Hawks of this family group are known by their broad wings and narrow tails. Often seen perched in open country, and have brick red tails. Immature hawks have barred black and white tail. Immature hawks are brownish.

Broad-winged Hawks

Florida Wildlife Magazine • Florida Game and Fresh Water Fish Commission

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The Cover
A favorite game fish during fall and winter in Florida, the black crappie is better known as speckled perch, or just plain speck. See page 14.

From A Painting By Wallace Hughes

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ROSE • TALLAHASSEE

January, 1973
Listening in on Wildlife

Prying into the wild turkey's private life is an important part of modern wildlife research

By J. Greg Williams

"We're becoming so good at tracking wild turkeys," Bill chuckled, "we're beginning to think like turkeys."

Thinking like wild turkeys has given Wildlife Biologist Lovett Williams and Game Manager Bill Frankenburger quite an advantage in a research project they conduct for the Florida Game and Fresh Water Fish Commission on this great American game bird. But how can they "track" these wary creatures through their habitat of dense woods and muddy swamps?

In the past, game management specialists relied chiefly on reports and sightings of banded or trapped birds for their knowledge. Today, through modern electronics, researchers are using a radio-tracking technique called telemetry in order to gather more detailed data on the wild turkey's life style and preferred environment. Through telemetry, game biologists have found the wild turkey thrives best on a variety of terrain.

For roosting or escape cover the turkey requires a heavily wooded area or a swamp, but in the spring or summer months it travels to the nearest grasslands in search of food.

Offering a diversity of land types, Lykes Brothers' Fisheating Creek Wildlife Management Area, in Glades County, has been the site of much of the Commission's telemetry research on both hens and gobblers, in all seasons.

Last year, approximately 30 hens and gobblers were captured in cannon nets and with baiting methods. Once selected, the bird is then released carrying a miniature radio transmitter.

The little sets, weighing approximately 4 1/2 ounces and powered by two small batteries, are attached to the turkey's back with rubber tubing tied in square knots under each wing.

Once the bird is released, Williams and Frankenburger ready their telemetry receiving equipment and set out to obtain position fixes on each "electronic game bird."

When the signals begin to roll in, a receiver and two types of antennas are required to get an accurate fix on the turkey. Each receiver, equipped with 24 channels, is able to accommodate three different frequencies on each channel. Along with these, a small hand-held, 3-element, directional antenna is used for locating nearby birds. For more distant signals, a high-gain, multi-element antenna mounted on a vehicle is more effective. Depending on the data required, signal fixes are taken at various times of the day. For brooding or nesting research, fixes are plotted every 1 or 2 hours; if only a location check on a turkey is needed, one reading a day is adequate.

Through research gathered on the wild turkey from modern telemetry methods, wildlife biologists and ecologists have collected important data on the turkey's roosting, nesting, brood rearing, and feeding habits.

Using this data, these specialists in wildlife management are learning what the wild turkey requires to survive. Hopefully, by protecting remaining habitat and providing these requirements the future of the wild turkey in Florida can be assured.

Miniaturnization in modern electronics has enabled biologists to adapt lightweight radios to both small and large animals. Here a Florida wild turkey (photo 1) is fitted with sending set (3), and released for tracking (4). Two receivers may be used; truck-mounted or portable, hand-held (photos 2 and 5).
rather popular opinion, fish like snook or large black bass do not jump as much with flies as they do with plugs. It is true the plug is more restrictive of the fish's movements, but it is very easy for him to tell exactly what is bothering him. He tries to throw the plug away, and the fly is as a rather vague thing that restricts him in a mysterious way. At risk of making sound for fishermen sure, I'm of the opinion there is an occasional fish which never really gets started when hooked on a fly outfit. The pressure cause more jumping than a light one. Despite a lot of making some fly fishermen sore, I'm of the opinion: "throw the plug away, and the fly is a rather vague thing that he's pooped without ever really getting steamed up."

Black bass do not jump as much with flies as they do with plugs. It is very seldom that an extremely large salt water fish is landed on a light plug without some of the hooks being bent and any time a hook is bent there have been some pressures a little beyond the call of light duty.

This plug durability thing becomes more important as the line strength is increased. A spinfisherman who has been using 6- or 8-pound test line for years without difficulty may find his plugs coming apart when he goes to 20-pound line for a special purpose.

The poorst risks are fresh water plugs taken to plugging gear. Few bass plugs were built with the hooks fastened to a wire that runs the length of the lure. On occasion, the hook comes out of the plug. Occasionally, the hook breaks, or even quite the eye has come out of the front of the lure. Some of these fouls-ups have been due to sloppy construction, but most of them have happened because the plug had been around for a long while and no one had ever checked to see if it was still hung together.

Along about midwinter, it used to be standard procedure for northern outdoor writers to devote a few pages to getting your tackle out and checking it in preparation for opening day. In a section of the country where you fish the year around, there's probably less fiddling with tackle. And where a guy goes fishing instead of wishing, he just doesn't bother much.

Wooden plugs are the worst offenders in the deterioration business. No matter how durable the paint, water is likely to enter where the hook is screwed in, soften the wood, and possibly rot it, and the screw lets go at the wrong time. If the eyed screw that holds the hook is turned out a couple of revolutions anyway, the wood holds it even less.

This kind of horror occurs most frequently in areas where there are frequent hangups in brush or grass. Constant hard yanking on the hooks will loosen them sometimes, even when the wood is all right. You can well be suspicious of any wooden lure that has spent a lot of time in the water.

Plastic plugs are not immune to the problem, but in this case it's usually a matter of the screw corroding or rusting. However, since plastic tends to hold screws well, I've seen a few occasions when the screws were too flimsy for hard use. Of course, the sensible precaution with any lure is to yank on the hooks now and then to see if they're still solid. I can't remember doing that a dozen times in my life while fishing.

The poorest risks are fresh water plugs taken to salt water and subjected to really heavy fish and strong lines. Twenty years ago when there weren't many small plugs used in salt water, that was one of the ever-present problems in fishing heavy fish with plugging gear. Few bass plugs were built with 100-pound tarpon or 50-pound cobia in mind.

Some of the best salt water anglers use the heaviest use have the hooks fastened to a wire that runs full length of the lure. With that rig you still have him on the hook, even if he eats the plug. Bar-racuda are noted for disposing of the softer parts, and if you travel north, you'll find the same thing with pike or muskies.

Aside from the uselessness of the hook off or pulling it off, there is the problem of crushing and twisting with extremely heavy takers. It is very seldom that an extremely large salt water fish is landed on a light plug without some of the hooks being bent and any time a hook is bent there have been some pressures a little beyond the call of light duty.

The most common length for the guide John boat used out West is 14 feet.
Everyone Wins

only part of the value of hunting and fishing can be measured

Hound dog music doesn't please every ear, and, by the same token, not everyone goes in for grand operas. But there's one kind of music that affects us all: the jingling of cash register bells. Every segment of Florida's economy benefits from money spent by hunters and fishermen. Sportsmen's dollars go for motels, guide services, gas and oil, bait, gun shells, sardines, dog food, and literally scores of other items which feed back into the state's general economy.

It's well known by the concerned sportsman, but hardly at all by the public, that the sportsmen's ante supports fresh water fish and game management, plus many other conservation programs. This money is paid by sportsmen in the purchase of licenses and permits, and payment of a 10 per cent tax on fishing equipment and an 11 per cent tax on sporting firearms and ammunition. Although all of the people of Florida, plus the tourists, benefit from sportsmen's programs, it's the hunter and fisherman who have paid the bill for years, and still do.

While nearly everyone realizes a high percentage of Americans enjoy getting outdoors, it takes a survey like the U.S. Department of Interior's to reveal the magnitude. Their figures have plus or minus accuracy factors, but they're the best statistics available, along with various state surveys.

Interior's study was mainly concerned with "substantial" sportsmen, defined as those who fished or hunted during all or part of at least 3 days, or who spent $7.50 or more on these sports during 1970. These 36 million "substantial" fishermen and hunters spent the staggering sum of $7.1 billion that year.

On a national basis, the "substantial" fishermen spent more than $4.9 billion, took over 576 million fishing trips, averaged spending $7.02 on each recreation day, and drove more than 28.7 billion miles. The "substantial" hunters spent over $2.1 billion, took more than 176 million trips, spent $10.52 on each recreation day, and traveled more than 9.1 billion passenger miles by automobile.

Gasoline station operators, car dealers, and Detroit should appreciate sportsmen, even if a lot of wives don't.

If you were an average fisherman, you'd be Mr. Average Hunter, here's how your expenditure broke down: 28.2 per cent for fishing equipment; 23.9 for food, lodging and transportation; 21.0 for guides, dogs and incidental; 17.3 for bait, gun shells and sardines; 10.4 for dog food; 7.4 for license fees; and 3.8 for privilege fees.

Chances are, you believe you spent more, but tried to convince your wife you spent less.

By CHARLES DICKEY

American anglers spend about seven dollars per day, says the latest national survey. Accessories, basic equipment, left, mounts up in a year, as do bait, fuel and food costs. Hunters, below, pay over ten dollars per recreation day.

The breakdown on dollar expenditures may startle some old-timers. Most of the dollars for outdoor fun do not go for the cost of direct equipment such as rods, reels, shotguns, and shells.

The statistics clearly show that the cheapest part of their recreation dollar is license fees, which go to maintain and improve their sport. On a national basis, only 2.2 per cent of the fisherman's dollar goes for licenses and 5.6 per cent of the hunter's dollar. It's a small price to pay! It's really the best buy the sportsman gets for his money. If inflation and demands on state game and fish departments for more services and programs cause license fees to go up, the sportsman has little reason to complain, especially if he looks at license cost in comparison to his total cost of hunting and fishing.

The national statistics are a big help in working out statistics on what hunters and fishermen spend each year in Florida, but there are loopholes. For many reasons, not everyone who fishes or hunts has to purchase a license. For instance, people under certain ages and over certain ages do not need licenses. No license is required at all for salt water fishing, certainly a major factor in Florida. In the 1971-72 season, 255,952 resident and non-resident licenses were issued.

(Continued on next page)
Assuming this average is applicable to Florida, resident hunting licenses were sold in Florida. No 88,000.

About Interior's survey showed that on a national basis, 21.4 per cent of the hunters were license exempt. The non-licensed hunters would number about 525,000, or about 38.6 per cent of the fishermen did not have to buy licenses, or about 355,000. This would be a total of about 1,379,000 fishermen. Using an average expenditure of $149.55 per season, it would mean that fishermen in Florida spend about $206 million a year, according to Interior.

"When," you say, "What about the short-stay, non-resident?"

The number of non-resident hunters is almost insignificant in the broad state picture, but it is a definite factor with non-resident fishermen. Many non-resident fishermen stay in expensive motels and pay high prices for charter boats, especially for salt water fishing. There is no question but that the short-stay vacationist spends more on a dream trip to Florida than he normally would. While it's a gray area, with much interpolation, we're taking the $206 million as a conservative statistic for fisherman expenditure in Florida in a year.

The hunter and fisherman together spend about $51 million a season, if you'll accept our math. But 344,000 fishing licenses were bought, but about 38.6 per cent of the fishermen did not have to buy licenses, or about 355,000. This would be a total of about 1,379,000 fishermen. Using an average expenditure of $149.55 per season, it would mean that fishermen in Florida spend about $206 million a year.

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The hunter and fisherman together spend about $51 million a season, if you'll accept our math. But no matter how you figure it, sportsmen are important to the total economy of the state. Hunting and fishing dollars filter into the most luxurious hotels and to the smallest crossroads store where a fisherman fills his gas tank.

If you'd like an idea of how important the sportsman vote could become on conservation issues, here are some national statistics from Interior's report. In 1970, there were 24.5 million households in America with one or more fishermen or hunters. One out of every three men in America fished, and to the smallest crossroads store where a fisherman fills his gas tank. If you'd like an idea of how important the sportsman vote could become on conservation issues, here are some national statistics from Interior's report. In 1970, there were 24.5 million households in America with one or more fishermen or hunters.

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As for the future generation, in 1970, 5.4 million young sportsmen, ages 8, 10 and 11, went fishing, and more than 1 million of that age group during the courtship years, but picks up after 18 and zooms on up until age 35.

The national survey, which is done every 5 years, provides valuable statistical information to show just how important sportsmen are in dollars and cents. It shows how sportsmen's dollars provide most of the funds for fish and wildlife management and general conservation, how vital sportsmen are to the general economy, and their potential as a political force for conservation.

No one has yet come up with a method for measuring the aesthetic value of hunting and fishing. How much is it worth to a tired city businessman to spend a day fishing for largemouth bass? How much is it worth to a father to watch his son catch that very first bluegill? How much is it worth to the boy to catch it? How much would a mother take for the expression on her son's face when he comes home with his first duck?

There'll never be a way of measuring such values, but 55 million Americans who hunt and fish know what we're talking about.

(Continued from preceding page) The most lasting values of fishing and hunting are intangible. Nobody has yet devised any way to place dollar signs next to quail and experience being out-of-doors. How much is this child's first dream worth to him? And to his dad? What's the young hunter's smile worth as he retrieves his first duck?

The hunter and fisherman together spend about $51 million a season, if you'll accept our math. But 344,000 fishing licenses were bought, but about 38.6 per cent of the fishermen did not have to buy licenses, or about 355,000. This would be a total of about 1,379,000 fishermen. Using an average expenditure of $149.55 per season, it would mean that fishermen in Florida spend about $206 million a year, according to Interior. If you accept these figures, then 344,000 hunters in Florida spend more than $51 million a season.
Specks Are Special
when the water's cold, the angling action's hot

T he red and white plastic bobber bounced gently and sank from view. I wasn't ready. As my hand touched the cane pole, the float squirmed back to the top, and I knew I'd been had—again.

Ed Taylor chuckled as I glanced around to see whether or not he had seen what had happened. "You gotta be just a little quicker," he offered, "but you gotta be gentle, too, remember."

I put on a fresh minnow, dropped him over, and shortly the float again moved downward steadily through the brown-stained water of Lake George. This time I'd kept a paw near the pole, and just as soon as I felt he had it good I lifted him, tugging another of my three cane poles was dancing in its metal holder, attached to the gunwale of Ed's fishing boat. Turning quickly from port to starboard, I began "escalating" my new customer to the daylight.

By Wallace Hughes

Spawning time is the best time for crappie fishing, and the expendable males are most often caught then because they're actively guarding eggs, fanning nests, or getting ready to do one or the other. The females are probably not as concentrated at one time and in one place as are the rooster fish.

When the water temperature drops into the middle 60's, these fish start to spawn. This means it's sometimes real cold topside. Crappie fishing, then, is cold weather fishing. They start in September or October and spawn right through January and February, the peak months, and into the early spring.

You'll find black crappie in relatively shallow water at spawning time; in the deeper channels and holes in summer. Fish at various depths until you find them, then stick with that depth. Most speck fishermen agree that a bait has to be served pretty close to him before this fish will take it. They don't rise or sink much to feed, at least not on a baited hook.

Cloudy, dull days are probably best for crappie fishing, and if you can find some sunken brush pile, tree top, or similar structure, all the better. When the sun is out, specks head for the shade.

Fish for these gregarious panfish near the bottom to begin with. Then, if you can establish through trial and error that they're somewhere above, put your bait there until they aren't biting anymore. Sometimes a few inches above or below a given depth will mean no hitting. A slight adjustment, and "wham!" Minnows fished around snags and under docks and bridges, near the bottom, are about the best means of finding out if the specks are home.

Another method that works for some anglers is to locate the fish with minnows—over a wide shallow bottom, for example, or at the edge of a drop-off—then switch to artificials. A wide variety of small, minnowlike lures will catch crappie, including leadhead jigs, usually in white, silver, or yellow; streamer flies; spinners, often with a strip of pork rind attached; and the artificial minnow look-alikes.

One thing to keep in mind: Regardless of your fishing method, always carry more bait than you expect to use, and plan to come home with a lot less than you started out with. Luers do get tangled and, with light monofilament, break off pretty often. Likewise, minnows are pretty fragile at best. Some die, some are stolen, as I found out on Lake George, and some, of course, catch fish. You can go through a few dozen minnows in a day's fishing.

Hatchery minnows are available around most good crappie fishing waters, but you can seine or hook your own to keep down the cost. A styrofoam bucket or box holds them well. Some anglers hook their bait minnows through the eye sockets, some through the lips, and some through the fleshy part of the tail behind the dorsal fin. I've also heard of clipping one lobe of the tail to make a minnow wobble more seductively.

Whatever your preferred place, tackle, or manner of fishing for black crappie, they're fun to catch; they come in bunches, and they're good to eat. And now's the time to go 'em.

FLORIDA WILDLIFE
JANUARY, 1973

By GENE SMITH

Water temperatures in the mid-60's trigger crappie spawning, in shallows near the edge or on wide flats up to 12 feet deep in open water. Specks usually hit well or not at all. Crappie moves a lot—and so do the fishermen.
Wildlife Is Everybody's Business

words and music
By RALPH A. MILLS

A fish fry... is everybody's business,
But you can't have a fish fry
If the fish have gone away.
And if we keep right on polluting,
And not caring what we're shootin'...
There will never be a fish fry.
Or another hunting day!

A bird's song... is everybody's business.
And who could say a song bird
Doesn't brighten up the day?
But if we keep right on polluting
And not caring what we're shootin'...
We will never hear a song bird,
'Cause they'll all have flown away.

A six o'clock commuter to the farmer in the dell,
And you can bet your bottom dollar if the birds and deer of Florida are

Plentiful and healthy then the people, too, are well.

Ecology... is everybody's business.
If the trees should all stop breathing
Then, believe me, life would stall!
And to control the dredging, filling
Save the habitat we're killing,
Support the Game Commission
And you'll help to save us all.

A walk in the woods... is everybody's business.
And a picnic in the forest
Can be fun for one and all.
But will some wised-out storyteller
In the future's dim remembrance,
Tell about a thing called "picnic"
In some place he can't recall?

What to do?... The answer now is up to you.
If we don't keep on trying
Won't tomorrow cure today?
And to the future leave a memory,
Or can we have a legacy?
Support the Fish Commission
And you'll help to find a way!

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FLORIDA WILDLIFE

JANUARY, 1973
A Colony of Crabs

From force of habit my eyes drifted across the ground ahead as I walked. Under a cluster of palms the grass gave way to barren dirt, packed hard like the soil beneath a playground swing.

As I approached there was a scurry of activity on the ground. I stopped—the scurrying stopped! I strained to focus on the cause of the commotion but could see nothing. I took another step—more scurrying. This time I was able to pick out moving objects. They were small, roughly the size of a coffee cup, and seemed to vanish into thin air, allowing me only a fleeting and teasing glimpse.

Since I was fairly near the Miami River, my first thought was that these were rats. The size of the animals could easily be correlated, and given the general environment of the waterfront, this was reasonable. But the motion I had seen was not rodentlike. It was not smooth. It was rather jerky and sporadic—a stop-and-go sort of action. What I had happened upon, I realized only after waiting, observing, and "librarying" a little, was a colony of walking crabs, Cardisoma guamum.

These curious crustaceans, horoscopic patron of people born between June 21st and July 22nd, have fascinated and excited the imagination of man since Biblical times. Hardly is there an animal personality less deserving of this attention. Innocuous and secretive, most of their time is spent scavenging for food and keeping their burrows operational.

Biologically, however, they are an anomalous and exciting group. Though they are primarily land dwellers, they can live and breathe in either fresh or salt water. This is made possible by the presence of tiny respiratory cavities which have replaced the gills. In these vascularized chambers the blood is so close to the surface that oxygen can be extracted directly from both air and water. Thus freed from a marine environment, these animals have become terrestrial, returning to the sea only to spawn.

Their burrows extend down to the water level as deep as 7 feet below the surface and provide the crabs with drinking water. These tunnels are usually simple, without side branches or chambers. They "disappear" into the ground nearly vertically and, after dipping into the water, hook back up for a short distance. This forms a blind pouch in which the animal can seek shelter from predators and climatic extremes.

The eyes of the walking crab also represent an interesting adaptation by this animal to its perturbing existence. Perched atop long stalks, they can pick up visual stimuli from a full 360 degrees around and from any angle overhead as well. The eyes are compound, as in a fly, giving a strong, though not detailed, image.

I have seen an entire colony of walking crabs run for cover as an airplane passed overhead, momentarily causing a shift in shadows.

When the crab is ready to enter its burrow the prominent eye stalks are lowered into special grooves on the top shell.

In the months following my discovery I visited the colony several times a week. The routine was always the same: As I approached, each crab ran into its own burrow, which was often 10 to 15 feet away, passing up closer holes. After I got settled, the crabs slowly reappeared, the smaller ones first, then the larger ones. Each animal would first present its folded, knucklelike claw, called the "fid-" in folklore, then quickly pop its "periscopes" up to have a look around the outside world. If all seemed well, it would crawl out of its subterranean shelter and sit at the entrance.

Individual crabs became recognizable. The large male whose home was under the fig root; the lavender female near the cabbage palm; and the dark blue male that had three legs missing on one side and whom I called Peter Stuyvesant.

After about 15 minutes the entire colony would be abuzz with activity. Each crab seemed to follow a set route, only occasionally veering off to explore other areas. Some only traveled in straight lines to the left of their holes; others, to the right. Still others walked in huge arcs, always in the same direction and always over the same ground.

I learned, through a phone call to the University of Miami, that these animals like carrots. I shredded the vegetable and spread a few piles around. They loved this and would happily haul each pile of (Continued on next page)
(Continued from preceding page)

shreddings back into their homes. If two crabs met at the same pile, each would throw out its claws in a defensive position and the other would jockey for some not-clearly-defined superiority. Finally, one would retreat and the other would eat some carrots on the spot and haul as much of the remainder back to its burrow as possible.

I always left these excursions impressed by the degree of adaptation these originally marine animals show to their land-dwelling existence. It has been observed in the research laboratory that Cardisoma can live for many days in humid air with no water, and even several days under extremely dry conditions.

Yet, the walking crab must still pass through its earliest stages of life in salt water. Copulation, including internal fertilization, probably takes place about a month prior to spawning. Adult females generally change colors, from blue to white or yellow, at the time of ovulation. The fertilized eggs are carried as a compact shiny mass on the female's abdomen until they are ready to be released into the water. At that time she starts an overland spawning migration, usually in conjunction with an autumn full moon. During these migrations, great numbers of crabs can be seen crossing fields and roads on their way to the sea. The sight is quite eerie. The crabs, illuminated only by moonlight, look like hundreds of hands crawling around. Upon reaching the salt water, the eggs are released.

The larvae hatch and mature, passing through two stages before reaching adulthood. In the juvenile stage it is extremely hard to differentiate the sexes. The body color is golden tan or brown with scatttered purple spots. The claws are unequal in size.

The adolescent, or transitional stage, crab is colored similarly to the juvenile—but the beginnings of structural differences are present. There are changes between males and females in the shape of the bottom shell and, more significantly, in the shape of the major claws. These differences will persist throughout the adult life of the animal. The large claw itself can occur on the right or left side.

Between the adolescent and the adult there is little structural change. Except for size, the difference is one of color. Adults, other than females which have recently ovulated, are blue.

It is not known how long the walking crab lives, but 5 to 10 years is not an unreasonable guess. They have very few natural enemies, possibly only the raccoon in our area. In many parts of their range, however, which includes the east coast of the Americas from Florida to Brazil and the Caribbean Islands, man considers them a delicacy and thus represents a major predator. Also in parts of their range, especially in cosmopolitan areas such as Miami, automobiles kill many migrating crabs, and highrise apartments claim much of the animal's natural habitat.

Possessed of a constitutional timidity, along with knotty limbs and gawky gait, this small crustacean would seem ill-equipped to exist in an increasingly hostile environment. Yet its great adaptability enables the walking crab to flourish. Observers report no appreciable decline in numbers of migrating or netted individuals. It's still possible to find areas of barren dirt under clustered palms where a scurry of activity awaits even the casual observer.

How To Care For OILY BIRDS

WHAT SHOULD YOU DO when an oil spill occurs, and birds along your shorelines are in trouble? The best first step for the concerned individual is to volunteer his services to emergency rescue centers organized by the state wildlife conservation agency, says a newly published booklet, "Operation Rescue."

The booklet was written by bird rehabilitation expert Phillip B. Stanton under the auspices of the American Petroleum Institute. Stanton, a member of the Framingham State College biology faculty, maintains a bird rehabilitation center in Upton, Mass. Drawing on this experience, he details in pictures and prose how to capture and handle oiled birds, clean them, and finally release them back to nature.

For example, the author indicates that a careful initial selection should be made of which birds to rescue. One slightly oiled may have a better chance of survival if left alone in its own environment. If a bird is covered with thick oil, on the other hand, and largely immobile and appears near death, it may be best to destroy it humanely. And rare species merit more attention than more populous ones.

Here are other tips gleaned from the booklet:

- Apparel for the rescuer should include gloves, waders or wetsuit, and safety goggles, for birds in distress may attack the eyes.
- A useful instrument for capturing oiled birds—though they often may be caught by hand—is a long-handled net of the type used for landing fish. It should have small mesh to prevent entanglement of feet, wings, and legs.

-captured bird should be kept initially in a ventilated cardboard box, several birds to a box if the species is small, one to a box if large. A solid lid on the box helps keep the birds quiet. Birds may also be held temporarily and transported in vegetable crates, which have side slits for good ventilation, and may be stacked.

-Close bills with a rubber band to prevent preening and thus ingestion of oil.

Clean only affected areas. Birds only slightly oiled and cleaned have the best chance of survival.

In handling and cleaning a bird, Stanton says, hold the wings carefully along the back with one hand, and while supporting the bird's weight with the other hand (this method is illustrated with photos in the booklet), partly submerge the bird and gently wash tail feathers first, then rest of bird—wings, neck, back, and breast.

Stanton says care and rehabilitation efforts after cleaning represent about 90 per cent of the problem. The birds cannot be returned to their natural environment immediately. They must be cared for until their plumage returns to its natural state, which sometimes takes months. And some birds—seabirds, loons, and grebes, among others—are extremely difficult to rehabilitate, for they are not adaptable to life on land.

The Stanton booklet goes into detail on these and many other problems concerning oiled-bird rescue techniques. Single copies may be obtained free of charge by writing to Distribution Services, American Petroleum Institute, 1801 K Street, N.W., Washington, D.C. 20006. Multiple copies may be purchased for 35 cents each with special discounts on quantities of more than 100.

Photos by Norman Frank

Before striking, a crab presents a claw presumably to test the air for enemies. Next it raises its stubbed eyes for a panoramic view of the terrain. If all is well, it ventures forth, always remaining within easy reach of burrow.

Photos by Robert Wood

Florid A WILDLIFE

JANUARY, 1973

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Eary one brisk November morning a few years ago, trudging through the tall grass along the edge of the St. Johns River near Deland, I came upon my fishing pal. He was parked on an old bucket, almost hidden from view by the bushes. When he saw me, Barney called out, “Why don’t you try gettin’ up in the morning, Bob? I’ve been here over an hour,” and he held up a good-sized bass.

“Great,” I called back, “You must have caught shiners in a hurry.”

“Yeah, I was lucky. They were down the river a little way. I got eight good ones, just the right size.”

That meant big ones, for Barney and I fish with 5- to 7-inch wild golden shiners. We’re almost always after big bass.

To back up a little, I had moved to Deland from the North about a year earlier, and it hadn’t taken me long to start inquiring about bass fishing in central Florida. The name Barney Herrin kept cropping up when I talked to local fishing camp operators and tackle shop owners. I was told he was “about the best old-time bass fisherman for miles around.” I looked him up, of course, and he offered to take me fishing.

Barney was frank in telling me he fished quite differently from most bass fishermen, and that he had his own little tricks that worked for him. He didn’t elaborate, but he didn’t have to; he had my undivided attention. We set a date to go fishing, and I rather suspected Barney was curious to find out how this Yankee would stack up as a bass fisherman working Florida waters. He soon found out, and told me I’d do better if I changed my ways. He said my more conventional approach just wouldn’t work where he fished. I was eager to learn his methods and any of those little tricks he’d care to share with me. Soon I was fishing as he did.

I was flabbergasted when Barney showed me the shiners he had caught that November morning near Whitehair Bridge. They looked so big I couldn’t believe it was possible to use them for fish bait. He showed me how to use them with his unusual tackle.

We caught a few bass, but no lunkers. Nonetheless, I was convinced that Barney Herrin’s reputation as a bass fisherman was well-deserved. We’ve been fishing pals for some time now, fishing in the lakes and the St. Johns River in Volusia County. The two of us have caught eight 10-pound and six 10-pound bass, fishing only for lunkers, usually in masses of water hyacinths. (We get “skunked” on most of our trips, for you just don’t catch “our kind” of bass every time you go out.)

With occasional exceptions, to catch big bass you have to fish for big bass. We have caught fewer bass over a period of 3 or 4 years than scores of other bass fishermen. And small bass may occasionally try to take a “lunker” shiner, but this, too, is the exception rather than the rule.

As most fishermen will do, we have developed a definite bass fishing routine. It is unconventional, and some will say we do it the hard way.

We are bank fishermen. We locate places where the water is 4 to 6 feet deep near the shore, and in which floating hyacinths are massed. We make a 2- to 3-foot hole in the hyacinths that resembles a window, or a well, a little. To clear the opening, we use a 20-foot pole that has a small gaff hook on the end. With this pole the hyacinths are easily pulled apart.

There is an alternate method in which a brick tied to the end of a long rope is thrown out and pulled back through the hyacinths to clear a spot. It usually is necessary to make two or three throws, so when this method is used, it is necessary to wait for a while before starting to fish. The disturbance in the water temporarily scares away any bass close at hand.

Big bass seem to gravitate toward areas sheltered by hyacinths, and they definitely can be lured out from under those shady mats with the right bait. (See “Hyacinth Beds for Lunker Bass,” by Marvin Winans, FLORIDA WILDLIFE, October 1971, page 10.) The basic problem is locating the best areas through which to fish if you’ve elected to fish from the shore instead of from a boat.

Once the right areas are found and bass are caught, return trips to the same places are recommended. Barney and I have a dozen good places where we’ve caught bass, and we return to those spots time and time again, frequently with good results. We prefer fishing these few selected spots to scouting around in a boat fishing in many untried places. When a boat is used, there is the temptation to try out many different places rather than fishing a few places thoroughly.

Fishing in a hole made in hyacinths poses many problems, but they’re the kind that are great fun to solve. Heavy tackle—particularly heavy line—is absolutely necessary.

The outfits we have found most satisfactory is a 18- to 20-foot cane pole fitted with screw eyes to hold 30- or 40-pound test line in place. A reel is clamped to the pole about 18 inches from the butt end. We use a short-shank No. 6/0 or 8/0 hook. A small sinker may be attached near the hook to keep a shiner deep in the water so it won’t lose its action by getting tangled in the hyacinth roots overhead. A water hyacinth bulb tied about 2 or 3 feet from the hook serves as a bobber. This is better than a spring bobber, which gets caught in the hyacinths and holds. The bulb bobber will tear loose easily after a bass is hooked and gets into the greenery.

As I indicated, we prefer 5- to 7-inch shiners for bait. A large bait has more action in the water than a small one. Moreover, a bass is more likely to be attracted to a big shiner that will furnish a full meal.

The recorded catches of big bass (10 pounds or (Continued on next page)
small shiners, but the odds are definitely against it, and can be brought back into the hole in the hydras with a lot of patience, but when the action starts you catch a bass strikes.

Standing on the shore, and having opened a window in the hyacinths, the shiner is brought over the ground, so a part of it will be on top of the hyacinths, surrounded with hyacinths and is held in place in the hole with it. Moreover, it is unlikely the live bait can be kept there if it does drop in on the fourth or fifth cast. So, it isn’t the added strength of the bamboo pole that is preferred, as much as it is the length.

The long pole, rigged as described, is really the best equipment for “fishing in the well.” I am sure many good bass fishermen frown on this kind of angling. In fact, there are times when Barney and I prefer to fish open water by more conventional methods and with more conventional bait and tackle. But when we get to thinking seriously about methods and with more conventional bait and tackle. But when we get to thinking seriously about

For best bass fishing, water under the “window” should be 4 to 6 feet deep. A hole is churned with a 20-foot pole.

Stock Talk

The this stage of the hunting season you should know whether or not that new shotgun or rifle purchased at the beginning of the season fits you. The odds are that it doesn’t. Our physiques and arm lengths are so different that many standard model shotguns and rifles often fail us individually in respect to true fit. They’re designed by gunmakers for a mythical “average physique,” so sometimes a gun just comes from the factory too short or too long for the customer. Until proper length of pull is obtained, some of us will hunt under a degree of handicap even before we pull the trigger.

Length of pull, as some readers might not know, is the distance from the center curve of the trigger straight back to the center of the back surface of the stock. Too long a length of pull (for your arm length) in a shotgun, for example, will cause you to habitually throw the shot charge to the left of your target—if you’re shooting right-handed. If the stock is too short, then quite likely you have a tendency to pull to the right.

Similar handicaps to good shooting can easily exist in a big game rifle. Too short a stock, combined with a scope sight of shallow eye relief, can cause a nasty cut on the brow, or forehead when making a hurried shot or when firing with the muzzle inclined upward, as is often common in mountain country.

Any gunstock that is too long can catch on clothing when hurriedly shouldered. This impediment, though only momentary, spoils coordinated firing opportunity for better accuracy.

If the stock is too short, one can increase the length of pull by substituting for the factory butt-plate a recoil pad of needed thickness, or by inserting neoprene or plastic sheet between the wood and the factory-installed pad, if the gun has one.

Length of pull on a shotgun should be correctly checked by the repeated test-shouldering of the gun while wearing hunting clothing of the thickness usually worn in the field. There should be at least an inch of clearance between the shooter’s thumb and the thumb plate that goes on the stock. If the thumb knuckle is resting against the nose before he fires, the shooter is sure to get a bad nose bumping, and that’s no fun! (I do believe, however, that it is advantageous to use a shorter length of pull as is consistent with obtaining the necessary clearance.)

The average factory-made shotgun stock is cut to give a longer length of pull than the average factory rifle stock, and rightly so. A shotgun is handled differently than a rifle.
should be done with a sharp, fine-toothed hacksaw given the butt of the stock at the factory. (You may prefer by getting a good outline drawing of the entire stock before starting to cut.) Remove the butt plate or pad and tape the back had with masking tape to avoid scratching the stock or splintering the wood when sawing.

Experiment by gradually reducing the stock in length in trial cuts of 1/4-inch thicknesses until the proper length of pull is achieved without a recoil pad attached. (By making the thin trial cuts-offs, you're never in danger of making a radical over-cut; and any slight over-cutting error within the 1/4-inch working margin can always be corrected by adding a thick trial cut-off.) Now saw off a thickness of butt-end wood equal to that of the recoil pad you want to add—making one last check for correct length of pull before you cut and be sure you give the butt the same pitch it had when you started—unless, of course, you are deliberately altering the pitch for good reason.

After careful sawing, without much downward pressure on the saw, the final cut should be tested for flatness by use of a combination square. When the butt-end surface wood meets that test, the cutoff stock is ready for fitting of the recoil pad.

Most American custom gunsmiths use Pachmayr—"Made of neoprene rubber, the pads are impervious to the effects of weather, cleaners, or gun oils. They are made in just about any needed thickness, and in brown, red or black. I usually use brown pads because they harmonize with most dark-toned stocks.

If you feel you need the assistance of illustrated texts, read "Double Duty For Recoil Pads" in Home Gunsmithing by Dave Busch; or order photocopies of instructional texts published in the June 1955 and August 1965 issues of The American Rifleman from National Rifle Association, 1090 Rhode Island Avenue, N.W., Washington, D.C. 20008.

If you don't want to go to the trouble of fitting a regular type recoil pad to your gun, you can simply determine correct length of pull; make butt-end cut-off or addition to within 1/4 inch less than true length of pull, then put a 1/4 inch thick Pachmayr slip-on type rubber recoil pad. A slip-on pad is quickly installed and, in proper size, hugs the gunstock snugly. It also looks neat.

I use brown rubber slip-ons on rifle and shotgun stocks already altered to close correct length of pull, but not yet fitted with a permanently attached pad.

The Pachmayr slip-ons come in small, medium and large sizes.

If you are sure of correct length of pull, and prefer a permanent recoil pad, you can have the attachment made by a professional gunsmith and save yourself considerable work and possibly a botched job. Average charge is $4 to $8 if you furnish the pad; around $8 to $10 if you don't.

NEEDED REPLACEMENT PARTS for no longer manufactured American model rifles and shotguns—except for carefully locating the screw holes in relation to solid wood—you'll see that the pad is oversized. It'll have to be cut to good stock fit, which requires careful file finishing and sanding.

I usually scribe an outline of the stock's butt-end on the inner surface of the pad while it's attached to the gun, then remove it and cut to within 1/4-inch of the outline, except at the pad's toe. I then coat all contact surfaces with epoxy cement and replace the screws to fasten the pad permanently to the gun. Little filing or sanding work is required for perfect fit all around and accurate pad toe angle and contour.

Whether or not I replace the entire gunstock depends on how good a job I do in final stages of the pad's installation. I've learned to be extremely careful.

Of course, final finishing of the pad is easier to accomplish with professional results when you intend to later completely refinish the gunstock.

In all fairness to you, I must say that readers that prefer the butt-end and neat installation of a recoil pad to shotgun or rifle without complete stock refinishing is a job that demands fairly skillful use of the right kind of saw and other required tools, with close attention to detail. Any errors of workmanship are going to be obvious, and lasting advertisement made by a professional gunsmith and save yourself considerable work and possibly a botched job. Average charge is $4 to $8 if you furnish the pad; around $8 to $10 if you don't.

Figure made available by the National Marine Fisheries Service, U.S. Department of Commerce, indicate that the commercial catch of fish and shellfish in Florida decreased by 10 per cent in 1971 as compared to the year 1970, reports biologist Harold Moody, of the Natural History Study Project. "Of the total landing of 153.3 million pounds of all species (predominantly marine and brackish forms) was fish—163.9 million pounds, and blue crab to 21.4 million pounds, and blue crab to 21.4 million pounds," said Moody. "In Florida we had the largest redfish season since 1970," said Moody. "In Florida we had the largest redfish season since 1970, and if you don't."

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FLORIDA WILDLIFE

JANUARY, 1973

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Fish Management Notes

THE FAMED DEAD LAKERS are far from dead, according to fish population samples just completed by fishery biologists John Crew and Charles Knight, of DeFuniak Springs. A preliminary report of their work, "is sure to produce considerable attention present, with a substantial number of har­

rejuvenation of a broken or badly scarred and gouged gunstock beyond all former hopes or attempts. Many of these old gunstocks were made from high grade walnut and are worth restoring to usefulness and beauty.

But for those readers who would rather invent a little known time and effort, I have good news. It concerns sources of supply for replacement stocks and fore-ends to fit a wide variety of discontinued gun models. Mostly, the items are brand new, or brand new gun manufacturers' surplus, but later sold as surplus after discontinuance of the particular model rifle or shotgun for which they were made.

Hand-to-get-stocks, such as those for old Brown­

ing autoloading shotguns, the Remington Model 11, Winchester models 12 and 97, and others, are available from National Wood and Metal Crafts, Yorktown Heights, New York 10598, at what I consider fair prices.

Similarly, Colonial Arms & Crafts, 114 Baltimore Annapolis Blvd., N.W., Glen Burnie, Maryland 21061, has original factory model walnut stocks and forearms for many old model shotguns, including ready-to-use stocks for Winchester Model 12.

Sherwood Distributors, Inc., 7435 Greenbrush Avenue, North Hollywood, California 91605, is a veritable cornucopia of replacement gunstock good­

es. Available stocks for Winchester models 12 and 97 shotguns; Remington models 11 and 31; Savage 62B; Remington shotgun receiver model autoloaders, and Winchester rifle models 92 and 94.

Vie's For Guns, 2413 Market Street, Galveston, Texas 77550, has butt and fore-end stock replace­

ment stocks and fore-ends to fit a variety of pump-action shotguns in 12, 16 and 20 gauge—models like old Marlin pumps, Colt slide-action, J.C. Higgins pumps, Montgomery Ward Hawthorne, and various other types. For the Dead Lakes—tentatively set for the fall of 1973—will improve fishing by helping to alleviate the problem of rampant growth of submerged aquatic vegetation, which has eliminated much of the available spawning grounds and also limited fishing space," said Crew.

A water control structure is moving toward com­pl­

pletion at the Lake Okeechobee dam. This will permit biologists to lower the water level as required for fish management purposes, including weed control.

A TENTATIVE PROPOSAL to help utilize gar and other so-called rough fish by commercial harvest­

ing is under study by Northwest Region fishery biologists, who, along with other ecologists, are attempting to evaluate the possibilities because of public concern and interest in this type of project.

The fish would be taken in the lower Choctawhatchee River.

"FIGURES MADE AVAILABLE by the National Marine Fisheries Service, U.S. Department of Commerce, indicate that the commercial catch of fish and shellfish in Florida decreased by 10 per cent in 1971 as compared to the year 1970," reports biologist Harold Moody, of the Natural History Study Project. "Of the total landing of 153.3 million pounds of all species (predominantly marine and brackish forms) was fish—163.9 million pounds, and blue crab to 21.4 million pounds, and blue crab to 21.4 million pounds," said Moody. "In Florida we had the largest redfish season since 1970, and if you don't."

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(Continued from preceding page)
specialist with the fresh water catfish and 3.5 million pounds were consistent increase each year, from the low of 2.4 million pounds per year in 1971 to over 1.6 million pounds in 1971. "The 71 catch from the St. Johns River increased by approximately 20% over the 1970 figure—rather than declining, as did the state-wide commercial catch of salt water catfish," Moody notes, "it is believed that the 1972 catch from the river will be surpassed to the total of 3.5 million pounds in the 1971 catch. "The 71 catch from the St. Johns River increased by approximately 20% over the 1970 figure—rather than declining, as did the state-wide commercial catch of salt water catfish," Moody notes, "it is believed that the 1972 catch from the river will be surpassed to the total of 3.5 million pounds in the 1971 catch.

An appeal went out in December for sport fishermen in the Florida Panhandle to report catches of striped bass made in the Choctawhatchee River or its tributaries. "We need information about striped bass catches very much," said James M. Barkuloo, biologist in charge of the U.S. Fish & Wildlife Service's striped bass project, headquartered in Panama City. He said reports can be made by letter, post card, telephone call, or in person.

These telephone numbers are listed for those who need information about striped bass catches: 904-781-1434.

To report catches, mail-in's may be addressed to the

Department of Consumer Services.

"The commercial harvest of striped bass in Florida is an important and profitable activity," says James M. Barkuloo, biologist in charge of the U.S. Fish & Wildlife Service's striped bass project, headquartered in Panama City. He said reports can be made by letter, post card, telephone call, or in person.

Florida's sensitive habitat. It's a place where it is the first state level facility to support the Department of Education's Environmental Education program.

The children who visit here will very probably learn to care about their surroundings, as well as in harmony with it. It will do its job only if it teaches values judgments about the environment and shapes future responsiveness to its needs.

As a reforestation pioneer, Jennings helped see forestry through its stormy years when Florida was first faced with depleting the nation's supply of natural products. He said that he had a "special kind of laboratory," it is tucked away in Cary State Forest, a 3,400-acre stretch of pinewoods near Baldwin, in northeast Florida.

The "lab" covers 110 acres. Its elements are simply green pines, weathered cypress, clumps of palmettos, blackberry bushes, orchids, and mockingbirds. It is alive with fawns, and lichens growing like piano keys on a log, played only by long fingers of sunlight reaching down through the trees.

The new outdoor laboratory is the S. Bryan Jennings Environmental Education Center, a place for children to learn about the environment and the outdoors. It is Florida's first center for the study of natural woodland habitats.

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Sponsored by the 3½-million member NWF, the theme of 1973 Wildlife Week is "DISCOVER WILDLIFE--It's Too Good To Miss." With the focus on the wood duck and other residents of the natural world, and man's role in safeguarding them for future generations, the Federation is urging families to "get out and enjoy our wild resources. They really are too good to be missed."

Pets in the Wild

The plight of wild dogs, cats, and other "Feral Animals in the City" was reported on by noted naturalist Roger Caras in the October 1972 issue of RANGER Rick's NATURE MAGAZINE, published by the National Wildlife Federation. The word "feral" refers to domestic animals, such as cats and dogs, that have reverted to the wild, whether a rural wilderness or an urban jungle.

As with exotic pets which are released to the wild, domesticated animals have difficulty in eating for themselves, engaging in activities which are not only harmful to themselves, but to man as well. By tipping over garbage cans, they make dirty cities dirtier and aid rats in their quest for food. They can spread diseases to other animals, often valuable pets, and when roaming wild, will bite people, including children who are intrigued by the familiar animals not wary of the death traps which are congested city streets. And, unlike a pampered pet, roaming "wild" dogs and cats do not get the benefit of treatment by a veterinarian for any illness they contract. Thus, the average life span of the domestic pet, 14 to 15 years, is reduced to about one year for these animals when running wild.

Caras offers some solutions for the problems he recounts. First, "no dog or cat should be allowed freedom to wander in or near a city." Secondly, "unwanted pets should not be abandoned, but taken to an animal shelter like the SPCA." And lastly, animals not being used for breeding purposes should be "fixed" to prevent them from having young which might go homeless.

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The Editor, FLORIDA WILDLIFE Magazine, Game & Fresh Water Fish Commission, Tallahassee, Fla.

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