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Three new shrimp species discovered in False Bay coastline

New shrimp species has unique association with octopus

Three new shrimp species have been discovered on a tiny 5.5 km stretch of coastline off Miller's Point, False Bay – one (*Heteromysis cancelli*) living with a rare hermit crab, another (*Heteromysis octopodis*) cohabiting with an octopus, and a third (*Heteromysis fosteri*) was found inside empty urchin and gastropod shells.

The three new findings represent the combined work of a veteran marine biologist, Emeritus Professor Charles Griffiths of UCT's Marine Research Institute, and a freediving wildlife documentary film-maker and photographer, Craig Foster, after whom one of the species, *Heteromysis fosteri* has been named.

Foster's rare footage, which helped find the tiny shrimps, has found its way into the new BBC *Blue Planet* series. Foster, a Miller's Point local, discovered two of the three new species. *Heteromysis octopodis'* find points to the first known symbiotic relationship between a shrimp and a cephalopod.

The three shrimp species are also the subject of <u>a new paper in ZooKeys</u>, published in July and co-authored by long-time collaborators Emeritus Professor Griffiths and shrimp expert Professor Karl Wittmann of the University of Vienna. The new species, mostly bright red to orange in colour with series of either spots or stripes, belong to the genus *Heteromysis* and differ from previously known species by colour pattern, eye shape and the patterns of spines on their legs and tails.

Griffiths says that it's unusual to find three new species of the same genus at the same site.

Ongoing taxonomical surveys of the Cape Peninsula's waters have yielded a number of recent new shrimp discoveries. In 2014 Wittmann and Griffiths described *Mysidopsis zsilaveczi*, the stargazer shrimp that was also discovered in the same False Bay 'hotspot' by another local diver, Guido Zsilavecz. Yet other discoveries are still being prepared for publication.

It's telling that three of the four discoveries have involved citizen scientists.

The symbiotic associations between these shrimps and other marine animals are intriguing marine biologists. Foster puts it neatly: "You look at a hermit crab living in a shell and you don't imagine other animals living inside with them – yet they allow that."

Foster and Griffiths first began exploring intertidal rock pools together several years ago — Griffiths to collect specimens and Foster to observe and learn from a "master marine tracker", the elder of marine science whom he describes as a "gracious and patient" teacher. Griffiths has described over 100 new species and, as co-author of the seminal *Two Oceans: A Guide to the Marine Life of Southern Africa*, he has established important relationships with citizen scientists and naturalists like Foster. Foster has worked with many top scientists in different fields in over 30 years of film-making. He has spent every day of the past six years freediving in the sea below his home.

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