

# The Mystery of the Feeder Fish, or Who is Rosy Red?

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**L**ast winter I ran into Jim Langhammer at the Aquarium Shop in Royal Oak, Michigan. He asked if I knew what species rosy reds were and I replied that they were fathead minnows. Jim responded that that's what most of the literature says, but that he couldn't find a published account of the origin of the color variety. Jim thought that because of their thin body shape they might be bluntnose minnows instead. He commented that in Europe, all of the fishes in the genus *Pimephales* are called "fatheads," and in fact, *Pimephales* means fathead.

Fathead minnows (*P. promelas*) and their close relatives the bluntnose (*P. notatus*) and bullhead minnows (*P. vigilax*), are all raised as bait. All three have ranges that have been extended due to stocking and bait bucket releases. They are also known to hybridize. Who knows what's thrown into the breeding ponds? The origin of today's commercial rosy reds are possibly hybrids.

## Identifying the Rosy Reds

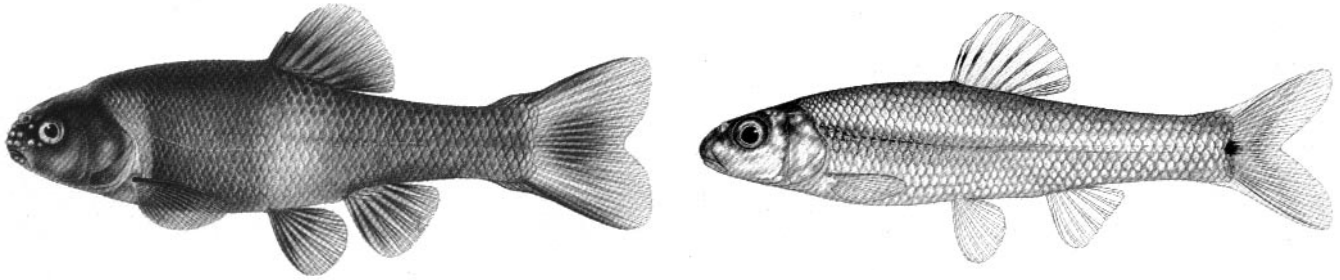
Rosy reds have two color varieties, red and natural, so I took a number of each type home with me. As feeders they are sold as juveniles, so I intended to let them grow. When they were big enough, I'd run them through the identification keys in my books to see if I could find anything out of the ordinary. Jim also took some home to see what he could come up with. As the fish grew and were compared to the identification keys, we found no clear answers. Do we have hybrids or just a pure version of one of the species? As might be expected with fish that are found from New York to the Dakotas, and from

Michigan to the Gulf, you find considerable differences. Added to this, we were not helped in our task by the fact that the bait industry ships fish all over the country, and hybrids probably occur between bait releases and local fish. Jim and I looked through every regional book we had. There were many differences and exceptions in their keys. We also looked at every photo in those books and on the Internet, and in most of the photos we found contradictions to the keys.

I did discover that in a spawn of only natural-color rosy reds, about 20% of the fry have the red coloration. This is about the percentage expected from a recessive gene carried by both parents in a population.

One area in which the identification keys we consulted remained reasonably constant is that both the bluntnose and bullhead minnow have a complete lateral line. (The fathead minnow's lateral line is incomplete and stops at the dorsal fin.) One of the red-colored males had a complete lateral line; the natural-colored male's lateral line stopped at his dorsal fin. Fathead males usually get breeding tubercles on the nose and mandible, whereas bluntnose males get them only on their nose. The natural-colored rosy red male had no tubercles on his mandible. One natural-colored rosy red male developed both the pattern and the short, deep-bodied shape of a breeding fathead. The male red-colored rosy red had some of the pattern's form but the body shape didn't change. The only conclusion Jim and I could reach was that we didn't have a pure species.

Jim started sending out e-mails to a number of people asking if they knew which species the rosy red represented. Dr. Gerald R. Smith of the University of Michigan responded that 15 years ago he keyed out rosy reds from a bait dealer in Wisconsin as bullhead minnows (*P. vigilax*). He said that he would be happy to look at our fish. Time for a road trip!



The rosy red minnow, popular as a bait and feeder fish, may be a hybrid of the fathead minnow (*Pimephales promelas*, breeding male shown at left) and its close relative the bullhead minnow (*P. vigilax*, shown at right).  
Illustrations © Joseph R. Tomelleri.

Jim, Leo Long, and I filled a styro with bags of fish and we were off to Ann Arbor. Dr. Smith examined our fish and concurred with our observations on the lateral lines. He also found that the male red-colored fish (with the complete lateral line like a bullhead minnow) had a lateral scale count that matched that of the fathead minnow. The only thing consistent with these fish was that they didn't fully match any *Pimephales* species. Perhaps 15 years ago rosy reds were a color morph of bullhead minnows, but now they seem to be a hybrid swarm. Most likely, the rosy reds from regional breeding facilities are a different mix of the *Pimephales* clan depending on what has been in the breeding ponds.

Had it not been for Jim's question about rosy reds, I would have never considered keeping this fish. Wild fatheads are so plain that whenever I collected them they went right back into the creek. And I don't think bluntnose minnows look much better. As for the rosy red color bait minnows, I think that they're so ugly that they should be fed to anything just to get rid of them. But when the rosy reds prepared to spawn, I found that their behavior made them worth keeping.

### Spawning the Rosy Red

I kept my rosy reds in a 60-gallon tank in which the water temperature never went below 60°F. At the end of March, I noticed that the male chased several darters from under a large, flat rock propped up to form a ledge. He started guarding this site, and after about three weeks several hundred eggs appeared stuck to the bottom of the rock. Every day more eggs were laid, sometimes by several females at a time. The male and females would closely examine the eggs, and only eggs that weren't attached to the rock would be eaten.

When the male was examining the eggs, he often rubbed his back against them. *Pimephales* have spongy pads on their napes that contain mucus-secreting cells and taste organs. The pad apparently allows males to mark their spawning sites and contains an anti-fungal agent.

After about a week I could clearly see the eyes of the fry in the oldest eggs. I removed the rock and placed it in a three-gallon tank with an air stone for circulation. A few days later the bottom of the tank was covered with fry. I put the rock back in the tank with the male. He immediately took up his guard duties, cleaned off any fungused eggs (or ate some, or both), and started spawning again. I have never seen eggs develop fungus when they were being tended by a male. I added a lot of green water to the fry tank and after several days began feeding APR (artificial plankton rotifer), microworms, and newly hatched brine shrimp.

The adults have continuously spawned for almost three months. Thousands of eggs have hatched, but since I have only occasionally seen fry I assumed that the parents must be eating them. Despite adding about a dozen other Michigan minnows to the tank, the male easily defends his eggs. After four weeks, I removed the green water and started to feed the fry only flake food. There are now over 100 fry in the three-gallon tank, but I must have fed over 500 of them to my darters.

Rosy reds are the most prolific fish I have ever worked with. It's no wonder that they're raised as a bait fish. I can't think of any of the tropical minnows kept in the hobby (barbs, rasboras, and danios) that guard—and clean!—their eggs. These are extremely interesting behaviors to watch.

If you want to try something different at a dollar a dozen, rosy reds are the best deal in town. 