

TABUBIL

DR. GERALD R. ALLEN



The Fly River snakes its way toward Kiunga (in background).

ROAD

BY DR. GERALD R. ALLEN

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I first became aware of the "Road" in December of 1981. My wife had neatly clipped out the full-page article that appeared in the daily *West Australian*. The story briefly described the background of the Ok Tedi mining project in Papua New Guinea, a scheme to eventually tap gold and copper reserves estimated to be worth in excess of 10 billion dollars. After a shaky beginning, the mine development is proceeding full throttle. If it yields as expected, and especially if gold prices continue to soar, the mine will provide the major

chunk of this youthful country's annual revenue for years to come. One of the major problems associated with the mine development is the incredibly remote location. It is situated in the rugged Star Mountains, just north of the village of Tabubil at the headwaters of the Fly River, some 1,100 kilometers (100 km = 62 miles) upstream from the Arafura Sea. Compounding the problem of access is the huge rainfall. Tabubil is one of the wettest places on the face of the earth, receiving about 8 meters (over 25 feet) of rain annually! The news-

paper article went on to describe the travails of supplying the site with materials and construction equipment. Bulky items were carried by barge over 1,000 kilometers up the Fly to Kiunga and from there had to be airlifted the last 100 kilometers at great expense. Beyond Kiunga the Fly breaks up into numerous mountain tributaries that are too shallow and hazardous for navigation. The main part of the article, which was read with more than passing interest, described a major road construction project that would link

Kiunga with Tabubil, thus greatly alleviating the big supply problem. The road had been under construction for over two years and was due for completion in September, only nine months away. It would have an all-weather gravel surface and, although highly susceptible to floods and landslides, would hopefully be traversed almost continually by a fleet of trucks. I carefully studied the map that accompanied the article. The proposed route cut across an extremely remote area of mountainous jungle terrain that previously was considered impenetrable. I quickly dug out a more detailed map from my files and plotted the approximate route that followed the Ok Tedi or Alice River north of Kiunga. The map indicated the road would cross at least 30 small creeks, streams never before collected, and these might possibly yield a wealth of ichthyological treasure. Certainly this area would harbor undiscovered fishes. If only I could be the first to dip my nets into those unexplored waters! For days it was all I could talk about to anyone who would listen. The trip from Perth to New Guinea would be easy. One year earlier I had received a generous grant from the Papua New Guinea Biological Foundation for support of field work to prepare a field guide to the fishes. I had made the first of three trips under this grant in October, 1981, and planned to return in September, the same month that the Tabubil Road was scheduled for completion.

The main problem was to obtain permission from Ok Tedi Mining Company to visit the area and to work out the logistics of such a trip. To this end I wrote to the company headquarters in Port Moresby and anxiously awaited the reply, which arrived two weeks later. It was written by their Environmental Officer, who obviously did not share my enthusiasm for fish collecting. The letter was brief and succinct . . . during the construction phase of the project, now underway, it would be impossible to accommodate visiting scientists. My hopes were dashed, at least temporarily.



Top: John Paska and Dr. Allen collected the rare six-lined rainbow (*Melanotaenia sexlineata*) and a new species of *Pseudomugil* from this small waterhole near Kiunga. **Bottom:** The new species of blue-eye (*Pseudomugil*) collected near Kiunga. This mature male measures only 30 mm total length.



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I more or less gave up the possibility of visiting Tabubil and gave the "Road" little thought until only three weeks prior to my departure for New Guinea.

A letter arrived at that time from Dr. David Balloch, a biologist with Ok Tedi Mining. He explained that he had just been hired and would be stationed at Kiunga for the next two years. Basically, his job would consist of monitoring environmental

changes as a result of the mining operation. He wrote to request copies of my publications dealing with New Guinea fishes. I could scarcely believe my good fortune when he offered his assistance if I visited Kiunga. Immediately I reshuffled the proposed itinerary for the three months of field work ahead.

The first stop was Port Moresby, the capital of Papua New Guinea and location of the Fisheries



Top: Dr. Allen collected specimens of an unusual rainbowfish from this small creek. It represents a new genus that is closely related to *Pseudomugil*. Bottom: This bridge on the Tabubil road spans the Ok Mart River near the village of Runginae.



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Research Laboratory that was to serve as a temporary base. Dr. John Lock, the Chief Biologist, generously provided storage space and the use of freshwater aquaria for holding live fishes prior to their transport back to Australia. The laboratory also houses a valuable reference collection of preserved fishes under the care of Mr. John Paska, an affable young man from the island of New Ireland. John would be joining me for the trip to Kiunga and afterward to the Bensbach River. We planned to share the fish collections between our respective institutions.

On the day of our departure for Kiunga, John was late arriving at the airport and therefore had to forfeit his seat on the small 10-passenger aircraft. He made a booking on the next flight, and we arranged to rendezvous at Kiunga the following day. After nearly three hours of flight the plane descended toward what I thought to be our final destination. Imagine my surprise when the pilot announced that we were back in Port Moresby! I had slept through the pilot's earlier announcement of a minor mechanical problem. The next day John and I succeeded in getting to Kiunga. We checked into the one and only hotel, the Kiunga Guesthouse. Shortly after settling in, Dave Balloch introduced himself. He had just arrived at Kiunga only a week before us. Dave spoke with a crisp Scottish accent as he explained how he had been recruited for the job and had traveled out from Britain only a few weeks earlier. This was his first experience in the tropics, and he was eager to learn as much as possible about the local biology, especially the fishes, as much of his university training dealt with fisheries science.

The first questions I directed to Dave concerned the "Road." Was it finally completed, and, if so, would it be possible for us to drive the 130-kilometer route to Tabubil, making fish collections along the way? Yes, the road was open, and he assured us of our fill of collecting over the next week. Dave had arranged for a vehicle the following

day. In the meantime he secured a small dinghy and we spent the afternoon cruising down the Fly River. We stopped briefly and made a collection with rotenone, but conditions were less than ideal due to current and the huge volume of water. We only captured two species, a *Glossogobius* goby and a small herring (Clupeidae).

The next morning John and I gathered our collecting gear, and Dave arrived shortly after breakfast. To our delight, he had succeeded in procuring a "V.I.P." vehicle, a new 4-wheel drive model complete with air conditioning. Our plan was to first sample the streams close to Kiunga. The following day we would drive to Ningerum, about half way to Tabubil, and then return to Kiunga, making most of the collection stops on the way back. We would then travel by air to Tabubil, where Dave planned to obtain another company vehicle for the drive from Tabubil to Ningerum.

The streams around Kiunga literally teemed with fishes; even stagnant mudholes were productive. The region was in the midst of a prolonged drought, the worst in ten years. Supply barges that travel up from Daru were grounded well downstream in anticipation of the long-overdue wet season. Conditions were ideal for fish collecting. Many of the creeks had ceased flowing and were reduced to a series of small isolated pools that were easily netted. I insisted on stopping to collect at the first waterhole, still inside the confines of Kiunga. It was a muddy, semi-polluted rivulet, but surface movement indicated the presence of small fishes. John and I pushed our one-man shrimp seines toward one another along the narrow channel. When we met, fishes darted wildly from one net to the other. We closed in and lifted the nets simultaneously to inspect the catch, a mixture of brilliant rainbowfish (*Melano- taenia splendida rubrostriata*), transparent glassfish (*Ambassis*), and tiny gudgeons (*Oxyeleotris*). After 30 minutes of fishing, we traveled northward, at last on the

fabled Tabubil Road. Approximately 10 kilometers north of Kiunga we encountered a bridge crossing over a miniscule creek bed. The stream was dry except for a 2-meter-long pool next to the bridge. It scarcely looked worthwhile collecting, and I nearly suggested that we proceed to the next creek. Again John and I dipped our nets, and with one scoop

we had nearly 100 specimens, most of these rainbowfishes but a very rare species, *Melano- taenia sex- lineata*. Only 11 specimens of this fish had ever been collected, all from tributaries of the Upper Fly. Another fish taken in the same haul was a new species of blue-eye (*Pseudomugil*), a tiny, delicately shaped member of the rainbow

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A fleet of trucks maintains a supply line between Kiunga and Tabubil.

family. Only one stop, and already the road had lived up to my expectations. But the best was yet to come.

The next day we traveled farther north along the road. We stopped for lunch on the banks of the Ok Mart River near the village of Rumginae and, as we ate, hundreds of brightly colored rainbowfishes swirled around our feet. We offered them bread crumbs, which initiated a wild feeding frenzy. Although rainbows eat mainly small insects, they are opportunistic feeders and will accept all sorts of food items. Moments later we were back on the road. After a few miles we came to a bridge that crossed a crystal-clear stream with tall grass along the banks. John was the first to scoop and shouted excitedly. I scrambled down the steep bank to inspect his catch and could scarcely believe my eyes. The net was filled with incredibly beautiful inch-long fish whose shape vaguely reminded me of black tetras. The fish was basically transparent with bright yellow fins and bold black margins at the rear

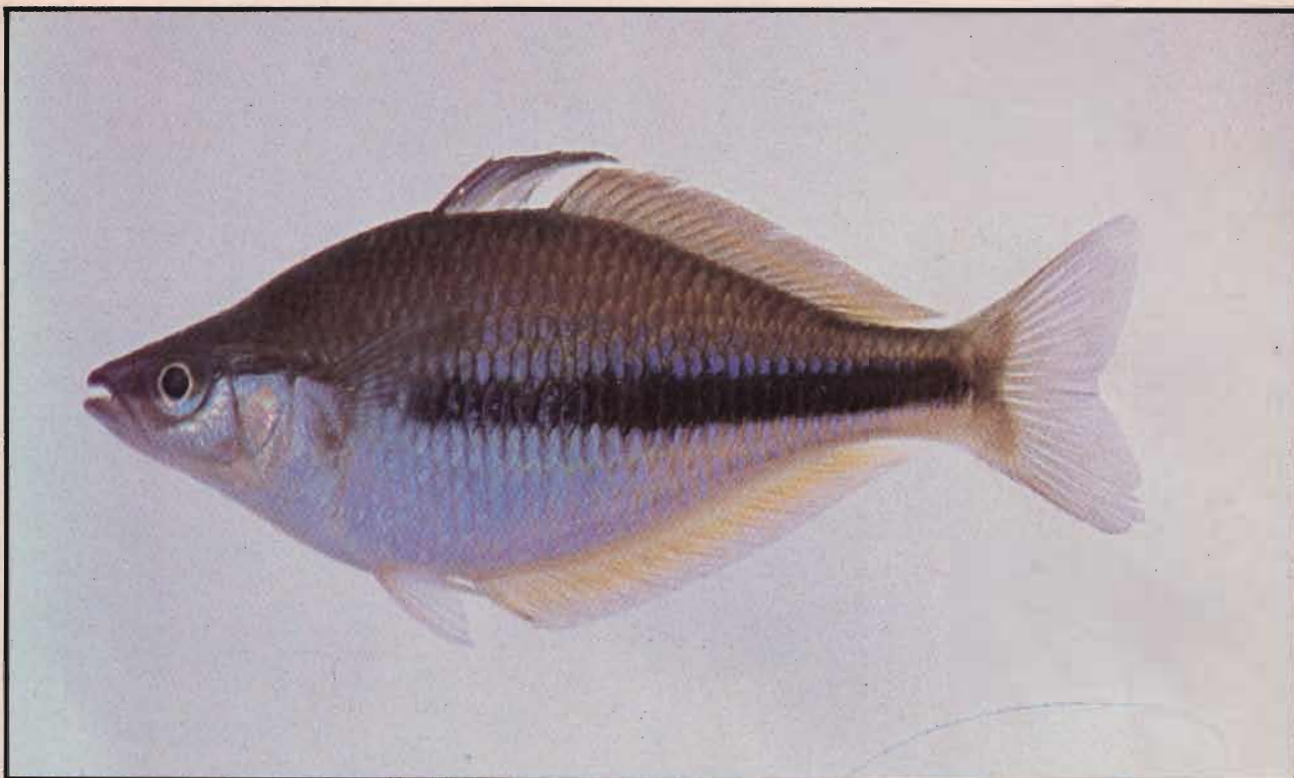
edges of the dorsal, anal, and caudal fins. Subsequent examination revealed it was a close relative of the rainbowfish genus *Pseudomugil*. We later dubbed it the yellow-finned blue-eye and, because of several unusual features, I eventually decided to place it in a separate genus. (This new genus and species is described in another article appearing in this issue.)

The next morning we boarded a small twin-engine aircraft for the flight to Tabubil. Dave had organized accommodations at the mining camp guest barracks and arranged for a 4-wheel drive vehicle. Our flight path carried us north, following the course of the Ok Tedi River. Far below we could see the Tabubil Road, a seemingly endless gray ribbon cutting through some of the most dense jungle on earth. The flight took us 30 minutes compared to the all-day trip required by road.

Tabubil was a beehive of activity. The Bechtel Corporation, an international company based in the U.S.A., was handling construction chores. Houses for families of

future mining personnel were going up at a rapid rate, and road construction linking the actual mine site with the settlement was in progress. Only three years ago Tabubil had been a tiny, isolated settlement populated by primitive natives who had little previous contact with the outside world. Today there are over 800 workers there, with buildings, vehicles, and aircraft of all descriptions. Our meals at the camp mess hall were sumptuous feasts worthy of a first class hotel. For example, each evening for dessert there was a choice of at least ten items ranging from delicious homemade ice cream and apple pie to a variety of French pastries, cookies, and cakes. Needless to say, we enjoyed our stay and the time at Tabubil passed all too quickly.

The first day we collected a series of creeks situated within 10-20 kilometers south of the settlement. Most were steep gradient streams flowing considerably faster and colder (about 21°C) than those in the lowlands around Kiunga. Although Tabubil is perched at an elevation of only 350 meters, it is surrounded on all sides by lofty peaks, some reaching 3,900 meters above sea level. Just above Tabubil the Ok Tedi River and its tributaries are transformed into high-velocity white water torrents. Although no fish collections have been made in these upper reaches, it seems unlikely that anything, except possibly a few hardy gobies and gudgeons, could dwell there. Below Tabubil one of the primary targets was to collect and photograph the Ok Tedi rainbow (*Melanotaenia oktediensis*), a species that I had described only a year earlier on the basis of two specimens captured by a 1975 Smithsonian Expedition and a third taken by government fisheries personnel. All were females and there were no records of the live coloration. We caught several juveniles of this species at the first stream. Moving a few kilometers farther south, we found large, vividly patterned adults in nearly every creek and eventually captured over 100 specimens. Most were preserved



Prior to Dr. Allen's expedition, the Ok Tedi rainbowfish (*M. oktediense*) was known from only three specimens. This 93 mm standard length male was collected near Tabubil.

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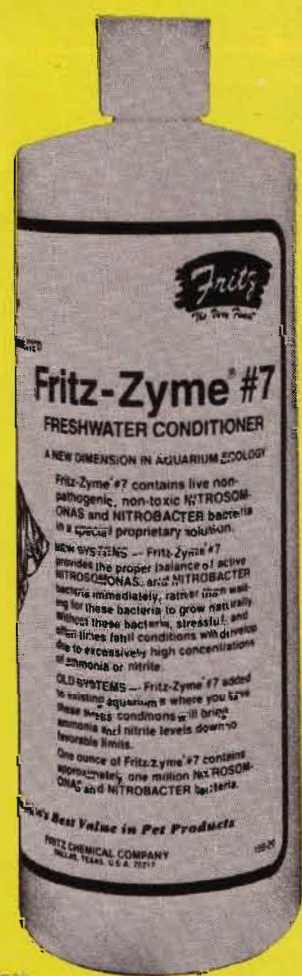
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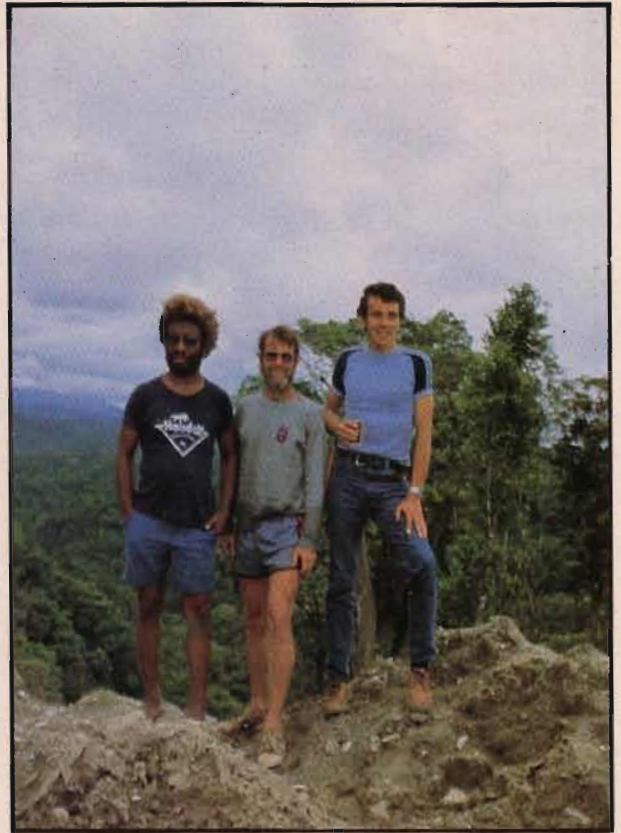
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Left: The Ok Tedi River winds its way through mountainous terrain south of Tabubil. Above: Dr. Allen pauses to enjoy the scenery along the Tabubil Road. He is flanked by John Paska (left) and Dr. Dave Balloch.

for later study, but approximately 20 specimens were kept alive and ultimately shipped to Perth along with several *Melanotaenia* and *Pseudomugil* species from the Kiunga area. Many of these fishes are still thriving, and some have produced offspring.

The final phase of our visit to Tabubil was the trek over the second half of the road leading down to Ningerum. Between Kiunga and Ningerum the road slices through relatively flat lowland jungle, but a short distance north of Ningerum the route begins to zig-zag crazily through foothills and mountains with repetitious climbs and steep descents. Construction in some sections is still taking place, and large trucks and heavy earth-moving equipment create additional road hazards. It took us nearly the entire day to cover the 140 kilometers to Ningerum and back. Although fewer species were encountered along the upper half of the road, we

netted a good variety including the Ok Tedi rainbow, glassfishes, hardyheads (Atherinidae), catfishes (Plotosidae), grunters (Teraponidae), gobies (Gobiidae), gudgeons (Eleotridae), and freshwater cardinals (Apogonidae). We also captured some magnificent

**Many of these fishes
are still thriving,
and some have
produced offspring.**

specimens of the red-striped rainbow (*M. splendida rubrostriata*), including a few "king-bows" in excess of 150 mm (6 inches) total length. These were among the largest rainbows I had seen, and the colors of the males in particular were dazzling.

Our last evening was spent back in Kiunga. Dave invited us to dine

with him at the camp mess hall, a virtual duplicate of the one at Tabubil. During another gourmet meal we rehashed our experiences of the past few days. The excursion was an overwhelming success. .16 species collected and photographed, representing a significant contribution to the field guide project. After dinner Dave discussed a program of biological sampling he hoped to initiate soon. This would involve several trips down the Fly, all the way from Kiunga to Daru. His company had recently bought an 8-meter cabin cruiser capable of making such a journey if fuel could be cached at several points along the route. The prospect of such a trip was tremendously exciting. If Dave could organize this cruise I vowed to return. If all goes according to plan we hope to be underway in late 1983. I still have my fingers crossed. Hopefully, the final chapter on the fishes of the Fly River remains unwritten. ☺



This magnificent male specimen of *Melanotaenia splendida rubrostriata* measured over 120 mm standard length. It was collected in a tributary of the Ok Tedi near Tabubil.

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