

## A Splashy Comeback

BY STEPHEN SAWICKI

**T**his is the story of a fish that time and science forgot.

In 1870, the robust redhorse made a brief appearance in the writings of naturalist Edward Cope, who commented upon the sizable suckerfish he came across on the

Yadkin River of North Carolina. He described it as "stout in all its proportions and with marked coloration." He also expressed concern that unregulated fishing posed great risk to this and related species.

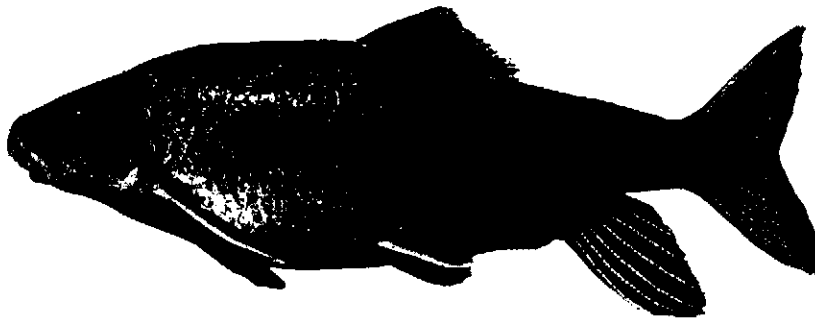
Then something strange happened with this fish. Or rather, little happened at all.

Cope died. His specimen collection was lost. And as the years passed, the once abundant robust redhorse, handsome in its greenish bronze coloring and crimson fins, slipped into obscurity. "It wasn't really considered extinct because nobody considered it at all," says Terry A. DeMeo, who heads the Robust Redhorse Conservation Committee. "It just sort of vanished."

Already in decline when Cope came on the scene, the robust redhorse continued its slow and silent descent toward extinction. Sedimentation from row farming and deforestation was a major blow, as it sullied the gravel the fish needed to spawn. It also killed off much of the fish's primary food source, mussels. In addition, fish and game managers' introductions of such predators as the flathead catfish proved devastating. And the construction of dams made matters even worse.

Remarkably, the fish, which lives as long as 27 years and weighs up to 17 pounds, managed to stay out of sight—at least from researchers, who regularly visited its native rivers in Georgia and the Carolinas. Scientists conducted their surveys and assessments for all the usual reasons—hydroelectric projects, sportfishing, basic research—but none seemed to notice the robust redhorse.

When it's not spawning, the robust redhorse tends to



Scientists weren't looking for the robust redhorse when the fish reemerged.

prefer sections of rivers that are mostly inaccessible to people. It likes deep water and the camouflage of fallen trees and other debris around the outside river bends. And because it was a nongame species, biologists involved in sport-fish management in particular might well have

passed it by with just a cursory glance.

The 1980s brought a turn of events. Unidentifiable fish turned up, first in the Savannah River on the Georgia-South Carolina border, then in the Pee Dee River in North Carolina. Samples went off to Robert E. Jenkins at Roanoke College, a prominent authority on freshwater fish, but their identification remained uncertain.

Then, on a sweltering day in August 1991, fishery biologist James Evans and technician Wayne Clark of the Georgia Department of Natural Resources were on a secluded section of the Oconee River, east of Macon, gathering information about a dam that was up for relicensing. Though Evans knew most of the species in these waters and the pair carried a list of what they could expect just in case, they were taken aback when they found large redhorse suckerfish that were twice the size of the creature's nearest cousin.

"A lot of work has been done on these rivers, and we generally think we know what's supposed to be there," says Evans. "We knew immediately that this fish was not supposed to be there. It was absolutely a mystery."

Samples of this fish would eventually find their way to Jenkins, who now concluded that the three unknown fish in his possession were the same species. Deeper investigation led to Cope's old papers. It took some time

Photo: Dr. Byron J. Freeman, Institute of Ecology, Univ. of Georgia

and sorting out of the historical record, but it finally became evident that this was the fish Cope wrote about.

The robust redhorse wasn't back from the dead: it had never left.

But it was in trouble. The already aged population in the Oconee numbered only about 500, according to Evans. Subsequent sampling throughout the historic range added just a few small populations, including minuscule numbers in the Savannah and Pee Dee rivers.

The last decade has brought progress. Most significant was the development in 1995 of the Robust Redhorse Conservation Committee. Through a memorandum of understanding, 14 agencies and organizations joined forces on behalf of the fish and agreed to work together, sidestepping the delays and restrictions of the U.S. Endangered Species Act. The unlikely bedfellows include utilities, state natural-resource agencies, and conservationists.

So far, Evans says, so good. Come May, for example, during the robust redhorse's spawning season, Georgia Power stops generating electricity on the Oconee, avoiding flow fluctuations that could harm the eggs. As a result, more larval fish have begun to appear. "There's some indication that flow stability is having a positive effect on reproduction," says Evans. "We just would like to see that increase in reproduction manifest itself in an increase in recruitment into the adult population. So far there's just marginal evidence that's occurring."

As time has passed, researchers have learned a lot about the fish's spawning, habitat requirements, and food habits. Robust redhorse are collected on the Oconee each year. The females are injected with hormones to induce ovulation. The eggs are then incubated at hatcheries.

In an attempt to return the robust redhorse to its historical range, 32,000 young fish have been introduced to the Broad River and 21,000 to the Ogeechee River, both in Georgia. A total of 177 larger fish have been returned to the Oconee.

The goal, of course, is to bring the fish back to self-sustaining levels. Scientists are hoping for indications of progress as early as this year, when some of the fish should begin to join the adult population.

The other good news is that time has actually improved the rivers' health. Sedimentation continues, but it is far less than in the past. Cotton and other row crops have fallen away. Much of the forest has returned. And though the exotic Asiatic clam has been a curse for many native species, it has served as replacement food for the robust redhorse after native mussels died off.

The robust redhorse, the fish that almost got away, has proven itself a survivor of the highest order. Forgotten by mankind, it has hung on through the worst of times to see a reversal in its world. Fingers are crossed that it will make it all the way back. "It's really an amazing fish," says Evans. "You kind of get attached to it after a while."

*Stephen Sawicki is a contributing editor for Animals.*

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When Paco grabs your boyfriend's pant leg, a slightly different version of the same approach is called for. In this situation, Paco should be removed from the room and put into a time-out. Time-outs work well with dogs because, as social animals, they do not like being separated from their group. To properly execute a time-out, pair a phrase such as "time out" or "that's it" with the aggressive behavior and immediately remove the dog from the scene. You can put him in another room and close the door or put him in his crate. The time-out should not last longer than about five minutes. When you bring him back out, ask him to sit or lie down. If your timing is good, Paco will soon learn that his aggressive behavior leads to isolation.

While trying to eliminate Paco's aggression toward your boyfriend, it's a good idea to work on improving their relationship. Ask your boyfriend to feed Paco his dinner, take him for walks, and play with him when he comes over. He should also spend some time training Paco to perform basic commands (sit, down, come, stay) and tricks (shake, spin, roll over, speak, go to your bed), using extraspecial food rewards such as hot dogs, chicken, or cheese. Remember, the way to a dog's heart is through his stomach. With this type of positive reinforcement, it won't be long before Paco changes the way he feels about your boyfriend. And if he likes your boyfriend, your dog will be less likely to become upset by your closeness.

Reinforce these lessons by asking Paco to go to his bed and giving him a Kong Toy or hollow bone stuffed with peanut butter, Cheese Wiz, or liverwurst when you and your beau cuddle. Not only will this keep your feisty schnauzer occupied; he'll soon realize that great things happen for him when the two of you snuggle.

## GOT A PET PEEVE?

Kelley Bollen, the MSPCA's shelter animal behavior consultant, can offer advice that'll help both you and your pet feel better. Write to CaseNotes, *Animals*, 350 South Huntington Ave., Boston, MA 02130. Fax us at (617) 522-4885 or e-mail [casenotes@animalsmagazine.com](mailto:casenotes@animalsmagazine.com).

