Gar Gettin'

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The First Collecting Trip

One of the benefits of belonging to a native fishes club like NANFA is that other members often know locations where native fishes can be found, as well as little tricks-of-the-trade for collecting and keeping them. Another benefit is that one has a chance to meet professionals who work with native fishes every day. Both of those benefits have paid off for me in the form of a most memorable "gar gettin'" trip, which gave me the opportunity to learn firsthand about one of the most interesting native fishes in the Illinois-Indiana region, specifically in the Wabash River.

Dr. James Gammon of DePauw University was the guest speaker at the first meeting of the Illinois-Indiana Regional NANFA Chapter meeting, and spoke at the 1999 NANFA national meeting in Champaign-Urbana. For over 30 years, Dr. Gammon has conducted extensive field work on the Wabash River, which forms the boundary between Illinois and Indiana. One of the species he spoke about was the shortnose gar (*Lepisosteus platostomus,* front cover, bottom). Dr. Gammon's presentation was very interesting, and it was still fresh on my mind when the telephone rang on a hot and lazy Sunday summer afternoon.

The call was from fellow chapter member and treasurer Jim Evinger. "Would you be interested in runnin' down to the bottoms [Wabash River bottoms] with me?" Jim asked. "The river is rising, and I've located some beautiful gar in some muddy drainage ditches near Darwin's Ferry. They are stuffing themselves on tiny minnows and shad. And they are really easy to collect from the bank with a long-handled dip net."

The next several hours were very exciting, and provided for even more excitement and more learning over the next several months. Jim had previously explained to me how he had kept gar in his home aquarium. Some of them were just a few inches long, but Jim had been successful in getting them to eat sinking pellet feed. Anyone who has been around gar in home aquariums can appreciate the importance of pellet feed. Gar have a voracious appetite for tiny minnows and this can keep one quite busy gathering live food.

Dr. Gammon indicated that shortnose gar populations had increased in the Wabash River in recent years. This statement came to mind as we approached the first muddy drainage ditch. As far as we could see, dimpling was occurring and tiny striped shiners (*Luxilus chrysocephalus*) were frantically leaping from the water in waves. Close to the ditch walls the gar could be seen slowly cruising and floating near the surface. Their outline was barely visible through the murky water. This type of water is common in the Wabash River bottoms. Corn and bean crops stretch as far as the eye can see, often with plowed fields reaching dangerously close to the steep river banks and drainage ditch walls.

Jim was right: the "gar gettin" was easy. Using a long-handled mesh net it was also easy to collect hundreds of tiny striped shiners and a few gizzard shad (*Dorosoma cepedianum*), which would feed our newly collected specimens for . . . well, not as long as we thought. (See part two.)

The collected gar (approximately 6-8 inches long), along with a large supply of striped shiners, were placed in Jim Evinger's large, aerated transporting tank. Jim's tank is built into the cargo area of his Chevy Suburban. The unit is covered and aerated by a 12-volt automobile battery. During transport the fish were held in water treated with Catch and Release livewell chemical.

The gar were given an osmotic challenge: reverse water dip[1] with dilute saltwater (35ppt/0.18-0.22 S.G.) for 10 minutes

before being released into a 200-gallon native fish community tank. The striped shiners also received a reverse water dip at slightly less dilution for twenty minutes. They were then released into a 40-gallon quarantine holding tank where they were kept until being fed to the gar.

The 200-gallon native fishes community tank is part of the Aquatic Education Program at the Aquatic Technologies/ Inland Aquatic research, fish breeding, and fish rearing facility in Terre Haute, Indiana. The 200-gallon ecoTarium® contains a heavy population of native freshwater plants as well as a gravel substrate, a granite rock alluvial fan, and large natural stumps, all from the Illinois-Indiana region. The ecoTarium® utilizes an Algal Turf Scrubber (dump trays) filtration system without auxiliary air, and a lunar simulation lighting scheme.

Native species in the community tank were one year class composed of bluegill (*Lepomis macrochirus*), longear sunfish (*L. megalotis*), redear sunfish (*L. microlophus*), wild goldfish (*Carassius auratus*), largemouth bass (*Micropterus salmoides*), a brown bullhead (*Ameiurus nebulosus*), a yellow bullhead (*A. natalis*), and one small juvenile white bass (*Morone chrysops*).

In the 200 gallon community tank (ecoTarium®), there is a refugium, a built-in tank-within-a-tank, separated from the main tank. Sensitive aquatic organisms, similar to those that might be found in swamps, backwaters, and shallow waters of lakes, ponds, and streams, are kept in the refugium. This protects them from the native fish predators but still permits them to be in contact with the same water (circulating non-traumatic pump) from the community tank. The refugium, at various times, can hold filter feeders such as corbicula, snails, crayfish, minnows, darters, and other small, sensitive organisms and plants.

The shortnose gar, for the most part, occupied the upper portion of the water column. They lounged among the floating vegetation, water hyacinth, and surface fronds from deep-planted vallisneria, hornwort, water milfoil, curly leaf pond weed, elodea, and other species. Their behavior was entertaining and educational to both children and adults who regularly visit the Aquatic Education Department at the facility.

When eating, the gar routinely took the striped shiners first, one at a time. They held them with their sharp needle-like teeth, crossways between their jaws, usually near the tip end of their snout. By systematically snapping their jaws three to six times, they turned each of the live shiners until they were able to take them into their mouths head first. Once a shiner was turned, it was "inhaled" in one quick, sharp movement. An occasional shiner managed to escape during one of the snapping and turning movements, but such was a rare happening, and freedom was short lived.

The Second Collecting Trip

Because of the gar's voracious feeding habits, it became obvious that we would need to return to the river bottoms approximately three days after the initial "gar gettin" trip in order to obtain more striped shiners.

As we arrived for the second trip, we noticed that the drainage ditches appeared totally calm. Gone were the prominent dimpling, the "flying fishes," and the slow roving gar shapes just below the shoreline surface, which had been pervasive on the first trip. An hour of dipping produced no gar and not a single striped shiner. Following the ditch toward its confluence with the river for nearly two miles produced similar barren results. But we were successful at the last major pothole just before the ditch emptied into the river.

At a control gate abutment structure beneath the road (30 or so yards from the pothole), three gar were collected, along with a mixed bag of striped shiners, tiny white bass, gizzard shad, a few tiny bluegills, and several crawfish. Several similar forage species were taken from the pothole itself. Our collecting bucket contained a dozen or so shad along with several hundred striped shiners. But in the few minutes that it took to walk to the vehicles all of the shad were consumed by the gar.

Upon returning to the facility we made a call to the local television station to obtain the river stages for the entire week. A quick analysis revealed the cause of the disparity between the two collecting trips. The river had started to fall early in the morning of the second trip. On July 21, 1997 (the first trip), the river stage was 12.1 feet and rising. The Wabash River had been rising steadily since July 18, when the level had been 2.6 feet. Starting the morning of July 24 (the second trip), the river began falling from a crest of 15 feet so that the readings were 14.6 feet on July 25 and 13.4 feet on July 26.

As the river began to fall in the morning of July 24, the gar and the shiners in the drainage ditch likely began to move downstream toward the river. By late evening on July 24 (the second collecting visit), no gar or shiners were collected in the

[1] (From previous page.) In a reserve water dip, a freshwater fish is dipped into a mild saltwater solution, or a saltwater fish is dipped into freshwater. Parasites attached to the fish are "challenged" or "stressed" to where their metabolism is threatened or to where they physically release themselves from the host fish. In fact, it is quite common to find discarded parasites sitting in the bottom of the tank after only a very short period of time. I learned this technique from a number of public aquarists who use reverse water dips regularly for all kinds of creatures.

A shortnose gar (*Lepisosteus platostomus*), collected from a Wabash River bottoms drainage ditch. Photo by Elmer A. Guerri.

entire stretch of the drainage ditch, except in the last major pothole (four to six feet deep) prior to the ditch discharge into the river.

This experience suggested that a more detailed, day-to-day collecting survey might be in order. Quantitative data needs to be collected from the drainage ditches during a similar river level cycle. This would be a great project for a high school class, a college class, or a native fishes club.

The shortnose gar in the 200-gallon ecoTarium® tank continued to feed ravenously on live shiners and shad. They never seemed to develop a taste for the floating and sinking pellets fed to other native fishes in the community tank. They grew approximately 2- to 2-1/2-inches in less than two months, and it seemed that their appetite continued to grow as well. They were not aggressive to the other natives.

The gar provided countless hours of observation and learning for hundreds of youngsters and several adults. While most of these people will likely never go "gar gettin" again, at least they now appreciate a native fish species that is much maligned and often little understood by anglers and others. We can only hope that a few more folks have benefited from observing native fishes in aquaria and have learned a few lessons from nature. The lessons may seem rather elementary to seasoned professionals and possibly even to some seasoned non-professionals. But to others, they might inspire more interest—perhaps a lifelong hobby or even a vocation—all because a couple of hobbyists took a few hours one Sunday afternoon to go "gar gettin."

Thanks, Jim, for calling me!

Ah, the joys of collecting and studying the native fishes of North America!

Shortnose Gar Facts

- *Lepistosteus* = scales of bone; *platostomus* = broad mouth.
- Air bladder functions as a "lung," enabling gars to take in atmospheric air at the water surface and exist in water with low levels of dissolved oxygen.
- Seems to prefer sand and silt bottoms, appearing to have a higher tolerance to silt and turbidity than other gars.
- Feeds primarily on live and dead fishes, and occasionally on crayfishes and insects (Pflieger, 1975).
- Avoids currents and vegetation (Etnier and Starnes, 1993).
- Acquires snout spots in captivity (Mettee et al., 1996).
- Greenish eggs are toxic; when eggs were fed to mice, the mice died or became sick (Netsch and Wiltt, 1962).
- Grows rapidly, reaching sexual maturity at three years.
- Has survived 20 years in captivity (Flower, 1925).
- Hosts to parasitic glochidia of freshwater mussels.
- Role of shortnose gar in maintaining a balanced fish population in some waters may be significant.
- Excellent to eat when baked or smoked.
- Other common names: broadnosed gar, stubnose gar, shortbill gar, duckbill gar, billy gar (and occasionally @#!&* by anglers).

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