

Probable Spawning of Bantam Sunfish (*Lepomis symmetricus*)

by Bruce Gebhardt, Philadelphia, Pennsylvania

The activity described here produced no fry or eggs that survived long enough to be seen. It occurred in a heavily planted 20-long aquarium stocked with one pair of Bantam Sunfish, four Redside Dace, three Southern Redbelly Dace, and two Iowa Darters. Probably the Bantams' tankmates accounted for any sunfish eggs and fry. It is hard to believe no real spawning occurred, since there were several episodes, two lasting respectively 45 minutes and over an hour. Water was alkaline and hard, temperature in the low 60s (F). The episodes occurred in spring.

The midwestern male killed his first female when they were placed alone in a 10-gallon tank. Another female was recruited from Texas. The male by this time was 3½" long, the second female--like the first--about 2½".

The female was kept separately for a long time, in view of the male's murderous history. When the male seemed to have excavated a sort of crater in the gravel, and when the female stayed plump and her pattern fairly distinct over a period of time, she was placed in the male's tank. Reaction was prompt.

Normal color for him was gray with pearly vertical bars. Within minutes, the gray darkened to charcoal and the pearly bars gleamed. Other pearl decorations lit up, and the gill cover sometimes seemed iridescent orange. Females normally have patterns similar to those of normal males but less distinct, with little iridescence to the bars. Aside from pattern differences, females may be distinguished from males by their rounder shapes. In breeding trim, broader vertical bars--dully iridescent--emerged against a slightly darkened background. As female sunfish go, Bantams are fairly attractive, whereas the male is one of the plainest male sunfish.

As soon as he saw the female, the male quivered violently with his head pointed up near the top of the water. I had never seen a sunfish do that before. After initial ceremonies, he dug a bigger, deeper, more formal nest. One might assume that sunfish just sort of wriggle into a substrate to hollow out their little craters. That may occur with some species in some circumstances. This male's excavation method was more direct: he stood vertically and twisted his tail into the gravel--a forceful, macho demonstration. When checked after some hours, there was a deep crater with a nice incline. He had postponed some of his preening during excavation. He resumed, chasing and dancing and displaying before the female and herding her back to the nest. Over a few days, the process had led to the shredding of her fins. She still did not

absolutely flee the male, but after considerable dithering would move directly to the nest.

The apparent spawning ritual was dramatic. The pair moved closely together around the upper levels of the somewhat funneled sides. The male, on the outside, was usually almost vertical, though occasionally leaning over or turning towards the female as if to remind her of his impressive appearance or to adjust their positions somewhat. The female was almost horizontal, except when she drifted upward a little and had to slip over a protruding root that overhung the rim of the pit. The pair kept their vent areas close.

It suddenly became apparent to the writer why many Lepomis sunfish have conical nests. A previous, casual assumption had simply been that every male needs a territory, and a circular pit defines the home base well. Besides, they need to scoop out a hole in the bottom to help hold the eggs. These are factors, but also the inside structure allows the female to maintain horizontality while circling bellied up against the male. If they tried it on level ground, the female could not keep her vent close to the male's as easily. Meanwhile, the male can keep in contact with the substrate with outer ventral fin and side. This enables him to maintain his position.

Figure I. Why Sunfish Spawn in Pits

