

Ramu Diary

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PHOTOS BY THE AUTHOR

In 1987, I was the fortunate co-recipient of a research grant with Dr. Lynne Parenti of the California Academy of Sciences to study the freshwater fishes of the Madang Province in northern Papua New Guinea. A comprehensive survey had never been accomplished in this region, which includes two major river systems, the Ramu and the Gogol. Our grants were awarded by the Christensen Research Institute, a private organization seeking to promote greater knowledge of northern New Guinea's exciting fauna and flora. The following article is based on excerpts from the diary I kept during the 1987 expedition.

24-27 September (Port Moresby): During the three-hour-long Air Niugini flight from Brisbane to Port Moresby, I reflected on past trips to New Guinea. This was to be my tenth visit over a period which spanned 15 years. It is obvious that this magical island has a special allure which is hard to resist. Memories of past trips are filled with exciting fish discoveries and adventures to remote locations (see previous *T.F.H.* articles in Jan., 1980; Jan., 1981; Aug., 1981; Oct., 1983; Nov., 1983; and March, 1984).



The author (in yellow shirt) and his party sort a collection of fishes from Bunapas.

Port Moresby is the capital and gateway to Papua New Guinea. This busy seaport, with approximately 100,000 inhabitants, offers a deceptive impression to the first-time visitor. It is hot, dry, and dirty, and continually suffers from high unemployment and crime. The arid landscape around Port Moresby during September, which is near the end of the long dry season, contrasts vividly with the lush jungle scenery of the interior. Indeed, one only has to travel a few miles inland to witness the dramatic change.

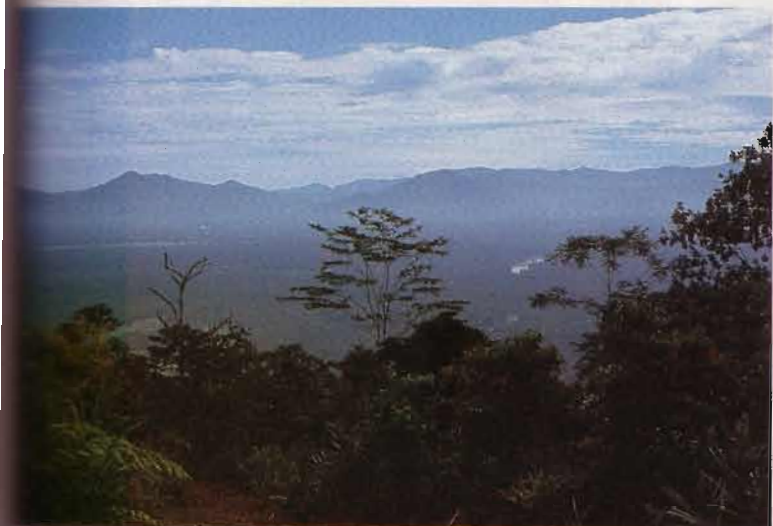
The three-day stop at Port Moresby makes possible a pleasant reunion with Dr. Pat Colin and his wife Lori, who manage the Motupore Island Marine Biological Station of the University of Papua New Guinea. I first met Pat on a diving expedition to Puerto Rico, where he was teaching ichthyology at the local university. Since then we have maintained a mutual interest in the biology of coral reef fishes, and the visit to Motupore Island was a welcome opportunity to compare notes. Pat has a fascinating background. While serving as manager of the Enewetak Marine Lab in the central Pacific he built his own 2-seater aircraft which he eventually flew to New Guinea. The station

at Motupore is situated about one mile offshore. We made several SCUBA dives in the vicinity, including a visit to Pat's study area in 100-foot depths where he has been observing *Oxymetapon*, a strange ribbon-like goby that lives in silty burrows.

September 28-October 1 (Madang): At the conclusion of the 1.5 hour jet flight from Port Moresby to Madang, I was met by Lynne Parenti and Terry Frohm, the manager of the Christensen Research Institute (CRI). The Institute is located on the



Above left: Traversing a roundwater near Bunapas. **Above right:** A rotenone collection site near the village of Bosmun. **Below left:** The middle Ramu Valley. **Below right:** Drs. Allen and Parenti with their young native helpers.



Above left: The author and Dr. Parenti explore a Ramu tributary in the upper part of the valley. **Above right:** The Ramu River at Gusap. **Below left:** *Lutjanus bouton*, a snapper species seen along the coast of New Guinea. **Below right:** *Chromis viridis* was another marine species observed.



grounds of Jais Aben Resort and was to serve as our base of operations for the next few weeks. I was pleasantly surprised by the excellent facilities offered by the laboratory, which included computer equipment, a small library, and generous

a number of small coastal streams around Madang.

Our first seine-net collection took place the next day at the Miero River, a few miles from Madang. The fishes we captured were typical of coastal streams throughout northern New

cursion to the Gogol River. At the latter site we encountered large numbers of gobies (*Stenogobius*, *Sicyopterus*, *Stiphodon* and *Awous*), and an exciting rainbowfish which at first I did not recognize, but eventually identified as *Glossolepis ramuensis*. I had previously described this rainbow from a single male specimen collected in 1985.

October 2-5 (Mt. Wilhelm): One of my secret ambitions since first visiting New Guinea has been to climb Mt. Wilhelm, which at 15,000 feet is PNG's highest peak. Unfortunately, I had never been able to organize an ascent. I came close in 1983, but fell ill with malaria and had to abandon the attempt. Therefore I eagerly accepted an invitation extended by Terry



Belobranchius belobranchus is a predatory goby.

workspace. There were also seawater and freshwater facilities for maintaining live fishes. Accommodation in small private rooms next to the lab was comfortable and tasty meals were provided by the resort's restaurant.

Lynne had arrived several days earlier and was eager to start collecting. The first evening we discussed our plan of attack. We hoped to concentrate our main effort on the Ramu, one of New Guinea's largest rivers, although we were somewhat concerned about access as there are few roads, particularly on the lower portion. We also intended to have a good look at the nearby Gogol River, and if time allowed we would sample

Guinea and contained no surprises. The collection included gobies (*Awous* and *Redigobius*), pipefish (*Doryichthys retzi*), a gudgeon (*Butis amboinensis*) and the rainbowfish *Melano-taenia affinis*. The most common fish proved to be the introduced African cichlid *Oreochromis mossambica*, which was first released by the government in 1954 and has subsequently become widespread throughout northern New Guinea. It is eaten by the local people, but unfortunately competes for living space and food with native species and must surely be detrimental in that respect.

During the next few days we continued to collect at nearby streams and made our first ex-

Frohm to join a group he was organizing for a weekend trek up Wilhelm. Five of us left Madang in one of CRI's 4-wheel-drive vehicles on a Friday morning. We first followed the Lae-Madang road along the upper Ramu Valley, then in the afternoon started the torturous ascent into the highlands. The roads were surprisingly good. Most of the Highlands Highway now has an asphalt surface. However, it still took ten hours to reach the Chimbu village of Kegasugl at 8,000 feet, the end of the road and start of the walking trek to Mt. Wilhelm. The scenery over the last two hours between Kundiawa and Kegasugl is spectacular, with the narrow dirt road threading

its way high above the floor of the deep Chimbu Gorge. The trip was definitely not for the faint-hearted.

At Kegasugl we were joined by five others from Madang and spent the night in a thatched hut that served as the local guest house. Next morning we set off on a well-marked path leading up to the Wilhelm base camp. We were joined by a significant portion of the village's men and boys, who had been recruited to

hut around noon. Perched on the edge of a crystalline lake at an altitude of 11,000 feet, we got our first glimpse of Mt. Wilhelm's flanks looming in the distance. That afternoon we hiked up to a second lake and watched the three divers indulge in one of the finest examples of masochism I've seen. Water temperature was a brisk 9°C (48°F), and breathing was difficult due to the effects of altitude. They found a few token

The idea behind the early departure was to arrive at the summit just at dawn, when atmospheric conditions were usually best for scenic views.

At last the rain ceased and by departure time the sky was clear. We first retraced our steps to the second lake and then began a nearly vertical ascent to the top of a ridge that was linked to Mt. Wilhelm. The rain had made the footing very tricky and it took well over two hours to negotiate this part of the route. Once at the top of the ridge the going was only slightly easier owing to our dwindling supply of energy, altitude sickness, and especially the cold. I had bundled up in several layers of clothes, but suffered from wet feet and lack of gloves.

As dawn approached we paused to take in the incredible views. We could see the lights of Madang twinkling on the edge of the sea to the north, and directly below in the same direction the Ramu River carved out a serpentine path. In all other directions we were surrounded by lofty peaks, highlighted by our first glimpse of Wilhelm's majestic summit.

To our surprise, the previous evening's storm had dumped several inches of snow. When we approached the snowline our thinly clad guide pleaded that he was too cold and could not proceed any farther. He pointed the way and assured us we could make the remaining distance on our own. It took another hour; the last 400 yards were nearly vertical and it was especially slow going, but at last we made it! Terry Frohm produced a



Bunaka gyrinoides. This 60 mm (SL) goby is another predator.

serve as our porters. I certainly did not envy their task, as several members of the party had opted to bring along SCUBA tanks. Yes, that's right, SCUBA tanks! They intended to dive in an alpine lake perched on Wilhelm's slopes in search of wreckage of an American warplane that crashed on the mountain during WWII.

The first part of the 6-mile trek was through dense jungle, but as we neared the base camp the country was more open, with scenic meadows and jagged sawtooth ridges punctuating the skyline. We finally reached the

bits of wreckage. Later we found parts of engines, wings, and fuselage perched precariously on the slopes above. Apparently the crew of nine perished when they became lost during a nocturnal scouting mission on Japanese positions.

That evening we planned our ascent. Six of us would depart at 2 AM, led by a Chimbu guide and the light of our torches. The night air was frigid and heavy rain pelted down, making sleep difficult. I wondered if it was even worth the effort, as we would probably experience zero visibility up on the mountain.



Above left: A *Melanotaenia affinis*, 90 mm standard length. **Above right:** A male Ramu rainbowfish, *Glossolepis ramuensis*, 55 mm standard length. **Below left:** A female *G. ramuensis*, 50 mm standard length. **Below right:** *Glossolepis multisquamatus*, 85 mm standard length.



Above left: *Apogon dispar*, a marine cardinalfish. **Above right:** A sleeper goby, *Hypseleotris guentheri*. **Below left:** *Oreochromis* (also known as *Sarotherodon* or *Tilapia*) *mossambica*, an introduced cichlid, was the most abundant fish in the Miero River. **Below right:** A goby, *Sicyopterus* species.





Above left: The Christensen Research Institute. **Above right:** A view taken during the ascent of Mt. Wilhelm, looking back down the slope toward the base camp. **Below left:** The author's party pauses during the climb. **Below right:** The summit of Mt. Wilhelm.



Above left: The Ramu River, near Bunapas. **Above right:** From front to back: Laurance, Dr. Parenti, and Dr. Allen check gill nets near Bunapas. **Below left:** Dr. Parenti and Laurance negotiate for a fish basket. **Below right:** Part of a catch from a roundwater near Bunapas, consisting mostly of rainbowfishes, catfishes, and gobies.



bottle of champagne from his rucksack and we toasted our success. We didn't stay long; the freezing-cold wind was debilitating and the weather began to close in. We rejoined our guide where he had abandoned us and began to pick our way back down the mountain. About 11 hours after we had begun the trek we arrived back in Kegasugl dead on our feet, but extremely happy.

October 5-13 (Madang): Back to fish collecting! Over the next week Lynne and I turned our attention to the Gogol River, which we had cursorily sampled before the Wilhelm trek. We were usually accompanied by John Mizu, a local man who worked as a technician at CRI. We sampled a number of creeks with the use of rotenone, a chemical ichthyocide derived from the roots of the derris plant. Although seine netting can be an efficient collecting tool, rotenone is the only sure way of obtaining a complete sample. Unfortunately its use can create diplomatic problems with local villagers, so a great deal of discretion is required when it is employed. It is necessary to first get permission of landowners or to use it only in remote areas away from human habitation. In the Gogol system we sampled a number of small feeder streams at variable distances upstream and at as wide a variety of elevations as possible.

One of the first collections was in a narrow creek only 200 meters upstream from the main river. We captured a number of strange rainbowfish which at first glance I thought were of a species of *Chilatherina*. Later,

at the CRI lab, a microscopic examination revealed it was *Glossolepis ramuensis*, which until now was known from a single specimen collected in 1985. We brought back live specimens and kept those in aquaria at the lab for the duration of our stay. Although not vividly colored like some rainbows, they are nevertheless very attractive fish. It was with much regret that I was unable to bring back live specimens due to tough Australian import restrictions. Another exciting find from the same collection was the giant gudgeon (*Bunaka gyrinoides*), a powerful but sluggish bottom-dwelling fish which preys on prawns and small fishes.

In an effort to avoid populated areas along the Gogol mainstream, we explored a relatively remote area to the south of the river which was accessible via a logging road. We eventually found several promising creeks for sampling. Rotenone was used in one of these and we obtained a fine collection of glassfish (*Parambassis confinis*), eels (*Anguilla marmorata*), gobies (*Stenogobius laterisquamatus*), and rainbowfishes (*G. ramuensis*, *Chilatherina crassispinosa*, and *Melanotaenia affinis*). After trudging back and forth over a 1000-foot stretch of the stream bed for nearly two hours I glimpsed what appeared to be

an eel protruding from the mud. When I approached for a closer look there was nothing. I thought perhaps I had just seen a twisted branch which had the rough shape of an eel. Moments later I



Dr. Parenti displays an oxeye herring, *Megalops cyprinoides*.

saw another at closer range and there was no mistaking it this time—I had seen a very strange eel which reminded me of a marine garden eel. It was long and very skinny, about the same diameter as my little finger, plain olive-colored, with a row of white spots along the side. The eel was still alive, but obviously distressed from the effects of the rotenone. I slowly approached the eel, crouching low and extending an open hand toward it. Burrowing eels, even small ones, are tremendously powerful animals, and from

previous experience I knew it must be seized quickly and securely to prevent its escape into the sand. An instant later I succeeded in extracting the wriggling specimen from its lair. Eventually we collected about 10 of these, which I had never seen before. I recognized it as a member of the snake-eel family (Ophichthidae) which is represented by numerous marine species. It seemed strange indeed to find such a fish in a flowing jungle stream, at a considerable distance inland. I felt there was an excellent chance that it might be a new species. Lynne took specimens back to the California Academy of Sci-

ences and they were eventually identified there by Dr. John McCosker, the world's foremost authority on snake-eel taxonomy. The eel turned out to be *Achirophichthys kampeni*, a species that was originally described many years previously from a single specimen collected at Humboldt Bay in western New Guinea.

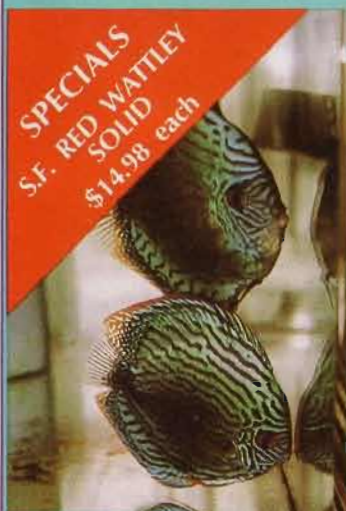
October 14-20 (Lower Ramu River): It was now time to make our main thrust of the expedition, the collection of the Ramu River. One of the largest of New Guinea's rivers, the Ramu rises in the central cordillera, some 500 miles from the sea. For much of its length it

weaves through a long, straight lowland valley, which was our main interest as only a few fishes had previously been collected from there.

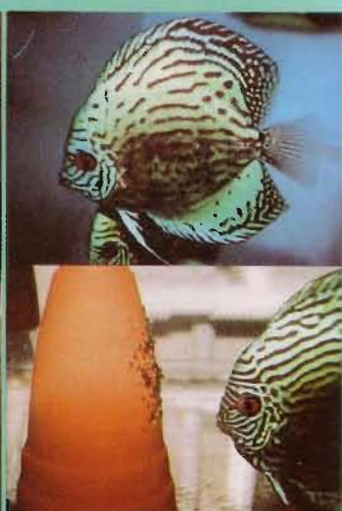
On the morning of October 14 we set off from CRI with all our gear loaded in two vehicles. Lynne and I accompanied Terry Frohm and John Mizu in the lab's 4-wheel-drive, towing an aluminum dinghy. The road was rough, and it was very slow going. It took us nearly six hours to reach our destination, a distance of about 130 miles.

Our headquarters for the next few days was the village of Bunapas, perched on the banks of the Ramu about 25 miles

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upstream from the sea. At this point the river was purely fresh, but still influenced by the tides judging from the regular fluctuation in water levels. On arrival we organized ourselves in a small 3-bedroom cottage supplied by the Church of Christ Mission. Accommodation was very basic, but comfortable.

For this part of the expedition we were joined by David Coates and his girlfriend Emma. David was a valuable asset, as he is a fisheries expert with many years of gill-net fishing experience to his credit, much of it in the nearby Sepik River system. We were also joined by a Government Wildlife Officer named Laurance, who hoped to purchase crocodile skins from local villagers. Crocodile hunting is now tightly controlled by the Government, particularly to prevent killing of small specimens, therefore insuring a continuing crop of large, commercially valuable animals.

New Guinea streams are fortunately free of danger for the most part. For example, they do not harbor schistosome flukes that cause debilitating illness, which are so common in other tropical countries. However, crocodiles are one danger which must not be overlooked. They are a real threat and a number of human victims fall prey to them every year in both New Guinea and Australia. My anxiety was therefore accelerated when Laurance was told that over 40 crocs had been counted in a small nearby lagoon during the previous evening. I resolved not to go wading with the deep end of the seine net!

Fortunately, we did not have problems with crocs or sharks, which are also regularly caught by villagers in the lower part of the river. We did, however, manage to snare a venomous sea snake and were told that a similar specimen had killed a little girl about one year earlier. The villagers claimed that the

tive museums.

The true worth of David's gill-net expertise was evident from our catch of fork-tailed catfishes (family Ariidae). We obtained excellent collections of five different species, including two which are undescribed. We set a long fleet of various mesh sizes in the main river and left



Hemipimelodus velutinus, an ariid catfish.

snakes are attracted to soap suds created when bathing in the shallows. None of us were brave enough to test this hypothesis.

Over the next few days we made a thorough survey of the main river, nearby lakes, and one of the main tributaries. David hired some of the local people to set and regularly check a fleet of gill nets in nearby roundwaters. A roundwater is a lake or cut-off arm of the main river channel. They are generally rich in fishes and sometimes harbor different species than the river. The roundwaters are the main habitat of the Sepik rainbowfish (*Glossolepis multisquamatus*). We caught virtually hundreds in our nets. Most were given to the fishermen for food, but we kept a series to deposit in our respec-

them overnight on two occasions. Upon checking the nets elation was rapidly replaced by moans of despair as we untangled catfish after catfish. This process was very tedious and great care must be exercised to avoid the venomous dorsal and pelvic fin spines.

The most productive collection was made in a tributary of the Ramu near the village of Bosmun. We secured permission from the Chief to use our rotenone powder. They had no qualms about this method as they often use raw derris roots to kill fish in a similar manner. The Chief and other men in the village were not overly impressed with our small plastic bags of rotenone dust. They declined an offer to join us, but they did, however, send a number of

women and children along.

The stream was only about 20-30 feet wide and perhaps 10 feet deep. Lynne and I mixed the rotenone with water and then released it in a milky trail as we slowly motored downstream. After about 10 minutes the surface was boiling with glassfish (*Ambassis interruptus*), gobies (*Stenogobius laterisquamatus*), halfbeaks (*Zenarchopterus kampeni*), ponyfishes (*Leiognathus* sp.) and tilapia (*Oreochromis mossambica*). We eventually scooped out 14 species, including a major surprise. About 15 minutes after releasing the rotenone we heard a big splash some distance away and then saw the wake of an obviously giant fish cruising just below the surface. Amidst great excitement several of our native helpers jumped overboard in hot pursuit and managed to net a magnificent specimen of what they called a moonfish. Closer inspection revealed it was a freshwater snapper (*Lutjanus goldiei*). Aside from its size (about 2.5 feet long) the fish was of considerable interest, because it had not been recorded from northern New Guinea. Most previous specimens were from the Fly River, to the south.

During our stay at Bunapas we noticed a number of dried snouts of sawfishes tacked to village huts. I wanted to trade for a couple of these in order to identify the species and to have a record for the museum. We therefore spread the word and a couple of days later a shy little girl turned up with a fine speci-

men. By now I had an idea that these saws were a rare item so I generously gave the girl a bag of goodies including cookies, tinned meat and fish, and tinned cake. Later in the day this same performance was repeated when a small boy brought another saw. The next morning I answered a knock on the door and was as-



Bright foliage along a Ramu tributary.

tonished to see about 10 kids in a line, each holding a saw. The trickle had become a flood! We traded for a few more of the better specimens, but over the next few days had to decline offers from a continuous stream of kids.

October 21-24 (Upper Ramu Valley): After a one-day rest spent curating our collections at CRI, we drove to the Upper Ramu Valley via the Madang-Lae road. In contrast to Bunapas, this part of the Ramu system is very scenic, with the

river meandering through a relatively narrow valley sandwiched between high mountains. There are superb views of the majestic central range including Mt. Wilhelm, the scene of our earlier conquest.

Most of our collecting activity during this segment of the expedition was focused on the clear tributary streams, although we did sample the main river at Usema (about 260 miles upstream from the sea) and at Gusap (about 330 miles upstream). Most of the species were different from Bunapas. Some of the more interesting finds included our first eel-tailed catfishes (two species of *Tandanus*), two undescribed *Glossogobius*, a grunter (*Hephaestus transmontanus*), and several rainbowfishes (*Chilatherina crassispinosa*, *C. bulolo*, *C. fasciata*, *Glossolepis multisquamatus*, *G. maculosus*, and *Melanotaenia affinis*).

The last day was frantically spent at the lab packing specimens and writing up a final report. These chores would have been a lot easier had I not been talked into competing in the running leg of a team triathlon and then celebrating with a bit of liquid amber afterwards! I finally finished packing at 4 AM.

In retrospect, the trip produced some excellent memories and even more importantly, resulted in a major contribution to our knowledge of New Guinea's fish fauna. Still there is much to be accomplished and I look forward to the challenge of future expeditions. ■