KEEPING *AMEIURUS NATALIS*

JAMES E. BURGESS

Portland, Tennessee

Keeping catfish of different species has been an age-old practice. These fishes have always been classified as cleaners of the tank. Normally catfishes are utilized to eat the waste products from the other, more colorful and entertaining fishes. Drs. Warren E. Burgess and Carl Ferraris, Jr. authored books on the keeping and identification of catfishes. In addition, for the modern aquarist, there are plenty of websites devoted to all aspects of catfishes. This paper deals with one species and how it has been living in my aquarium.

BACKGROUND

The *Ameiurus* catfishes have been known both scientifically and commonly by different names. The Yellow Bullhead (*Ameiurus natalis*) was described in 1819 by Charles Lesueur from an unknown locality in North America as *Pimelodus natalis,* then later as *Ameiurus natalis,* and then for many years it was *Ictalurus natalis,* until Dr. John Lundberg (1992) separated *Ameiurus,* the "smalleye bullheads," from the other catfishes. It is native to eastern and central North America. They reside in ponds, lakes, creeks, etc., eat almost anything, and grow to nineteen inches in length. They have been called by various common names including Butter Catfish, Mud Cat, Yellow Belly, and the now-accepted common name Yellow Bullhead. The distinguishing characteristic of *A. natalis* is the white barbels and in their natural habitat, their yellowish coloration along the abdomen, fading to a greenish color along the sides.

CAPTURE

The specimens that reside in my aquarium came from fishing expeditions to Drake's Creek, located outside of Franklin, Kentucky. The dozen-plus specimens were caught after several attempts in various locations that yielded very poor results. As one such trip was winding down, two fishermen were spotted at a boat ramp off of Gold City Road (HWY 100), and since the best information comes from locals, they were questioned as to what fish they were catching. After all was said and done, the fishermen showed me five *A. natalis* of various lengths. On subsequent expeditions to the same area, several additional specimens were captured. A standard rod and reel combination was used with night crawlers as bait. All were caught after dark. The fish used a tactic of swift and sure; there was not any pecking or playing with the bait. The baited hook was, in most cases, swallowed and deemed unrecoverable without harming the specimen, so it remained in them. The mortality of these fish with baited hooks remaining in was minimal. In most cases the hooks were regurgitated.

Photos by the author unless otherwise indicated.

James Burgess has always loved fishing and keeping the ones that he caught. He became extremely interested in the diversity of catfishes as a young high school student. Even while serving in the Army, James continued his catfish studies. He started writing articles and research papers after he retired from the Army and posting them on ResearchGate. He is a member of PlanetCatfish, Catfish Study Group, and American Society of Ichthyologists and Herpetolologists. His grandchildren help him in collecting specimens in the local creeks. He continues to keep and be amazed by *Ameiurus natalis*.

WATER CONDITIONS

These fish are very tolerant and hardy. They can stand a wide range of water temperatures so there is no need for a heater in the tank. The pH varies from 6.0 to 8.0. The tank has had a 100% water change on several occasions with the fish remaining in the tank while it is being filled up. A dechlorinator was the only safeguard as the tank was being filled. Tap water was taken directly from the faucet and poured into the tank. No adverse reactions have been noticed while using this method.

FEEDING

The feeding of *A. natalis* is simplistic. They are known for being scavengers, so coming up with foodstuffs that were to their liking was easy. To come up with food that would cause less havoc with the tank's water quality was more challenging. Chicken liver and chunks of raw chicken compromised the tank's water quality, both in making the water cloudy, but also, foul smelling. Nightcrawlers seemed like the perfect food, as they were captured using that for bait. Chopped up into bitesize pieces caused the bullheads to go into a feeding frenzy, and the food was quickly consumed with no water quality problems, but this feeding regimen proved expensive and thus was only given intermittently. A constant food source that was not expensive, served the needs of the fish, and left the tank without any water quality issues, was needed.

Since *A. natalis* is a definite predator, live prey, such as small minnows, was purchased at the local bait stand. Minnows were cheaper by the pound, so that is what I decided to do. The minnows worked great, but I soon discovered that the bullheads would gorge themselves and then regurgitate the minnows to eat more. That obviously fouled the water. I reduced the number of minnows that I put into the tank at one time and this worked out wonderfully. The fish could stay fed, maintain their predatory instincts, and good water quality was preserved. Small crayfishes captured from the local creek have, on occasion, been introduced as food. Small amounts of shrimp pellets and tropical flake food are added as a supplement to provide balanced nutrition. When needed, small fishes were caught with the use of a baited minnow trap.

Figure 1. First attempt at constructing a red light fixture.

Figure 2. The underside of the first attempt.

Figure 3. The final red light fixture.

Figure 4. The single piece of driftwood situated in the tank.

When the tank was outside, the feeding behavior changed. Previously, they would only feed at night on the live prey, but since they have become accustomed to the lights and movements, when wild live prey was introduced, the *A. natalis* instantly started swallowing. As before, some were too big to be totally swallowed so they were bit into pieces. It is amazing to watch them feed. The job of keeping the tank clear of dead uneaten prey is a daily chore, but worth it.

Recently, raw frozen shrimp was cut into small pieces and dumped into the tank. An instant feeding frenzy commenced, and the food was quickly consumed.

LIGHTING

The majority of catfishes are known for being nocturnal, and my *Ameiurus* are no different. Since they were only caught at night, it only seemed natural to provide a nocturnal atmosphere. The problem, for obvious reasons, was that I could not observe them effectively in the dark. Some type of illumination was necessary. In his book of *Catfishes In the Aquarium,* Dr. C. Ferraris, Jr., suggested putting red tissue paper between the tank and the light would create the appropriate nocturnal atmosphere. Testing commenced on different colors of tissue paper. Blue was a good color but I was unable to effectively photograph the fish. Orange was too bright and appeared to scare the fish. As it turned out, the red tissue paper was, of course, the best color to use. An alternate covering was needed as the tissue paper was constantly being degraded and discarded. The solution came in the form of leftover red curtains. Instead of trying to purchase a suitable lighting fixture, a shop light was obtained. With only a single bulb installed and the red fabric being folded underneath, the nocturnal atmosphere was accomplished.

The fabric was constantly being dislodged causing bright light areas. So, if I wanted to keep this nocturnal atmosphere, I needed to find another method. By utilizing the same shop light fixture but without a bulb, several holes were drilled into the metallic fixture and miniature red outdoor LED lights were installed. Once completed, these red lights shed a red hue over the tank (Figures 1–4).

PLANTS AND FURNITURE

First, I tested many pieces of aquarium "furniture." Multiple types of rocks and wood were added to the tank, but the bullheads being as strong as they are, the rocks and wood were constantly being tossed about in the tank. This upset the balance of the tank by stirring up the bottom debris. Finally, a single piece of driftwood was discovered down by the creek. The problem of buoyancy was eliminated by drilling small holes sporadically into the driftwood and tapping regular fishing weights into those holes. At long last a single piece of furniture was placed into the tank.

Planting the tank became the toughest part. Plants in the aquarium provide color, hiding spots, and sometimes food. The search started with real plants of various types. There were some plants growing in the creek so they became the first choice. Quite a number of plants were removed from the creek, washed thoroughly, and placed into the tank. The roots were dangling and the

Figure 5. Used batting wrapped around the siphon tube.

Figure 6. Slightly used original filter.

Figure 7. Used and dried filter after two weeks' time.

leaves provided a good leafy cover for the surface. But these plants soon died and broke apart, leaving a substantial amount of debris that fouled the water.

Several plants were purchased from the local pet store and planted after the entire tank was thoroughly cleaned. These plants were soon uprooted and were removed as they withered and turned brown.

Going back to the wild, multiple bamboo-like plants were dug up from the nearby lake so as not to destroy the roots. These stalks were attached to a plexiglass divider. Soon the roots started to wither and die causing harmful debris to litter the tank.

So, by now there had been numerous attempts to add plant growth to this tank filled with bullheads and all attempts had been unsuccessful. Plastic plants were the next option. Purchasing an adequate amount of regular aquarium plastic plants was expensive, so not being able to secure enough of them became the problem.

The possibility of purchasing fake plants and constructing a type of secure holder was explored. Several different types of plastic plants were purchased at a nominal price along with a plastic square foot anchor to secure them. By drilling small holes and securing the plant stems with silicone, a small forest was constructed. The plant configuration was installed into the tank and covered with gravel attempting to resemble their natural habitat. Suddenly, the minnows were dying without any obvious explanation. After three such events along with a couple of dead *A. natalis,* I realized that the only thing new to the tank was the plants. The plant block was removed, the tank was cleaned, and then reassembled. Realizing that the non-aquarium grade silicone with additives was probably the poison affecting the tank, the plants were removed and grouped together. A short piece of PVC pipe was drilled and the plants were secured by zip ties. It was then placed back into the tank.

WATER CHANGES AND ADDING WATER

Most aquarium books along with the majority of aquarists will often tell you that distilled water is best for making water changes or topping-off the tank's level, but I utilize regular tap water. It is poured into the outside filter reservoir thus allowing it to mix thoroughly with existing water. I have used this method for two years without any ill effects to the fish. I might add that the tank levels are not allowed to get very low before adding the tap water. The current created by the filtration and aeration systems mixes the tap water quite well with the tank water. The only drawback to this method is the temperature of the tap water, but since Yellow Bullheads survive in variable temperatures and types of water, change in water temperature is of little consequence.

Figure 8. Constructed filter.

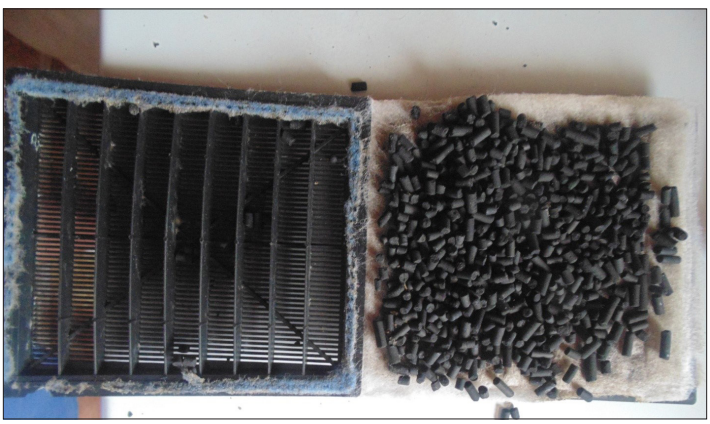

Figure 9. Constructed filter dismantled.

Figure 10. New filtration method.

Figure 11. Comparision of used and new filtration media.

FILTRATION

Filtering the water to remove harmful contaminants is crucial to the overall health of an aquarium system. There are several options for an effective filtration system. A tankful of *A. natalis* presents special challenges to keep the water clean and healthy. This tank started out with a single outside filter with a dual cartridge system. This system proved ineffective as the filters were quickly being clogged, thus needing to be changed often. An additional filter system was installed, but that just caused additional expense due to the filter cartridges getting clogged so easily. The cartridges were effective until they became clogged. The expense for this system was getting out of hand. The filters were being sprayed out, but the charcoal was not being replaced to remove the impurities. I needed a method to replace the filter medium and the activated charcoal while still utilizing the same plastic frame. Foam was initially attempted but was soon discarded due to the ineffectiveness of the medium. Quilt batting was settled on, and securing the batting and charcoal in between two frames proved effective enough. This method proved to be effective in cost, time, and keeping the tank free of contaminants (Figures 5–11).

TANKMATES

A. natalis is an aggressive, predatory fish, so having additional inhabitants can be quite hazardous, usually to the additional inhabitants. Whatever co-inhabitants that are considered cannot be smaller than the mouth of *A. natalis* or they will be considered food. A trio of Bluegills (*Lepomis macrochirus*) were placed into the tank with the supposition that they were too big to be eaten. That did not work even though the Bluegills were larger than the bullhead's mouth. The Bluegills were killed and torn apart. I bought a group of Goldfish (*Carassius auratus*). Only one survived and continued to thrive until recently. There were problems associated with bringing multiple species of catfishes together. The *A. natalis* was attacked and killed by a South American Suckermouth Catfish and an African *Synodontis* catfish. After consulting with two highly knowledgeable individuals (Drs. Peter Sorenson and Jelle Atema), I learned of the possibility that *A. natalis* secretions, which are supposed to repel other species, may actually attract other species. It became quite difficult to realistically have tankmates with the *A. natalis*.

CLEANING

Cleaning this type of tank is accomplished by two methods. The primary method is superficial. Common household items are employed. A simple scrubber/sponge combination is used to clean the inside glass. Very careful sprays of glass cleaner and soft paper towels help clean the outside.

To do a semi-complete cleaning of the tank, the procedure consists of three stages. Start by draining the tank via a clear plastic hose hanging out the window. As the water is draining, stir the gravel to release the debris. The water will get dirty and will be siphoned out of the tank while draining the water. The *A. natalis* remain in the tank during this entire procedure. Once the majority of the water is drained, the hose attached to the outside faucet is brought in for the fill up. As the tank is being filled, the dechlorinator is added with the start up of the aeration system. The combination of the flow of the water and air bubbles mixes the chemical. Temperature stabilization is not an issue as the bullheads are very hardy fish. The filtration systems are activated when the water level reaches 75%. This cleaning method has been used on several occasions without any issues.

CHANGES IN BEHAVIOR

There have been significant changes in behavior. The *A. natalis* tank has been moved twice with some interesting results.

The tank was originally placed in the back office/library. At this location, the fish would behave erratically when someone entered the room. Swimming in a panic was causing quite a bit of disruption within the tank.

Move number one came when the office was switched. The tank was soon to follow and so for the most part the specimens were in the dark. Again, the disruption continued when the tank was approached.

The second move was out to the front room. This is when the behavior changed. The bullheads were not disrupting the tank as they are now out in the open being exposed to constant stimuli. In this environment, they are huddled together within the confines of the driftwood branches (Figure 12). They did not react in the same manner as before. The only conclusion is that while in the rooms where human interaction was minimal, they did not have a chance to become accustomed to that type of interaction and were frightened, thus the erratic swimming and disruption of the tank. When the fish were brought more

Figure 12. Bullheads clustered under driftwood.

out into the open and that interaction and stimuli was constant, they adapted and learned not to be frightened.

DOMESTICATION

Since these specimens have been in captivity for over a year, it was time to attempt to domesticate these animals. Now these *A. natalis* were wild-caught and participated in the "Diary of a Catfish Aquarium" project (Burgess 2016). The first step in attempting any domestication was done with food placed on long wooden skewers. The food was a mixture of tropical flake food and shrimp pellets cooked into oatmeal. The resulting mixture was then shaped into a log and cooled. Pieces were sliced off and cut up into bite-size pieces. After lowering the skewer into the tank, the bullheads would approach cautiously and then take the bait off the skewer. This happened several more times and on multiple occasions.

In an effort to continue domesticating the *A. natalis*, the bait was changed to cut raw shrimp. My hand replaced the skewer. Could I hand feed the *Ameiurus*? The result was amazing. The shrimp that was being held in the hand was readily taken without caution. My finger found its way into the mouth and was bitten. This process was done several times to my delight. Additionally, the red lights were also illuminated. The fish were more cautious then but were still taking the shrimp from my hand.

The results of this procedure prove that a wild-caught bullhead can be domesticated enough to be hand fed. Further experimentation is warranted.

CONCLUSION

Taking care of an aquarium filled with *A. natalis* is a constant challenge. Once the tank is situated with the proper lighting and filtration it can be quite fulfilling. These fish are extremely fascinating and can give the aquarist hours of enjoyment and interesting observations. The Yellow Bullhead, even though it is mostly a nocturnal species, can be trained to become a rather visible subject. They can be trained to react calmly when approached and domestication is possible with hand feeding.

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