

An Exotic Problem

Increasing numbers of native Americans are being pitted inadvertently in a survival fight against outlawed species

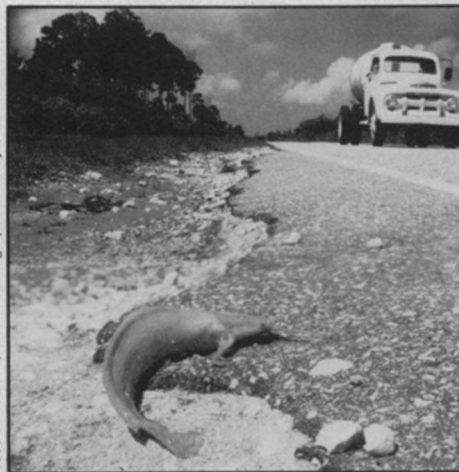
BY JANET RALOFF

A hunt for illegal aliens is being waged in waters throughout the nation. The aliens are charged with causing overpopulation, with routing indigenous populations and even with devouring entire schools of natives. Most government initiatives aimed at eliminating these invaders have failed, and once these aliens become firmly entrenched, their elimination is virtually impossible. Under the direction of James McCann, however, one newly created federal agency is contributing mightily to exposure of the problem and to the search for strategies to cope with the growing threat it presents.

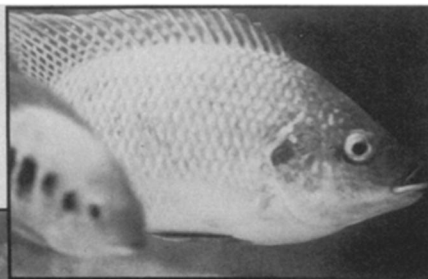
McCann heads the National Fishery Research Laboratory — also known as the “exotics lab” — within the Interior Department’s Fish and Wildlife Service. Formed nearly three years ago, its goal is to halt further takeovers of open U.S. waters — a problem some claim has already reached epidemic proportions — by exotics, fish introduced from foreign lands. A survey completed a few months ago for the lab by Walter Courtenay, a fisheries professor with Florida Atlantic University in Boca Raton, identified 84 different exotic species living in U.S. waters, at least 39 of which have established breeding populations.

“We’re concerned about the introduction of each new foreign species without adequate research because of the possible ways they can affect healthy water systems,” McCann says. “They may prey on native fish, compete for food, hybridize, carry new parasites and disease or alter the natural environment so that native species cannot thrive.”

“To understand exotics,” explains Paul Shafland, “we normally consider the introduction of an exotic fish as the introduction of a biological pollutant. It is just as if we had introduced a chemical, or physically altered the aquatic ecosystem; you’re going to cause an effect which is not necessarily predictable. The main difference between the biological pollutant and a chemical or physical pollutant is that once the biological one is introduced, it is impossible to eliminate.” Shafland himself heads the world’s oldest laboratory devoted to the study of non-native fish — the Florida Game and Freshwater Fish Commission’s Boca Raton facility (which formally opened in 1973).



Robert F. Sisson, National Geographic Society



Paul L. Shafland

Air-breathing walking catfish represents one of the fish families whose importation is now forbidden. Large blue tilapia (above), like most exotics, may be imported, but not released in open waters.

The most common exotic is the goldfish, first introduced to this country during the 1600s. McCann dismisses it easily, however, saying it rarely grows big enough to cause a problem. Its European cousin, the common carp, is another matter. Deliberately established here as a food fish in the 1800s, it is now considered to be one of the most serious problems nationally. What those who brought it here did not realize, McCann says, “was that it was domesticated.” Once returned to the wild, “it went back to its wild state, losing a lot of its beneficial characteristics,” such as good taste.

But the real villain on everybody’s list is not the notorious razor-mouthed piranha, but the Cichlidae family, of which at least 10 expatriots are established in this country. Sharing the same ecological niche as Centrachidae (the family that includes basses, sunfish, blue gills and other bream) — Florida’s most successful freshwater fish — it has easily overwhelmed many native communities.

High on McCann’s 10 most wanted list is the blue tilapia, one of the most aggressive cichlids. Introduced into the wilds within the last 10 years, this species has already spread across the southern tier of states from California to Florida. Six years after the inadvertent release of blue tilapia in one Florida lake, it was found to total 93 percent by weight of all fish present. In both Texas and Florida, populations have reached 2,000 pounds per acre, densities that stop the spawning of all native fish. McCann says the normal carrying capacity of natives would probably be no more than 300 lbs./acre. What’s more, as mouthbrooders these hardy aliens make ideal parents. Fertilized eggs are instantly gobbled by the mother and hatched two days later. The fry continue to live in the mother’s mouth for most of the next three weeks and are able to travel with her shortly thereafter. Each time danger sig-

nals, into her mouth they go. McCann knows of no native fish that does this.

Interestingly, the blue tilapia was first brought here as a potential game fish. But when research proved it unsuitable (because they eat phytoplankton, detritus and possibly sediment-dwelling bacteria, it is hard to entice them with a hook or lure), Florida fishermen sold on years of media hype about the fish’s potential broke into state facilities and took things into their own hands, returning the fish held there to lakes and streams. Despite the fact the fish was never legally released, it now has access to 25 percent of the state’s 10,000 lakes and streams and grows to 9 lbs. in size.

There are roughly 800 recognized species of native fish in the United States and Canada. But more than 2,000 exotics have been or are likely to be introduced into U.S. waters — mainly for the aquarium trade — within the next few years. A little-known executive order signed by President Jimmy Carter three years ago directs the federal government to ensure that none enter open waters. McCann’s small Gainesville lab (still just two small rooms at the University of Florida, a secretary and McCann) has responsibility for researching the life history of each new fish slated for importation into the United States and for determining if it could survive upon release into open waters, where it could breed and what its impacts (economic and ecological) would be. It also will track established exotics to see if predictions of their survivability hold up.

“We feel that most if not all of the fish that are presently called ‘injurious’ could have been predicted,” McCann says. “There was enough information, if it had been properly evaluated, to identify potential problems. And I know of no exceptions. That’s why I think this laboratory can be successful in identifying fish that could prove problems in the future.” □