

## All About Aspidoras

### **Dwarf armored catfish - the cousins of Corydoras cats.**

*By David Sands, Ph.D.*

There must be some form of invisible thread in our lives that links us to places, people, time and subjects. I have a vivid memory of being at the Natural History Museum in London during the late 1970s, as the secretary for the one-time-only "Introduction to Ichthyology" course. Most Catfish Association committee members and other luminaries from the hobby were in attendance. Some of the greatest scientific names in the fish world, like the late Dr. Humphrey Greenwood, an expert on African cichlid fish and coauthor of the textbook *A History of Fishes*; the late Dr. Keith Bannister, an expert on barbs; and the endearing Gordon Howes, an expert on characoids, catfishes and osteology (bone study), taught us.

All three not only appeared to know everything about ichthyology, but they possessed the wonderful gift to make their fish-related subjects absolutely fascinating to anyone listening, who had an interest in the subject.

You may ask yourself, what does all this have to do with Aspidoras, the delightful tropical dwarf catfish from South America?

Well, my friend Stephen Pritchard and I made full use of our weekly visits to the museum to view the incredible collection of preserved fish. Jars upon jars full of specimens were stored in the fish section out of public view. Most of the type material (original specimens on which descriptions of new species are originally made) stored in the Natural History Museum is steeped in history. Collections of new species from Darwin's Voyage of the Beagle (including the perennial peppered catfish [*Corydoras paleatus*]) and, as shown to us by Dr. Greenwood—before David Attenborough's *Life on Earth* series appeared on television—the coelacanth accompanied with amazing embryonic, live-bearing young, albeit tennisball-sized young.

#### A New Catfish

I frequently delved through the museum's catfish collection and photographed many *Corydoras* specimens and the handwritten notes that accompanied them in the formalin-filled jars. Dead fish specimens rightly leave most aquarists cold, but, for me, it was often these notes that made the particular fish or fishes so interesting. Label information often offered intriguing details about which river or tributary a specimen or specimens came from, who collected them and when.

One day, a tiny phial on a nearby shelf caught my eye. Inside the finger-sized glass tube was a beautifully marked and relatively new species of catfish, named by scientists in 1970 (Weitzman from the United States and Han Nijssen from the Netherlands), *Corydoras pauciradiatus*.

The Latin *paucus* (pronounced "porky" or "pawcy," depending on the ichthyologist) means few, while *radiatus* means rays of the sun or spokes of a wheel, which, according to scientists, is a reference to the few dorsal and pectoral fin rays in this species when compared to other species of *Corydoras*. I don't know of a common name for this species. Perhaps, I can name it the sun ray catfish? For all I know, the specimens in the British Museum are still labeled as *Corydoras*.

An American loose-leaf notebook of the day included a picture and text that suggested the species, caught in the Araguaia River in Brazil, remained undescribed.

By incredible chance, that same year the new freshwater fish species arrived in United Kingdom import shipments. Equally strange to anyone with an interest in tropical catfish was that two Dutch scientists, Drs. Nijssen and Isbrucker, had produced a paper in 1976 where they reviewed the genus of South American plated catfishes, *Aspidoras*. They listed four existing species (two transferred from the genus *Corydoras*) and described nine new species—all from Brazil. Several of the old and washed-out museum specimens detailed in this work are in a poor state without any body or fin patterns visible (some were missing fins entirely) that would help to aid identification of live specimens.

I received a copy of this white paper from Dr. Nijssen during the Natural History Museum period, and, after pouring over it for many hours, the work eventually informed me that the "species-in-the-phial" was to be known as *Aspidoras pauciradiatus*—the smallest species in the genus.

Now, if scientific nomenclature doesn't leave you as cold as a dead fish, you are either a professional ichthyologist or you

want to be one. However, at the time I did find the coincidences of discovery quite exciting. I didn't know that 20 odd years later I would be fishing in tributaries off the Rio Negro and Rio Branco rivers during the making of the TV program To the Ends of the Earth and see, firsthand, one of the known habitats for this delightful dwarf armored catfish.

#### Finding Aspidoras

- Aspidoras rochai—Fortaleza, Brazil
- Aspidoras raimundi—Rio Parnahyba, Brazil (originally described as Corydoras raimundi)
- Aspidoras lakoi—Rio Parana (tributary of Rio Grande), Brazil
- Aspidoras pauciradiatus—Rio Araguaia, Rio Negro, Brazil (originally described as Corydoras pauciradiatus)
- Aspidoras albater—Rio Tocantinzinha (tributary of Rio Tocantins), Brazil
- Aspidoras brunneus—Mato Grosso, Brazil
- Aspidoras carvalhoi—Ceara, Brazil
- Aspidoras eurycephalus—Goias Rio Tocantins, Brazil
- Aspidoras fuscoguttatus—Rio Parana system, Brazil
- Aspidoras maculosus—Rio Paiaia, Rio Itapicuru, Brazil
- Aspidoras menezesi—Rio Granjeiro, Brazil
- Aspidoras poecilus—Rio Xingu, Rio Araguaia, Brazil
- Aspidoras spilotus—Rio Acarau, Brazil
- Aspidoras virgulatus—Rio Doce Espirito Santos, Brazil

#### Bring 'Em Back Alive

Stephen and I photographed Aspidoras pauciradiatus in 1979 at a garden center aquarium shop, and I came home with a handful of specimens, none of which survived the following 48 hours. From that moment on I believed that these tiny catfishes were incredibly delicate and practically impossible to keep. How wrong I was!

I know a number of aquarists who have kept and bred *A. pauciradiatus* and other species in subsequent years. Our fishkeeping skills and import methods have definitely improved over the decades.

During the winter of 1979, Stephen and I headed out for the sunny climes of southern Brazil to catch *C. barbatus*. At that time, the bearded catfish was the most sought-after species in Europe and the United States. My first of what was to be many excursions to South America was extremely successful from a catfish enthusiast's point of view. The pictures and stories from that trip were published in *Practical Fishkeeping* in the United Kingdom and many other magazines around the world. The Federation of British Aquarists Association (BAA) slide and tape lecture of our trip (recorded at the British Broadcasting Corp. with Dick Mills) was the most successful in the history of the BAA.

During the collecting trips to coastline streams from Sao Paulo to Rio de Janeiro, we encountered another species of Aspidoras not featured in any aquarium literature at the time. The few specimens I brought back sadly didn't survive the air journey, but we had photographs to record the species later identified by me as *A. menezesi* (as *A. poecilus* in March 1983, *Practical Fishkeeping*) in *Catfishes of the World*. I am still not sure of the identification of the species I saw in Sao Paulo.

One species I did manage to photograph in the 1980s was *A. albater*. I am more confident on this identification, because the pattern of the living specimens kept by catfish enthusiast Bruce Clark matches the scientific line drawing. Bruce found these catfish, imported and sold as *C. macropterus*, difficult to keep.

### Aspidoras Versus Corydoras

To the uninitiated, it is practically impossible to determine an Aspidoras from a Corydoras species because visually, juvenile and adult Aspidoras are so similar to juvenile Corydoras. The head of an Aspidoras is slightly longer in relation to the body length in most species. By head shape scientists separate the two genera, because Aspidoras, generally smaller than Corydoras, possess twin fontanelle (openings in the skull bone), whereas their Corydoras cousins have a single opening. Few aquarists would want to examine their prize catfish closely enough, however, to determine fontanelle characteristics. I believe the relatively smaller eye size in Aspidoras can also help to distinguish between the two groups.

There is some scientific debate that this reduced eye size is an evolutionary development in the callichthyds (a group that includes Corydoras, Brochis and Aspidoras, as well as Callichthys and Hoplosternum). Aquarists need not be too concerned as the entire family thrives in roughly the same range of water conditions.

We do need a common name for Aspidoras. Perhaps, something along the lines of “false Corydoras” or maybe “aspis,” in that Corydoras are often referred to as “corys.”

The identification of Aspidoras in aquarium literature is full of speculation. Several imported species have been given identifications that are not truly confirmed. Even my own attempts with *Aspidoras menezesi* need to be scrutinized. Apart from one or two distinctively patterned species, a live specimen without exact locality information and comparative information makes any formal identification speculative.

### Aspidoras Habitats

*Aspidoras menezesi* were observed in fairly shallow (less than a meter), tannin-stained pools connected by running water. The water was ultra soft with a temperature of about 77 degrees Fahrenheit (my field notes ascertained to the cool season in southern Brazil). The banks and pool edges of submerged grass offered ample cover for smaller fishes.

The substrate of sand, often ribbed by the water current, offered tracks along which shoals of catfish foraged and explored the pools and creeks. Sometimes the waters flowed into dark, forest-shaded pools. These areas appeared to be nursery waters for many juvenile fish, including many different species of catfish, tetras and smaller cichlids.

That habitat contrasts marginally with the Rio Branco tributary waters where we found *A. pauciradiatus*. These dwarf catfishes live in the leaf-littered, shallow edges of light brown waters with many other catfish, including banjo, talking and parasite species. They are probably protected from large predators in the shallow leaf litter, although I pity the poor predator that mistakenly takes a bite at them. It must be on par with trying to eat a wasp, because Aspidoras, in keeping with their cousins, have fin spines and produce venom.

The Rio Branco and Rio Negro area is veined with countless tributaries and streams feeding into large lakes that leak across millions of acres of partially submerged rain forest. Following the rainy season, these sprawling pools and streams become fully flooded and form huge lakes. Water levels can rise two-thirds of the way up forest tree trunks, leaving only treetop foliage visible from boat level. This is the “flooded forest ecology” that is now so familiar to viewers of nature television.

### Aquarium Aspidoras

These diminutive catfish thrive in the same community aquascapes as their larger cousins. It is easy to create the leaf-litter environment with autumn beech leaves taken off the tree and presoaked. These leaves look simply gorgeous in aquaria, and the fish appear to love them as they forage around, under and over them for food. I also use small sea-worn pebbles, soft sand and beech wood branches in my catfish aquascapes.

If there is plant cover, such as Java fern or Indian fern, then mature Aspidoras will spawn in aquaria. There are numerous accounts of them. Several Scottish and English aquarists have spawned *Aspidoras pauciradiatus*, most notably Alan Pinkerton and Colin Sykes in 1984 to 1985. Colin informed me that the adults quickly turned to eat their eggs. Captive spawnings have been recorded in the United Kingdom and United States.

Aspidoras produce tiny eggs, and they hatch in the same process as Corydoras. They may prefer to place the eggs on aquatic plants like many small species of Corydoras (e.g., *C. elegans*).

These catfish enjoy soft to moderate hard water with a pH range of 6.7 to 7.2. Temperatures between 76 to 80 degrees are preferred. A rotating diet of aquarium flake food, finely shredded shrimp, fish and earthworms is ideal.

Most dwarf armored catfish thrive in shoals and mix with other species. Once settled in the aquarium—which can take a

few weeks—Aspidoras are less vulnerable to infection. The first week is critical, and it is advisable to undertake a significant water change (30 to 40 percent) prior to purchasing them. When making your selection, be wary of red marks on the ventral area (a sign of bacterial infections) and excessive trips between substrate and the water surface, which suggests stress during transportation and holding.

Let me share with you a special tip to make the transfer from the fish shop to aquaria less traumatic: Avoid floating them (or any other air-breathing catfish) in closed bags when you are first introducing them to your aquarium. It is better to have a jug or small bucket of aquarium water ready; immediately empty the bag water and catfish into your container. After 10 minutes or so, when temperatures and chemistries have equalized as much as possible, net the catfish and transfer them into your aquarium.

If you want to eventually breed these catfish, it is advisable to purchase more than a handful of them. A pair will be easy to identify mainly because adult females are comparatively larger and deeper than males in the ventral area. If things have gotten a bit stale for you on the fishkeeping front, try an Aspidoras for a change.