposes: to limit the harvest of hens and to provide sportsmen with better opportunity for a quality hunt.

As the population of south Florida has grown, so has the number of hunters afield. Fisheating Creek and other popular hunting lands within easy drive of metropolitan areas feel the brunt of this increased hunting pressure. Game managers are not only faced with the problem of maintaining enough game to make hunting worthwhile but are also forced to become "people managers."

With this in mind, a Game and Fresh Water Fish Commission study team has come up with a long range solution which could somewhat revolutionize current game management practices.

For several years, Commission biologists have been concerned that wild turkeys at Fisheating Creek were being overharvested. While the management area normally supports a good turkey population, optimum habitat and most of the turkeys are confined to the relatively narrow creek corridor. Of the 32,000 acres within the management area, less than one-third is turkey habitat.

When turkeys were legal game during the general fall hunting season, hunters congregated along the creek, flushing and shooting most of the turkeys within the first week of the season. Consequently, the population was depleted to the point that the area had to be restocked every year in order to have huntable numbers of turkeys.

As a further consequence, spring gobbler hunting in the area seemed out of the question. The serious turkey hunter, someone who takes the time to learn the habits of wild turkeys and who finds great pleasure in using a call to lure a gobbler, was out of luck.

A fall hunting study was begun in 1968 in an effort to pin-point specific problems associated with increased hunting pressure and to plan a corrective strategy. From the study, a number of reasons have been identified as causing the overharvest including crowded conditions coupled with poor hunter attitude and lack of experience leading to widespread violation of wildlife regulations.Study team members believe that the problem is self-perpetuating, and unless corrective measures are taken, can only grow worse.

To solve such a problem, game managers traditionally have either closed hunting areas or settled for expensive "put and take" practices with little hope for a self-sustaining game population.

But the study team has attempted to come up with a better mouse trap. The new spring hunt is a step toward a positive, long-range solution with an innovative twist.

In order to make management recommendations, (continued on page 38)

By Michael Miller

The climax of much planning, hoping, and preparing. A gobbler where it counts—in front of the blind, and right in the open!
the study team has made a major effort to better understand wild turkeys and factors which limit wild turkey populations. Using radio-telemetry, an advanced tracking device, information is gathered from individual turkeys which have been captured, fitted with miniature transmitters and released.

To place the transmitter, turkeys are captured using drugged baits or cannon nets. The transmitter is placed like a pack on the turkey's back, secured with soft surgical tubing fitted like a figure eight underneath the wings. The entire package weighs roughly the same as a single turkey egg and is barely detectable to an observer.

The transmitters do not seem to encumber the turkeys or make them more vulnerable to hunters or natural predators. If the transmitters make any difference at all, the turkeys don't show it. They run and fly as well as those without transmitters.

Using portable receivers with directional sensors, the study team can readily locate an instrumented bird to monitor its physical condition, movements or behavior. Each transmitter is set with a different frequency, allowing identification of each bird.

By tracking turkeys in this manner and by spending hundreds of long, patient, mosquito-bitten hours in observation blinds, Commission biologists have learned a great deal about the movement, behavior and reproduction of those wary birds; where they nest, how many eggs they lay, much more information necessary for the management of turkeys. Using this method, the study team was able to get a good idea of the percentage of turkeys harvested from the Fisheating Creek population during hunting season.

In years that both gobblers and hens were legal, approximately 80 percent of the monitored birds were killed in the opening week of the season. With such a high harvest rate, the Commission limited the fall season to gobblers only in an attempt to protect hens and to maintain sufficient breeding stock.

At first, the new regulations seemed to be effective. To be certain they were taking legal game, many hunters spared young gobblers as well as hens, waiting instead to see the long beard of an older gobbler before shooting.

In the first year of the "gobblers only" fall season, the opening week harvest figures dropped to 16 percent of the monitored birds with one-third surviving the entire season. Although some hens were killed, they were probably shot accidentally.

The next year, however, opening week harvest figures nearly doubled, and by the third year, the rate had risen to 82 percent. Many hunters were ignoring the "gobblers only" regulation and shooting at any turkey they saw, regardless of sex.

While learning a great deal about turkeys, the study team couldn't help but learn a lot about hunters as well. It soon became apparent that some who use the management area care little for regulations or attempts at game management. It also became apparent that unless hunters' skills and attitudes improve, a huntable, self-sustaining flock cannot be maintained in the management area, regardless of the regulations.

It's been said that the farmer is the world's greatest optimist. If so, the hunter must run a close second. Like the farmer, a hunter not only hopes that the next year will be a good one, he expects it. And if he's conscientious, he'll do everything within his power to insure that it will be. That's the attitude part.

Skills? The best way to learn is by doing. This is especially true when it comes to hunting, and it's doubtful that anyone ever learned how entirely from a book. Yet, with the high density of hunters and their vehicles using the management area, good skills and attitude are difficult for a new hunter to learn or an old hunter to maintain.

The study team set out to develop a program which would favor those who cared enough about turkey hunting to work at it. They felt it necessary to not only provide turkeys but also to offer suitable conditions for a conscientious hunter.

Lovett Williams, research program leader and himself a long-time turkey hunter, said, "The area normally had quite a few hunters that were, by any measure, good hunters and ethical people. But it is our belief that poor hunting over the long run will not continue to attract good hunters; it is a degrading phenomenon that feeds on itself as matters go worse."

Williams and study team members David Austin and Tommie Peoples set out to create a "quality" situation in the spring hunt at Fisheating Creek. The hunt is to be conducted for three years on an experimental basis and is new in its second year. If successful, the special hunt will provide a model to help prevent similar problems from occurring elsewhere where the state's population continues to grow.

A serious turkey hunter is a purist of sorts and requires a certain set of conditions to be successful. He needs turkeys, preferably in a mating mood; he needs a reasonable chance at luring a gobbler without it being shot by someone else en route or, worse, being blasted himself by some careless eager beaver who mistook a cedar box call for the real McCoy. That's assuming he possesses the basic equipment and skills necessary for turkey hunting.

From mid-February well into April, gobbler hunts are held at two-day intervals on the Fisheating Creek Wildlife Management Area. The hunts take place on Tuesdays and Wednesdays and Saturdays and Sundays, allowing short periods during the week when turkeys are not hunted at all.

To keep traffic and commotion to the barest minimum, only turkey hunters are allowed onto the management area during hunt days. Other hunters, and even fishermen, have to try their luck elsewhere. In order to pare down numbers even more, the hunts are limited to a daily quota of 75 hunters. Quota permits may be obtained at Game and Fresh Water Fish Commission regional offices.

Opening dates are chosen because the study team has found that gobblers will respond to calls at Fisheating Creek that early. Limiting the number of hunters on the management area allows a hunter to yelp up a gobbler with a fair chance at bagging it as well as surviving the experience.

Hopefully, it will also give hunters incentive to be better sportsmen and conservationists and help maintain a healthy, self-sustaining turkey flock in the Fisheating Creek Wildlife Management Area.
We were sitting around the table, full of fish and hushpuppies and getting pretty well oiled as the evening wore on. Everybody was swapping lies about rough days in the field and the stories were getting pretty outrageous.

In the midst of it all, Tommie Peoples launched into one of the most God-awful tales I’d ever heard, all about the horrors of pelican trapping.

I was chewing on a cold hushpuppy and must not’ve appeared sufficiently impressed or maybe I gulped at a particularly lurid description of the innards of a pelican colony, I dunno ... but before I had time to think about it, Tommie belched, leaned over the table, raised one eyebrow and invited me along on the annual pelican trapping expedition.

Honor bound, I accepted. Fool.

It seemed like a great idea at the time.

That was in January. About the middle of April, I heard from Tommie again. Forget? Not Tommie. He said the pelican trapping would take place sometime in June.

Why trap pelicans? Good question.

Historically, brown pelicans were found all along the Gulf Coast, up the Atlantic into the Carolinas and beyond, and the Pacific Coast from California south. In the past decade or so, pesticide-laden runoff and other man-caused wastes have drastically reduced pelican populations in some areas.

In the delta region near the mouth of the Mississippi River, sudden die-offs have occurred, wiping out local pelican colonies. By the late 60’s, Louisiana, the Pelican State, was left without pelicans.

In Florida, the big-billed birds have fared better. Whatever poisoned the upper Gulf Coast birds is not yet found in Florida waters in appreciable quantities. At this time, the threat to Florida brown pelicans is mostly due to loss of habitat as the coastline is developed. Due to this threat and the die-offs in other areas, the U.S. Fish and Wildlife Service has listed the brown pelican as “Endangered.”

In areas where rookeries are protected from waterfront development, Florida brown pelicans are doing fine. They’re doing well enough, in fact, that a healthy colony can easily recover if a hundred fledglings are removed.

You guessed it. Young Florida birds are trapped each year and transported to Louisiana to re-establish pelican colonies there.

Each season since 1968, the Florida Game and Fresh Water Fish Commission, working closely with the U.S. Fish and Wildlife Service and the Louisiana Wildlife and Fisheries Commission, has trapped pelicans and shipped them to Louisiana to re-establish a population there. As Florida’s wildlife agency, the Commission is responsible for the program, except for the actual transfer and release of the birds.

Of course, a primary consideration in re-establishing Louisiana’s pelicans is to not endanger the Florida population in the process.

Each year, surveys are made which help determine whether brown pelicans are declining, increasing or holding their own in Florida. In addition, a U.S. Department of the Interior-sponsored “Recovery Team” has been formed to determine the habitat which is critical to the survival of the brown pelican. Two members of the recovery team, (continued on next page)
including the chairman, are wildlife biologists working at the Commission's Wildlife Research Laboratory in Gainesville.

The brown pelican project is one of many programs dealing with both game and non-game wildlife that are carried out by the Gainesville lab. The program has been successful. As they've matured, the transplanted pelicans have re-established a breeding population in the delta country and are now producing young birds of their own.

A population in Louisiana would mean a source of stock here. Since the island is part of the Pinellas Peninsula, a Commission wildlife management specialist, would trap and load pelicans in a portable cage. Two men from the United States Fish and Wildlife Service Department of the Interior was on hand to help.

Steve, Tommie, and Bruce Barbour, a Commission wildlife management specialist, would trap and load pelicans in a portable cage. Two men from the Louisiana game agency would ferry the birds to the mainland and load them onto their truck.

The island is shaped like a circle with a bit out of one side. It is completely wooded with red and black mangroves and provides a sheltered rookery for several thousand pelicans as well as cormorants and several species of herons.

In the center is a shallow lagoon several acres in size. Most nesting takes place in the interior mangroves which border the lagoon. Much of the inner circle of mangroves could be seen as we entered the lagoon. The lush green foliage was dotted with nests containing downy young pelicans. Adult birds streamed in and out of the colony bringing food for the young while others, on break, loaded on the lagoon like a fishing fleet at anchor.

High overhead, squadrons of frigate birds rode the breeze, wings set, holding like kites on a string. Just as I was getting into the sights, the boat nosed aground on the mud bottom. "End of the line," Tommie announced cheerfully as he went over the side to help Steve drag the holding pen to the mangrove edge.

While Tommie returned to the mainland for another holding pen, Steve checked me out on the art of pelican snatching.

The idea is to take flying birds that are on the verge of leaving the nest. This means a quicker release in Louisiana with higher chances for the bird's survival.

Pelicans that have developed to that stage are fairly mobile. Some are old enough to fly but still hang around getting free handouts from the old folks.

To catch them, you have to be sneaky. The birds spook easily and are apt to go flapping across the mangrove tops, disrupting the rest of the colony. Steve showed how to get underneath a young pelican, seize it by the leg, secure the neck and wings close to its body to prevent injury, then carry it to the pen.

Looking at a pelican colony from a distance is a nice visual experience. Being inside one is quite another matter; all your senses get a piece of the action.

The first thing that really hits you is the smell; the aroma of years and years of rotting vegetation, rotting eggs, rotting fish, rotting birds and fresh guano. Next is the sight, closeup, of the underside of the colony. Young pelicans are homely critters looking more like Pterodactyls than modern birds. Peering at us with beady eyes set in fuzzy, dome-like heads, they opened their mouths as we approached, hoping to be fed.

Slowly, I began to see signs of the everyday tragedy of the colony. Here and there were the remains of adult pelicans hanging head down, ensnared in monofilament line. More frequently, the carcasses of young birds could be seen in the mud where they had fallen from the nest. Unable to be fed, they starved.

The trees themselves were coated with a thick crust of dried guano that flaked off or broke into a cloud of dust as we reached through the branches. It gets into your eyes and I can't say much for the taste.

Pelicans bring food to the nest by swallowing fish, then regurgitating it directly into the mouths of their young. Occasionally they miss their mark and feed on each other's regurgitations. Whether this is an act of war or merely a conditioned response to being force-fed all its life, I don't know. Small matter at the time. Pelicans seem to learn at an early age to either regurgitate or defecate in moments of stress. Most of the birds I caught were adept at doing either and frequently did both. Needless to say, old you-know-who was below, hanging onto the leg of this fledgling Lord of the Sky. Gravity took care of the rest.

After the initial barrage came the most difficult task of all, the serious business of getting the pelican to the pen. Mangroves grow in very dense stands. To prevent injury, the pelican's neck and wings must be held close to its body, then the whole business threaded carefully through the branches. No easy trick.

Then comes the trip to the pen itself, 50 yards or so through thick foliage and deep mud. Often, the only way in and out of the colony is on hands and knees under the low-growing, tightly interlocked branches.

Often, the pelicans were carried ashore, loaded aboard a specially equipped truck and driven to Louisiana. Of the 100 birds caught, 98 reached Louisiana in good health and were released in the Chandeleur Islands, part of the Breton National Wildlife Refuge.

The release site was chosen due to its location and quality of habitat. With any luck, most of the transplanted pelicans will survive and reestablish a breeding colony there.

To be honest, I felt no sorrow at their departure. Scratched and weary, covered with mud, guano and worse, I was lying on my back in the shallow water, letting the incoming tide wash away some of the mess.

Tommie waded over and, after careful scrutiny to be sure that I was still living, he issued an invitation to next year's trapping expedition. Though I can't remember the exact wording of my reply, I'm certain that it was in keeping with my appearance at the time, too dirty to describe.

Young pelican makes an armful for biologist Steve Nesbitt as he threads his way through the mangrove maze. Pelican snatchers manhandle collection aboard boat—another step on the way to Louisiana.

Photo by Mike Miller
Hunting

Game Non-Game

The crow is well worth a shotgunning's attention

By CHARLES DICKEY

The main part of the hunting season closed the end of February and this is the time when you wonder why you didn't do more hunting. The deer season gets by before we know it. Although there's a long quail season, we never seem to get out as much as we should.

Well, some hunting left, most notably the spring gobbler season. The season on cottontails is open all year. Following the crow nesting season, crow shooting will be open on Saturdays and Sundays from May 28 through October 28.

There's a total of 120 days of crow shooting in Florida, all of which is under regulations of the U.S. Fish and Wildlife Service. The crow is classified as a migratory bird.

The results were immediate and impressive. I shot about twice as many times at each stop when I was completely covered, no doubt resembling a huge blob. Crows will speak from gunshot but if they're really excited they'll keep coming back. When they're at fever pitch, they'll dive in and swing around you time after time. But once they catch on that humans are causing the commotion, they'll leave. Oh, they may stay out at 200 yards and mock you but essentially they won't fly back within shotgun range.

No matter how well you're hidden in pine saplings or other evergreens, when you look up to shoot, a crow will quickly spot your shiny face. If it isn't covered, it's almost like a light bulb.

I tested this by climbing a tall pine tree and looking down at a buddy in various kinds of clothing. Any camouflage helped, but the thing that hid him was a face mask. Secondly, the hands, which is bound to be moving, didn't show movement easily when covered by gloves.

From the crow's eye-view, it's easy to spot movement but especially face and hands. The bird is used to being around humans, in fact has adapted well to living among them. Man is his number one enemy. When a crow identifies his enemy with a shotgun, he's going to give the alarm cry and get out of there. It is difficult for a crow to identify a hunter with a face mask and gloves. An attacking flock will catch on after awhile but in the meantime you have gotten a lot of shooting.

I generally use a few decoys but only a small number. I like to be able to pick up and move quickly to another spot when the crows quit responding.

I do not use the decoys so much as attractors or "pullers" as to have something for the crows to see when they come in. As mentioned earlier, I put up all the racket I can when calling crows. When the birds arrive, they expect to see something. I want them to fasten their eyes on crown or owl decoys. If they're focusing on decoys, they're not as likely to see me or the other gunners.

The horned owl is the traditional enemy of crows. The owl cannot catch one in daylight but when crows are roosting at night, the owl can glide in, silently land and take one off a limb for supper. Crows are braver in daylight than in darkness. The sight of an owl in daylight sends crows into battle, with raucous calls for other crows to join the fray.

I have hunted crows with live owls used as decoys. That was before there were a lot of regulations about owls and a permit was needed to have one. The best horned owl decoy was a live one owned by a wildlife officer in Pennsylvania. He named the monster "Open the Door Richard," for a crazy song popular 20 years ago.

(continued on next page)
from Coffeeville, Alabama, starts the spring turkey circuit in Florida and follows the mating season north through Alabama, Tennessee, Pennsylvania and New York and wins the nest in Vermont in May, where they’ve done a great job of bringing the wild turkey back.

Ben puts on turkey schools all over the country, one of the best known at Westervelt Lodge, P.O. Box 2362, Tuscaloosa, Ala. 35401. He teaches call, woodmanship and hunting techniques. He’s emphatic about the value of camouflage clothing. Not satisfied with much of the clothing on the market, he designed his own with pockets where they ought to be. He also designed a special face mask and gloves.

As a learning aid, Ben has a tape an hour long which plays the various turkey calls and Ben explains when to use them. It’s the best training device I’ve seen. I don’t have a musical ear and am always in need of a refresher course. That’s one reason I like to play Ben’s tape.

Ben’s country-boy humor makes learning a pleasure. If you’re interested in improving your turkey hunting, write for his catalog of aids to Lee Calls, Inc., Coffeeville, Ala. 35624.

HATCHERY-REARED SNOOK

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outhern Florida’s fighting fish, the snook—which have the propensity to explode as if they were shot out of a cannon when hooked—are being artificially spawned and reared in a Florida game research project by the Game and Fresh Water Fish Commission.

Close to 150 of the young fighters made history last fall when they were released into the fresh waters of Lake Bonny near Lakeland.

The release was one of the high points of more than four years of work by Ben Chapman’s artificial propagation of the popular saltwater fish which lives in the bays, passes and rivers riddling Florida’s tropical east coast and its lush Ten Thousand Islands.

Commission biologists hope to eventually produce enough snook to stock suitable warm waters of the state. Plans call for developing techniques to add snook to the freshwater fisherman’s creed.

The artificial propagation project first began in Lemon Bay at Englewood in 1974 under the direction of biologist Leibian Agar. The Commission began a feasibility investigation of artificial snook propagation using the facilities of the Collier County Conservancy’s Marine Research Center located in Lemon Bay.

Within six months, the snook—some of which had grown to 7½ inches—were taken to a fresh water lake in South Florida to be released.

With the knowledge and experience gained in 1976, the 1977 phase of the study began in May with great confidence and in the new Game Fish Propagation Laboratory built by the Commission from monies

Eligible female snook is injected with human chorionic gonadotropin to accelerate egg development and induce ovulation.

Eligible female snook is injected with human chorionic gonadotropin to accelerate egg development and induce ovulation.

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(continued from preceding page)
provided by the John W. Dearholt Memorial Fund.

"I felt extremely confident the ponds would produce this year," said Chapman. "Once water quality and food production could be maintained at an optimum level, I believed we'd be well on our way to mass producing fingerlings for stocking."

His confidence was justified at dawnbreak on July 25th, when the first of the three ponds was drained. With both Commission and Conservancy officials noting their collective breaths, a total of 145 six-week-old snook, ranging from one to two and a half inches, were sized from the pond.

Later that month, 147 more small fingerlings up to two inches were harvested from the second pond while the third failed to produce. All the snook were transported to Boca Raton where they were acclimated to fresh water and stocked in ponds loaded with tiny fish to encourage additional growth.

Chapman, along with his eager assistants, Wes Fish, Ken Jones, George Heron and Jeff Spicola, wanted to restock the ponds before winding down the project for the season, but felt the major spawning run was over.

"I feel we have accomplished a great deal in a relatively short time," he explained. "The long hours have been worthwhile now that we know that large scale production of fingerling snook is within reach."

"We're already looking forward to next year, anticipating an early start and improved techniques which will hopefully put us that much closer to our objective," Chapman said.

The project leader added, "We're very appreciative of the new lab facility provided by the Conservancy and Mrs. Dearholt here at Rookery Bay and their continued support in our work."

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**FLORIDANA**

FIRE HUNTING - OLD STYLE

Photo by W.L. Adams

FIRE HUNTING

Most anyone who has driven about the countryside at night has noticed the eyes of deer and other creatures shining in the headlights. If you're a camper, perhaps you've seen the same thing happen when animals, lured by curiosity, come within range of your campfire's light.

Specialized cells at the back of the eye are especially efficient at gathering light which enables certain animals to see "in the dark." These "cone" cells reflect light which means the creature's eye shines when there is enough illumination to create a good reflection. Many animals, notably deer, appear to be dazzled by the light and will stand staring, almost unaware of possible danger.

This fact has long been known. The tribesmen of the northeastern United States, for example, hunted from canoes, using a torch to shine deer and other animals along the shore, enabling them to get within bow range. Early European settlers were quick to adopt the fire hunting technique. Development of the battery-operated "electric torch" gave the night hunter a more effective tool.

Long outlawed in the interest of conservation, shining or spotlighting is a method used by today's poacher. The practice is still commonly called fire hunting, even if the "fire" is now a 12-volt spotlight.
Beauty has been their downfall. Graceful sea oats thrive on shoreside dunes where few other plants can grow. The deep probing roots hold the sandhills together. They are fragile giants that can hold the erosive forces of wind and wave at bay, but they’re no match for the shears of the commercial harvester. Protected by law, plant poachers nonetheless persist in staging forays against the sea oat stands.