

REFERENCE COLLECTIONS FOR THE NATIVE FISHES STUDENT

By Jim Pitts

The task of learning to identify, and that of understanding the taxonomic and ecological relationships of the North American fish fauna is indeed formidable. No one can consume all of the information in these areas. The best that one can do is to organize his studies so that he maximizes the information he is able to retain or make available to himself. In an effort to begin organizing my own studies of fishes I have borrowed ideas from several people to help develop some kind of order in this chaos of information. One method that I will discuss here is the establishment of a reference collection of fishes.

A reference collection of preserved specimens has many uses. (1) It supplies the student with readily available examples of species with which to compare his unidentified specimens. (2) It helps in mentally planting the similarity or dissimilarity of different species or species groups. (3) It provides a resource needed in understanding the relationships of fishes in one's geographical area. In fact, the collection serves the student in ways which are limited only by his demands. No written description or illustration of a fish can compare with the qualities of the actual preserved fish.

Before building such a collection one must first evaluate his needs and interests. Someone who is firmly convinced that he will never want to know anything about any fishes other than Sunfishes, might be wasting his time building a collection of anything else. Still others may find it quite beneficial to gather as many species from as many families as possible. The value of fishes from areas remote to the collector may or may not be questionable. Decide your needs before you have a closet full of jars that you will never use.

A few supplies will be necessary before you begin. You will want to purchase isopropyl alcohol of a 40% or higher concentration, glass jars with tight fitting lids, a pen and waterproof black ink, formaldehyde, and possibly some 3 X 5 file cards and filing box.

You may procure your specimens from several sources. Collecting fish by legal methods or using aquarium specimens as they die are two of your best sources of supply. Trading preserved specimens with individuals or institutions is another possibility. In any case, live or freshly dead fishes should be placed in 10-20% formalin solution and allowed to fix for several days or weeks. Formalin is very irritating to your eyes and skin. Work only in a well ventilated space when using it, and never sniff it to detect its presence. You should be sure to label your fishes as to locality and date collected. Habitat information and method of capture recorded either on the label or in a permanent system of file cards or a notebook. Giving each labeled jar a number will make reference to the information much easier. Many collectors keep files or a notebook of every collection they make. These sources contain the habitat information and species lists of all specimens caught in each collection. A common way of numbering the collections is by the following format: CDB-1974-3. The first three letters are the initials of the collector. The middle number is the year, and the final number is the collection made that year (3rd in this case). Your labels should be written

on good quality paper in waterproof ink, and placed inside the jar with your specimen. Labels taped or glued to the outside of jars tend to become lost and/or discolored.

After the period in formalin, the specimens should be allowed to soak in pure water for a few days to remove most of the irritant. They can then be handled safely for identification. The identification should be written on the label and in the collection information. Now the labels and specimens may be placed into their permanent jars with a solution of 40% isopropyl alcohol. The alcohol should entirely cover the specimen. Place lids on very securely. Storage is dependent on your available space and the condition of your finances

A few precautions and suggestions are listed below.

- (1) Your specimen's colors will fade in the preservative. Make notes on the fishes' coloration before you soak it in formalin. You may be inclined to sketch the specimen and color the sketch with colored pencils.
- (2) Don't cramp your specimen in a jar that is too small. It will assume the crumpled shape permanently.
- (3) Make a small slit in the abdomen of specimens with considerable body mass to allow penetration of the preservative.
- (4) Place the specimens in the jars snout up. If the alcohol does evaporate, the snout will be much less damaged than the caudal fin.
- (5) Store specimens in a dark, cool place.

A well kept collection should outlast the collector by many years. You may want to plan to donate your specimens and their data to a museum when you no longer have use for them. As time goes by and fish faunas change with human abuse, your collection will become more and more valuable to science.

I hope that this information will be of some use to those who study fishes. It should be noted that the word student in this article is used in its broadest sense and does not necessarily pertain to those who attend school. Work on your methods of study. You can design a system that suits your needs better than anyone else can. It is an effort that is sure to reward you with many hours of satisfaction.
