

Unseen Life of a Wildcliff River

This is the sixth in a series of articles about Wildcliff, a private Nature Reserve in the Langeberg Mountains.

This article tells about microcrustaceans, water creatures adapted to specialized habitats of the rivers and vleis of the Cape. Only a bearded Hungarian by the name of Zsolt Gido would know where to find these. This is the story of his research.

Zsolt spent two months clambering through into rivers and pools, with nets and buckets, looking for animals none of us knew existed – and that can only be identified under a microscope. In a presentation following his field research, he explained to us that the principal aquatic habitats of Wildcliff are related to mountain stream ecosystem. The Wildekrantz and Plattekloof rivers are permanent mountain streams, with fast-flowing riffles, deeply engraved canyons, frequent waterfalls, and rocky bottoms, with little and patchy sediment accumulation.

In these rivers live the tiny hard-shelled insects called microcrustaceans. Zsolt, who has a Ph.D. in this specialized subject, studies water invertebrates that can be grouped as shredders (litter feeders), algal grazers, filter feeders, collectors (fine sediment feeders), predators and parasites.

In the kloofs, where the rivers run through forests, most of the organic material available for the animals originates not from the aquatic plants living in the stream itself, but from the litter falling into the stream from the surrounding forest. Some non-litter food can also be seen, produced by the algal coat of the stones, by patches of filamentous green algae in several places (more frequently at Plattekloof river, and usually in pools), and by a seaweed-like submerged plant characteristic to some riffles. Mosses of the falls and adjacent springs also contribute to the insects' food. Back in the mountain valley we call Hidden Valley, where the river is surrounded by fynbos, the river receives much less dead plant material from the shores, but light can penetrate into the river facilitating the growth of algae. Fynbos, however, thrives in nutrient-poor soil so the stream water here is poor in organic nutrients. Because of this, planktonic (floating) life forms are virtually absent, in sharp contrast to the richness of the bottom dwelling fauna.

Some of these bottom dwellers never leave their tiny habitats. The water flowing inside the riverbed, in the crevices between sand grains and gravel, is called interstitial water. Many bottom-dwelling animals penetrate into the interstitial realm. But there are also specialists, living permanently in the interstitial zone. These species have adapted to their subterranean life: they are blind, colourless, and can tolerate low-oxygen conditions and famine. They are frequently elongated, wormlike or very small, to move effectively in the crevices.

Waterfalls are not only among the most beautiful parts of Wildcliff's rivers, but they are also very interesting habitats. Trickling water supports rich moss flora, which represents an always wet, semi-aquatic microhabitat, supporting a kind of microcrustacean called "ostrocods," Zsolt's speciality. Spring-related wet mosses seem to be even richer in species, including the ostracod *Humphycypris greenwoodi*, which is known as a South African endemic, reported here first time from the Cape region.

Zsolt's full report can be found on the Wildcliff web site, www.wildcliff.org. To go directly to his study, enter http://wildcliff.org/research/microcrustaceans_gido_2008.pdf.

Future articles will cover selected birds, the proteas, and the weird-looking frogs, among other things. To contact Wildcliff, phone 028 722 2633 or write to Ian or Jenny Giddy: ian@wildcliff.org or jenny@wildcliff.org.



Dr. Zsolt Gido identifying a microcrustacean from the Wildekrantz River on Wildcliff.