

INTRODUCTION TO NATIVE FISHES AND NANFA

by

Gerald C. Corcoran, Gulfport, Mississippi

Congratulations! You have just joined a group of people who take a great delight in getting sunburned, mosquito- and chigger-bitten, soaking wet, and, sometimes, in trouble with other members of the family. They delight in getting up before dawn, traveling miles and miles, dragging pieces of mesh through the water, eating soggy sandwiches or greasy hamburgers, telling true stories about the fishes they have caught but unfortunately can't produce now, and going home exhausted.

The thrill comes the next day when these intrepid travelers get a chance to see the results of their efforts. There, in all their shining glory, are the natives they worked so hard for. Just what are these natives? How do you catch them? We will try to answer these and many other questions in this little booklet.

Native, by one definition, is anything "originating, growing, or produced in a certain place," as opposed to something foreign or introduced into that place. An example of an introduced species is the Walking Catfish that is now giving Florida residents so many problems. A native of Florida, on the other hand, is the American Flagfish, so called because of its colors. There are many other natives that you can learn about from books at your local library or through a local club. Some have very limited distribution and may occur only in one river, stream, or pond. Others are widespread over a state or group of states.

Not all native fishes are suitable for the home aquarium. As in the tropical-fish hobby, there are some that must be kept by themselves, others that can be kept together in a "community," and still others that should not be kept at all.

CONSERVATION

Any time you invade a natural area, you do some damage, no matter how good your intentions. The main thing in your mind should always be how to do the least possible amount of harm to the environment. A good motto to follow is "leave nothing behind except footprints." Any item that is moved for any reason should be returned to its original position. That rock you turned over may have been the home of some animal vital to the food web.

This is not to mean that you should not remove trash from the water. Many aquarium clubs, among others, have performed a service to a community by helping to clean up a local stream. A stream can often be revitalized by a good clean-up.

Before you go on a collecting trip you should decide how many fish you can support. There is nothing worse than trying to put 50 three-inch fish in a 20-gallon aquarium. It is not only cruel but also wasteful. There is a great temptation to take all of the pretty ones home and it takes time to build up a resistance. It is especially difficult for a beginner.

You should also learn to distinguish the young of the species you are after. In many cases the young will adapt more readily to captive conditions. The older ones will not last as long in your aquarium, and it is quite a thrill to watch the young grow and assume the colors of the adults you left behind. If you have a breeding program in mind, it would be to have young specimens that will be completely acclimated to your aquarium conditions and are more likely to breed for you.

COLLECTING

The first, and most important, item of your collecting equipment is a piece of paper. A regular state fishing license may fill the bill, but most of these limit the types, sizes, and numbers of species that can be collected. It is sometimes possible to obtain a special collecting permit from your state's department of natural resources, fish and wildlife service, or whatever it may be called. Carry your documentation with you at all times, either in your wallet or in the glove compartment of your car. If you follow this advice, you'll probably never see a game warden. They are notorious for showing up that one time you forgot your permit.

Equipment used in collecting is up to you, but there are a few basic items you should never be without. A good nylon seine is an investment that will pay off in the long run. Cotton seines are usually good for only one season if you take exceptionally good care of them while a nylon type will last for several years.

A dip net made of the same material is also a must. There are times when streams are too small or weed-choked for a seine, and a dip net is the only solution. It can also be used to search under overhanging banks. Be sure to buy one with a strong steel frame and a good handle. A cheap one is a waste of time, especially when you try to drag it through a grass bed and have the entire frame bend backwards at a 90° angle.

Some people use commercially available minnow traps, especially if they intend to spend several hours in the same location or possibly pick them up on the way back home. These work very well, since you can modify them if need be to regulate the size of the fish that can enter. At times they

will turn up with specimens that are extremely difficult to capture by any other method.

Containers to put your catch in can be obtained from fast-food chains (five-gallon plastic buckets) or pet shops (tropical-fish shipping boxes) for little or no cost. The styrofoam shipping boxes are superior to other containers since they insulate the water to a good extent and usually have covers that will keep the water where you put it. Also, an increasing number of collectors are using large plastic picnic coolers. These have a tray in which to put canned ice or well-bagged cubes. Never allow water from ice cubes to enter the fishes' water, since it may shock the fish temperature-wise, and, even more seriously, contain chemicals deadly to fishes, such as chlorine.

Small battery-operated air pumps are available at most sporting-goods and many discount stores. If you plan on an all-day trip or have no experience with transporting fish, these pumps are worth a try. One that works will more than pay for itself; unfortunately, most are unreliable. If you have one you can rely on, be sure you bring extra batteries, since the pumps tend to run down after five minutes because you forgot to change them after the last collecting trip. It's a little extra insurance that pays off.

A pH test kit is a necessity when collecting your specimens. Test a sample from the stream or pond rather than from the container you put the fish in. Waste products from the animals can alter the water chemistry enough to give you a false reading. Short exposures to the containers will do no harm, but your aquarium at home should be adjusted to match their natural habitat.

All of the tramping around, getting wet and dirty, and ending the day dog-tired may not appeal to every one of you, so NANFA has established the Trading Post. All members can list the fish they want or the extras they have, and sell or swap with other members. The less adventurous among you may wish to take advantage of the Trading Post and do your collecting from an easy chair. Ultimately, however, to get something you have to give something; collecting your own at some point will probably be necessary.

GETTING THEM HOME

Your obligation to the specimens begins once you put them in the container and take them home. You must now make sure that the water in your aquarium matches that of the fishes' native water. You must now make sure that the water in your aquarium matches that of the fish. The ideal situation would be to take along extra buckets and bring home enough water to

fill your aquarium. Naturally this uses up extra space which you may not have.

There are several commercial preparations available for raising or lowering the pH, and most pet shops carry them or can get them for you. If you must make acid water neutral or alkaline, regular baking soda does just fine. Be sure anything you add to the water has plenty of time to mix thoroughly before taking any measurements. When you're satisfied that the waters match, it's still a good idea to mix some of the aquarium water with the water in the container, a little at a time over a period of an hour or two. Then the fish can be placed into the aquarium.

There may come a time when you just can't spend several hours tending to the fish and must get them into an aquarium right away. Matching pH is still a necessity but you can hasten a temperature match by placing the fish in a plastic bag and floating it in the aquarium for at least 15 minutes. Then just upend the bag and let the fish swim out.

WHAT DO YOU HAVE?

It's only natural for people to want to know what they have collected. If you have any friends who are native-fish "nuts," they can be a great help in identifying your specimens for you. Most of them are eager to show off their knowledge, and may even want to swap some specimens with you.

A local college or university can prove to be quite a blessing since they usually have many trained biologists on the staff. Remember that these people have a fairly rigid schedule to maintain and may not be able to help you at your convenience. Most of them are very willing to help if a schedule can be arranged. They may want you to supply several dead specimens for proper identification. Some people are a little hesitant to kill an otherwise healthy fish just for identification.

Still another way to have your specimens identified is to make friends with the local game warden. Many of them are fisheries biologists and are quite knowledgeable when it comes to native fishes. Again a scheduling problem may present itself, especially during hunting or heavy-fishing season. At such times, most wardens work an 18- to 20-hour day.

If all else fails, you can always learn to use a scientific key. Libraries at colleges and universities will have these books available, and anyone who has taken a course in ichthyology can show you how to use one. Basically, they give you two choices and you match your fish with the correct choice. The key then tells you to proceed to another set of

two choices. Keep this up long enough and you run out of choices, at which time you will have identified your particular fish.

When this article was originally prepared in the 70s, for use as a separate pamphlet, there were few good, comprehensive texts useful for identification. Fortunately, this situation has improved dramatically. As overall guides, the Peterson Guide to Freshwater Fishes by Lawrence M. Page and Brooks Burr, and the Audubon Society Field Guide to North American Fishes, Whales & Dolphins are a sound start. The former is literally comprehensive as of 1989. Further, there are many new state fish books, and a few accessible specialty texts such as Handbook of Darters by Page and The American Darters by Kuehne and Barbour.

WHAT DO THEY EAT?

The fish you collect in the wild are just that. Wild. Each day their main concern is to gather enough of the proper type of food in order to survive. A little thought will tell you that their main source of food is living organisms, whether it's insect larvae or other fishes. It's up to you to provide them with the proper amount and kind of food now that you have placed them in a captive environment.

Most aquarium clubs or societies have at least one member who is engaged in growing live food in the form of micro-worms, earthworms, whiteworms, or other live foods suitable for your fish. They will usually sell you a starting culture with directions on how to grow your own. Ask around or advertise in the Trading Post for your own culture.

There is always the possibility of gathering your own live food from a pond or stream. Several species of crustaceans, insect larvae including mosquitoes, and other items are available in almost any pond, but extreme caution should be used there. Your collecting net cannot distinguish between food organisms and those that are potentially harmful to your fish. With this method, you could possibly introduce something into your aquarium that would begin killing off you fish. Until you gain a little expertise, it's best to stick to living organisms you raise yourself or can buy from your local pet shop.

Tending to living foods can turn into quite a chore if you try to raise enough to feed your fish on them exclusively. Many supplementary foods can be offered after your fish learn that your approach to the aquarium means food will follow shortly. A very good supplement is beef heart cleared of fat and hard tissues and chopped to a fine consistency in a blender. Portions can be placed in plastic bags, flattened out, and placed in the freezer. When they are frozen, you can break off appropriately sized pieces and place them in the aquarium. As a chunk thaws out, the individual pieces begin to sink and the fish will gobble them up.

Frozen and freeze-dried foods such as daphniae, tubifex worms, and brine shrimp are available in most pet shops. These should be used sparingly at first until the fish become accustomed to them. They then become an excellent supplement to the diet and go a long way toward conditioning the fish for breeding.

Many brands of flake foods are available on the market and most are excellent supplements. Even more caution should be exercised when first attempting these foods. In this form, they are completely foreign to your fish, so it's best to wait a few weeks before trying them. By then your fish will have tamed down and come to associate you with food, and will try anything you place in the aquarium, including your finger. Don't be surprised if you see them spitting out the same piece time after time until they finally tire of it and allow it to sink to the bottom. Here's where those little catfish you brought home will come in handy. Most of their food is found on the bottom and consists of small pieces of leftover food discarded by the other fishes. They will act as an excellent clean-up squad for you.

HOW DO I GET MORE?

For those intrepid individuals who don't mind a lot of work, this question can be answered very easily: Get your equipment and go collecting. There are others who will have chosen a favorite and want more of only that kind. In this case, why not try breeding your own?

A few generalities are in order before any discussion of breeding attempts can be made. These consist of using your imagination a little to think of what happens in nature just prior to breeding time. Most of our natives breed in the springtime when conditions are in a state of change. Spring rains and runoff from mountain snows provide a constant change of fresh water. The rains also wash insects and worms into the streams so there is plenty of live food. These changes, along with a gradual increase in temperature and daylight hours, combine to bring the fish to maximum breeding condition. Match them and you stand a good chance of breeding your fish.

Natural conditions cannot be matched exactly in an aquarium, but enough things can be done to "fake it" effectively. Frequent (daily), small (10%) water changes will simulate the rainy season, live foods have already been discussed, aquarium heaters will gradually raise the temperature, and you can vary the amount of daylight by allowing the aquarium light to stay on longer.

Another set of generalities must also be considered before success can be achieved. Fish have varying breeding habits. Aside from those relatively few species that bear their young

live, they can be grouped into two general categories for purposes of simplification. There are fish that build nests of one kind or another in which to lay their eggs and those that scatter their eggs.

The nest-builders vary from those like the stickleback which build quite elaborate nests to those who simply scoop a depression into the substrate (bottom) and lay their eggs in it such as the sunfish. The main distinction between a nest and not a nest is the attention the adult fish pay to it. If they (or he or she) guard a particular site, it can be regarded as a nest. No further arrangements have to be made except to provide the stickleback with enough debris to construct a nest and the sunfish with enough space to scoop a nest. A flowerpot, split in half and laid on its side, will pass for a cave or a surface on which to place eggs.

The egg-scatterers can also be subdivided into those who lay sticky eggs and those who lay non-sticky eggs. Some of the sticky eggs are expelled and fertilized above the plants and stick where they hit, while others are placed randomly among the plants. The true egg-scatterers may spawn over a group of plants which afford some protection to the eggs or just scatter the eggs haphazardly.

One group which does not fit into either category and is difficult to place in either one lays their eggs beneath the substrate. Some darters and killifish do this. It can't truly be called a nest since they don't guard it, and they don't really scatter their eggs but lay them in small groups around the aquarium.

A single 20-gallon aquarium can be arranged to accommodate all types of fish and is especially useful when you can't find out anything about the breeding habits of your fish. A 20L (long) aquarium will give you slightly more room to work with. Think of it as being divided into sections. First place a two- or three-inch layer of well washed aquarium gravel in the bottom as an anchor for the plants and to allow "scoopers" a place to work. A shallow dish filled with fine sand will serve those animals who like to bury their eggs while the split flowerpot works well for cave-dwellers. The final touch is to plant about one-fourth of the bottom with fine-leaved plants. Plastic plants might be your best bet, since they won't decompose and foul the aquarium.

One last thought on nature. Quite a few of the fish do their spawning early in the day. To get the maximum benefits from your breeding experiments, try separating the males and females and conditioning them in their own aquariums. When you think they are about ready, put them together, but wait until just before you turn the lights out. Be sure to get up early enough the next morning to watch the results as the dawn comes up and the amount of light increases.

###