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Marine Natural Products Research

by K.-D. Feußner

Expedition to the Solomon Central Islands Province June 2006

The Marine Natural Products Unit of the Institute of Applied Science of USP in conjunction with the University of Utah conducted a research expedition to West Nggella and West Russell Islands between June 20th and 27th 2006. Being on board M.S. Bilikiki, a fine luxury liveaboard dive boat, we intended to collect benthic marine invertebrates, mainly: sponges, ascidians (tunicates), soft corals and bryozoans for taxonomic and chemical studies.

We, that were: Profs Ireland and Barrows, Univ Utah; Drs Bugni, Harper and Schmidt, Univ Utah; Drs Bernan and Carter, Wyeth Pharmaceuticals New York; Dr Hooper, a world famous sponge taxonomist from Brisbane; Dr Brodie, Mr. Vave, Mr. Meo and myself from the Institute of Applied Sciences, USP.

Pristine, beautiful waters everywhere we were taken for our dives, mostly three per day. And how biodiverse! We found about twice as many samples than we find here in Fiji for the same time interval. Friendly kids

(this was the time of the first term break) always swarming around the boat in their kayaks selling veggies and necklaces.

Sponges are mostly known to the islanders as bath tab sponges, used to clean pots and pans. But they also have a great potential of holding the key(s) to medicines as they, together with their bacterial symbionts produce chemicals that can fight cancer, kill other bacteria or might just hold the key to fight malaria. This is why worldwide there are so many scientists doing this kind of work. Dr Schmidt specializes in isolating the green symbiont of some Didemid ascidians known as Prochloron and revealing details of this relationship by performing cutting edge DNA technology.

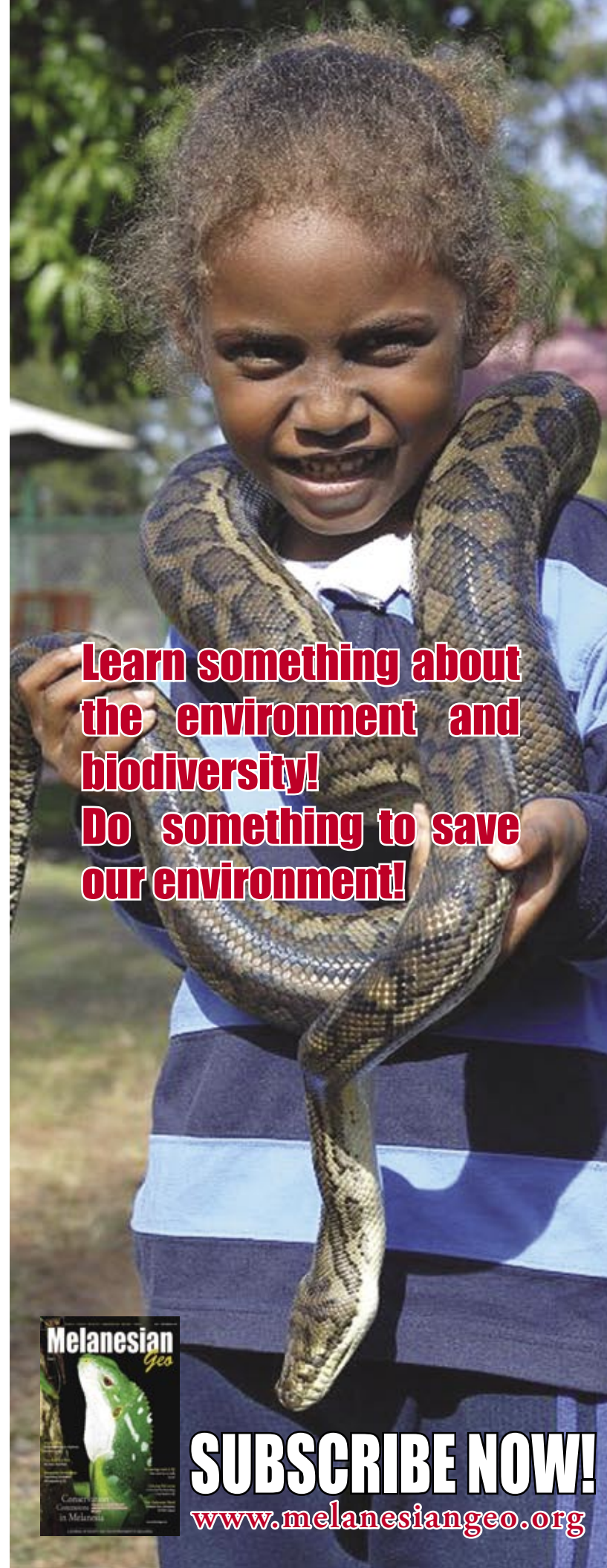
We collected a total of 185 sponges and ascidians together with Univ Utah and had an additional 74, mostly soft corals, something we specialize in at USP. The three groups of animals are important to the ecology of a reef system as they filter the water column for bacteria and other small animals which they feed on, thus cleaning the marine

environment. As they are sessile animals, they cannot move away and are an easy target for predation. Helping protect these animals will help protecting the reef ecology as well.

We also collected some sediment samples. This is where you usually find a high concentration of bacteria called Actinomycetes. They are a well known source of bioactivity, producing novel chemical structures.

And after each dive all these samples had to be sorted out and (if need be) compared to similar looking ones from earlier dives. Not an easy task! And the freezers filled up quickly. We had to come back to Honiara and purchase an additional one simply because after two days they were packed!

So here are some examples of invertebrates collected, names that most of the readers will never have heard before: *Aphysinella rhax*, *Prianos Osiris*, *Liosina paradoxa*, *Rhabdastrella globostellata*, *Eudistoma*, *Chelonaphysilla*, *Ellisella*, *Dendronephthya*.



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