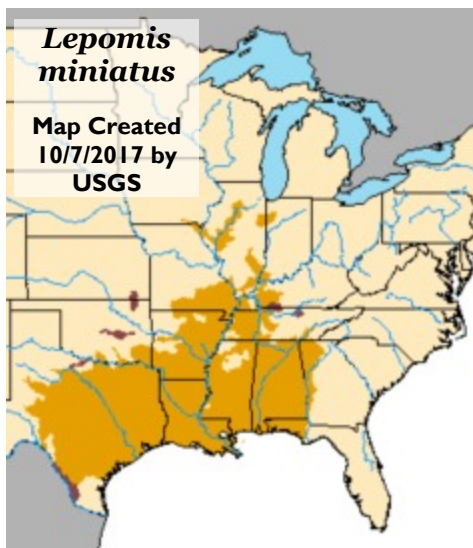


# Breeding the Missouri Native Redspotted Sunfish *Lepomis miniatus*

By James E. Wetzel

**M**ISSOURI WATERS SUPPORT 18 species of sunfish of the family Centrarchidae. Of these, panfishes of the genus *Lepomis* are particularly well suited for the aquarium, where in addition to a range of colors, they also exhibit interesting behaviors.

A personal favorite of mine is the Redspotted Sunfish, *Lepomis miniatus*, also known as the Stump Knocker for the drumming sound produced by courting males. The Redspotted Sunfish (RSSF) is most frequently encountered in low gradient streams that support at least some



submerged vegetation, particularly like those of the Missouri Bootheel.

The RSSF is relatively chunky when compared to more familiar Northern Bluegill, *Lepomis macrochirus*, and is small to intermediate with respect to size compared to others in the genus *Lepomis*. The RSSF seldom exceeds 6 inches in total length and is capable of maturing sexually at 2 inches even though breeding does not typically begin until females are at least 3 inches and males when about 4 inches.

RSSF have a base coloration of brown with darker brown freckling on opercula and an iridescent blue patch below the pupil on eye. The blue may be an indicator of sexual maturity. Fish greater than 3 inches develop spots on flanks for which the species is named. Spots of males are orange-red to red while females are barely evident as pale yellow to orange. Time of year

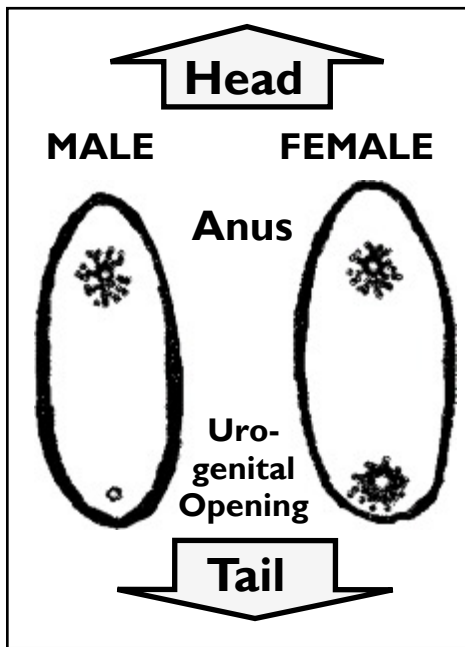


Iridescent blue patch below the pupil on the eye.



and diet can influence intensity of spot coloration in both sexes.

**Basic husbandry is like that of neotropical cichlids** that are middle of the road in terms of disposition and quickly lose fear once they associate you with food. The RSSF in nature consumes a range of animal prey that readily fit into the fish's mouth and they will sometimes purposely consume rather large pieces of vegetation (personnel observation). In the aquarium, they readily train to consume dried feeds. Diets formulated for carnivorous cichlids are suitable as a base diet that can be supplemented with less processed alternatives such as freeze-dried, frozen and live forages. The RSSF will typically eat many small meals in a day, but can consume enough in one meal to support growth and a modest level of reproduction when diet quality is high.



When immature and / or when temperature is below typical room temperature, RSSF show minimal inclination for aggression towards other sunfish. Still, groups of six or more prevent pecking order leading to damage of subordinates when tank used is small. Any sunfish of the same genus can be used to distract aggressors.

**When it comes to actual breeding, the RSSF** do not form custodial pair bonds, rather parental investment post-conception is exclusively by a single parent, the parental male. Not all male parents are parental in sunfishes- but that is for another day.

**Animals close to ripe can be distinguished** by relative size of urogenital opening relative to the anus, see Figure. Urogenital opening of the male is smaller than anus but the female's the urogenital opening is larger relative than the anus.

**Typical of the sunfish family, male RSSF prepare the bowl-shaped nest** site by tail-sweeping and occasional moving of some items using their mouth. They are the only species I have seen doing this. Normally nests are located in water ranging in depth from 18 inches to 4 inches. They will readily create a nest in the substrate of an aquarium and will in a pinch even spawn on a bare bottom. Males also like to defend a volume centered on nest that naturally exceeds a 5-foot radius around the nest. This can be a problem when females unable to get away from advances can be damaged or killed and male kept exhausted so he cannot complete breeding cycle. Breeding can occur spontaneously in a tank setting although risk to breeding fish, especially females, and fry are very high without intervention.



**Here is described an approach readily adaptable to aquariums that greatly increases control**, thus limiting risk to all fish and greatly increases the number of fry that can be successfully reared to the point they can consume dried feeds. The key is employing a partition and, when needed, isolating early free-swimming stages from all but possibly the parental male.

**Conditioning is often easier when temperature is 68 to 72 °F** -just below that optimal for breeding. While the conditioning is focused on gaining weight the photoperiod can be 12 hours light: 12 hours dark. Intensity or spectrum does not appear important. My preference is to feed at least twice daily to apparent satiation at roughly 12-hour intervals using pellets with occasional substitution with live forages (i.e. meal worms, crickets). The objective for conditioning is to get females with distended abdomens even when not in a satiated state. Do not use for breeding attempts females lacking the distended abdomen at the end of the conditioning phase.

**Sexes can be commingled during conditioning.** Once fish are conditioned, select a good looking male that is ideally a little larger than the



**Your Family  
Owned Pet  
Store Since  
1951**

10040 Gravois Rd  
(314) 833-5116  
Mon-Sat: 9:00am-8:00pm  
Sun: 10:00am-6:00pm

St. Louis  
Springfield  
Joplin  
Poplar Bluff



females. Females can be kept together although they are isolated from direct contact with males of all sunfish species. Then move the photoperiod and temperature for the aquarium(s) involved in subsequent steps into the range optimal for breeding. My default breeding photoperiod is 16 hours light: 8 hours dark.

**That dark is not totally dark is key;** otherwise male may not come into breeding condition or may not stay with the breeding effort through completion. A night light shining on the tank indirectly enough to see the fish is usually enough to keep male in the game. Otherwise keep the tank light on 24 / 7. The temperature range targeted for breeding is in the mid to upper 70's °F.

**The breeding setup starts with a cycled tank,** with or without a particulate substrate. The smallest tank size I like to use is a minimum of 20-gallons (30" L x 13" D x 13" W) with the length divided roughly in half using a removable partition allowing diffusion of water between the halves.

The male's compartment is relatively open and receives the male and a fabricated nest filled 1/2 to 2/3's full with pea gravel, typically placed in a corner opposite the partition. The other compartment for female(s) has lots of cover in the form of plants, driftwood, or rocks.

**The male is usually installed a couple days ahead of female(s)** so he can settle in. Sometimes he will spontaneously begin nest construction. He needs to be calm when you approach the tank. When female(s) are added to their compartment you can expect a change in the male's behavior involving his coloration and activity levels. Male can respond to female

presence by simply being in the same water without line of sight.

**After a couple more days I remove the partition** and watch the action for 15 minutes. If all goes well the male will at least begin courting female by swimming almost violently around the tank in an exaggerated manner with a tail wagging "dance" as he returns to the nest. If the female is ready she will swim directly to the nest and spawning will get under way within 15 minutes. Sometimes she will require a little time and may almost appear to be driven to the nest.

**What you want to see** is the female present her belly to the male every time he approaches her. Presenting her back or a female hiding means it is time to replace the partition with the male on the nest side and the female(s) on the other. When the spawning bout gets underway I stay with the fish until the females leaves the nest for at least 5 minutes. A fleeing female can be damaged if she cannot hide at this time.

**During the spawning the fish swim in concentric circles** with the female on the inside. As the fish swim the female periodically leans with her ventral region coming into contact with the males flank and she shudders releasing eggs. The eggs / embryos fall into nest where they adhere immediately to the first surface they contact. Upon completion of the spawning bout the nest can contain anywhere from 500 to a couple thousand eggs. Removal of female(s) to another tank can be immediately after a spawning bout until about 5 days later but must be prior to exodus of newly free swimming larvae up into the water column. All females will be a threat to offspring.

**Development of young is rapid** and is better with a current like provided by a fanning parental male. Embryos typically are hatching by 36 hours post-conception into prolarvae and take roughly 5 additional days to exodus the substrate as larvae. Larval exodus typically occurs in mass shortly after dusk which is also when paternal care typically ends. Filtration intakes need to be covered at this time to prevent impinging of larvae. Starting the day of substrate exodus, freshly hatched brine shrimp (BBS) are supplied at least twice daily for the next 14 to 21 days. I like to feed once in the AM before work, again at end of the work day, and a final time just before going to bed.

**Ideally the BBS are less than 6 hour post-harvest** before being fed-although one harvest per day gives satisfactory results. Starting at least a couple days before cessation of BBS start co-feeding with a dried feed formulation suitable for fry. I like to feed the dry feed a few minutes before the BS while co-feeding. Fry should approach your hand by this point each time they are fed.

**I co-feed for a week** before ceasing BS feedings. Then increase feed size as needed using formulations typical for cichlids of the same size. The parental male can be left with free-swimming offspring even though they normally disperse. Under exceptional rearing conditions the offspring can approach breeding size within 120 days.

**Adult photographs Courtesy of Ben Cantrell**



**At Midwest Tropical Fish you can find the largest selection of Cichlids in the Midwest. Our main focus is customer satisfaction. We deal only in high end products for your happiness.**

**Shop in store or at [www.midwesttropicalfish.com](http://www.midwesttropicalfish.com)**

*Pick up in Store or we can ship it to you.*

**Subscribe to our Mailing List**

618-946-7408  
*midwestfish2@gmail.com*  
214 South State Street  
Jerseyville, IL 62052

Mon: 10:30 am - 6:30 pm  
Tue - Thu: 11:00 am - 7:00 pm  
Fri - Sat: 10:00 am - 8:00 pm  
Sun: 12:00 pm - 6:00 pm

