Building the Perfect Gar Pond II: The Gar River

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I've been keeping gars since the mid-1980s. I kept them in 75-gallon aquariums, which seemed to work fine for spotted, Florida, and shortnose gars. Longnose gar grow too quickly and too large to be kept in most home aquariums. And, of course, alligator gar are not suitable except for select custom-built tanks in the home. So what was I to do when I luckily obtained an alligator gar? Well, since building a large tank still seemed to place many limitations on keeping such a magnificent fish, and since I had a big enough yard, I decided to build a pond.

The Original Pond

I described the construction of the original pond in my *American Currents* article "Building the Perfect Gar Pond" (Winter 2001, pp. 9-10). Work started in 1998 when I obtained some rubber sheet (45 mil EPDM) from a roofing contractor I know. I modeled the pond after the Mississippi River, taking ideas from the Wisconsin area near me and the Louisiana area, which I have visited. (Note: words in italics refer to callouts in Fig. 1.)

The original pond (*liner 1*) was rectangular and what pondbuilders call a "shelf pond." It had a deep hole on one end (*pool 1*), surrounded by a shallow rim. The other end had two shallow *flats* with a *channel* running through the middle, creating a simulated river basin. Driftwood was placed around the deep hole to simulate a backwater swamp. The shallow half was lined with rocks to make small replicas of the river bluffs seen in Wisconsin and adjacent states.

I placed a pump along the shore of the deep half, and ran tubing all the way to the shallow end in order to circulate the water. Later this tubing would come out and the circulation would be reversed (*pumps*), which took away from the effect of bluffs being upstream and the backwaters being near the "lower end." Little did I know what would be in store for me during the next couple of years.

Small Liners on Sale

A local farm store had liners on sale for a really good price. I could not pass this up and had to buy one, but didn't realize that my wife had bought one also. So now I had two chunks of liner to work with. I added a narrow, short *canal* containing a channel and flats along the sides for smaller fish to seek refuge from gar and other large predators. I also planned to add a small dam and waterfall. (Why a dam? There are lots of locks and dams on the Mississippi River, so I figured that adding one would make the pond more "realistic.")

I used one liner (*liner 2*) for the canal and waterfall (*falls*), but scrapped the idea for a dam. The other liner sat in the garage over the winter and for a good part of the following year. I figured I could tape another piece onto this liner and make a large pool above the falls. I then came across a piece of roofing rubber, but since it was small I abandoned my idea to build a large pool. Instead, I joined the liner (*liner 3*) and roofing rubber (*liner 4*) to make what looks like two smaller ponds and designed it to function as a stream. This "stream" flows towards the waterfall, which was basically a dam-like structure made out of sandstone slabs to look more like a natural waterfall.

The Bog and a Derecho

One section of the new stream formed a triangular point that just begged for something to be there. A *bog*! I dug the

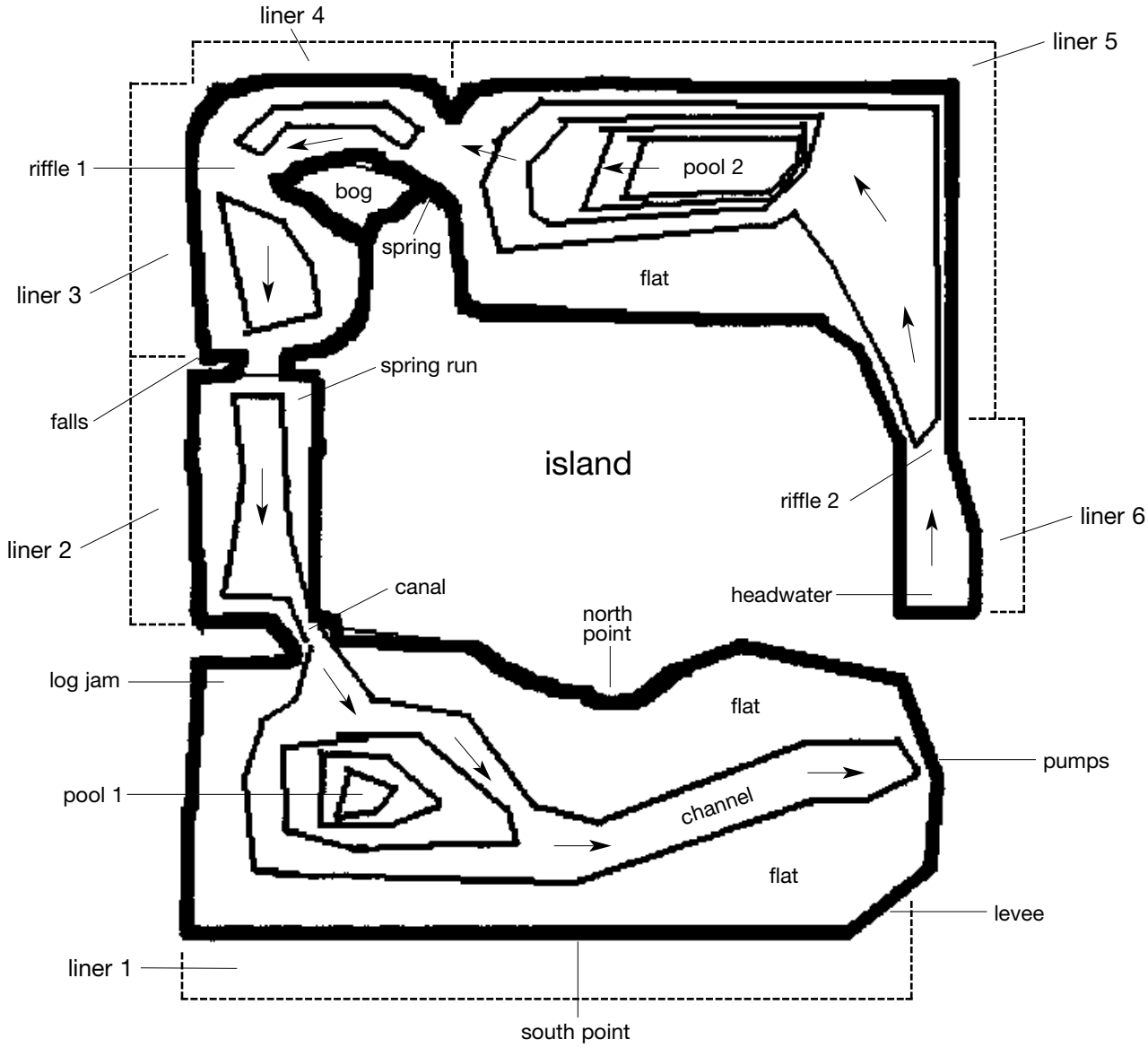

Fig. 1. Ray Wolff's gar pond system, roughly 25' x 50' (not drawn to scale). Different parts represent different segments of a river: a headwater stream (~2' wide, 8"-12" deep), large lake-like pools (~6' deep), a larger (18" deep) river-like area (the "two-pond stream"), a waterfall, another river-like area (the channel pond, 2'-3' deep), and a large lazy lower river (the original pond). Arrows indicate direction of water flow.

point out and lined it with only a tarp because it did not need to hold water, just remain damp. The bog looked nice and after a rain it filled up and looked like part of the pond, increasing the visual size.

On 11 June 2001, a windstorm blew through the region, maintaining 90 mph gusts for over an hour. Winds over 60 mph blew for another two hours. These storms are known as derechos and usually hit in March or November when air temperature is trying to change for the coming seasons. The derecho tore out a spruce tree that I had planned to be on an island after I extended the pond around it. With the help of two other people, I cut the tree by hand since I didn't want chainsaw oil dripping into the pond.

The Pond Gets Bigger

I worked on making the pond bigger by extending it in a circle to create an *island*. I priced liners all over the Internet and eventually broke down and bought one (*liner 5*). Now the gar could spend winters in a large deep pool in the upper part of the pond. This part would also serve as a refuge from heat in the summer.

Digging in sand, although easy, presented some problems. The straight walls of the deep pool would not hold as they dried out. I remedied this by hosing it down on occasion. Filling this part of the pond with water was easy since it was near a sprinkler line that was being rerouted around the new construction. I just turned on the pump for the sprinkler system and watched the deep hole fill.

I hoped that the pool (*pool 2*) would keep fish from going downstream and over the falls. It does, but some fish still go over. Fortunately, the large gars and warmouth stay upstream.

The Pond is Finished . . . Almost

Now I had to finish what was to be the natural succession of this project. I had a strip of liner left over (*liner 6*), which I used to make a shallow stream with riffles (*riffle 2*) back to where two *pumps* pull water from the end of the original pond (*liner 1*). The largest of these pumps pushes water into the *headwater* stream, which then flows through the entire system. The other pump, slightly smaller, has a line that's split. One line goes to the *falls* to create a *spring run*, while the other goes to where *pool 2* connects to the "double-pond stream area" (*liners 3* and *4*) described above.

For the most part the river is complete, but there are still some glitches to work out. The skimmer leaks, and the shore lines get too low when I change volume on the smaller pump from one outlet to the other.

Why This Design?

The design of my gar pond wasn't planned—it sort of just happened. Weather, deals on supplies, just happening on decorations, and fixing (or attempting to fix) problems all contributed to the end product. Sure, it would have been nice to have had a blank check and gotten it all done from the start, with less work. But I think that the slow progression of the project allowed the pond to take on a more natural character, which is what I was striving for in the first place. It was also fortuituous that the construction took place in small sections over time, which allowed visitors to comment on what they thought would look good on subsequent sections. Hearing several points of view was very helpful. Even people with no interest in ponds had great ideas.

The river has naturally reproducing populations of banded pygmy sunfish, bluespotted sunfish, green sunfish, warmouth, least darter, johnny darter, rainbow darter, mud darter, spotfin shiner, red shiner, blacknose shiner, northern redbelly dace, central stoneroller, central mudminnow, eastern mudminnow, pirate perch, banded killifish, and blackstripe topminnow. That may sound like a lot of fish, but predation—including predation from outsiders such as frogs and birds—does occur. (Crows are especially good fishers.) I hope to add even more species, including others killies and sunfishes.

What's Next?

Future additions include a bridge to disguise the area between the headwater and the lower pond, and side ponds to simulate oxbows and backwaters. These side ponds will serve as refugia for fish, amphibians, and possibly turtles, depending on the design.

Building a large pond system like this one can be a challenging task. Go slowly and do not expect a miracle of nature over night. Building a single, large pond first is a given. Adding to it later will keep the pondbuilding bug at bay. This can be as simple as planting a few bog plants along the shore, or—as I just did—as involved as connecting a second pond to the first.

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