Attendees at the International Symposium on Subterranean Biology. Photo: Patrick Baker (WA Museum).

THE INTERNATIONAL SYMPOSIUM ON SUBTERRANEAN BIOLOGY, FREMANTLE

– Jay Anderson

Around 150 people participated in the recent five day Symposium on Subterranean Biology (ISSB) in Fremantle, Western Australia. (September 2008). There were many international visitors, a number of interstate visitors and around fifty local West Australians attending. This included biologists, bio-speleleologists and other interested people.

A number of speleologists were able to attend thanks to a grant from *Lotterywest* (obtained by the Western Australian Speleological Group).

There were two presentations on work undertaken by speleologists in Western Australia, including bio-speleological research in the coastal karst north of Perth and in the Kimberley region. There were so many diverse and interesting presentations. I am certain that all who attended gained a lot.

Here is a snapshot of some key learnings that I took home. There was just so much to absorb – so many excellent posters and presentations. Professor Elery Hamilton Smith gave the *Keynote Address* – a summary and historical perspective on the development of the field of subterranean biology.

He also reminded participants that karst doesn't recognise National/State boundaries and the importance of holistic management and collaborative research.

Stuart Halse (Bennelongia) outlined how troglofauna are considered extreme short range endemics (SRE) and that a lack of knowledge and a very targeted research (such as single site mine investigation) actually creates SRE's.

The mid conference trip went well and seemed to be enjoyed by all participants. This involved a day at Yanchep National Park, where everyone divided into four groups and then spent time at each of four sites/activities:

- Crystal Cave Tour
- Surface karst walk, through Boomerang Gorge
- Cultural Experience
- Museum visit and discussion on karst wetlands

We then had lunch at Cabaret Cave – a lovely three course meal followed by an informative, interactive (serious but amusing) discussion led by Dr Brenton Knott – discussing the threatened ecological communities in the Yanchep Caves and the Government's adaptive response to artificially supplement a karst system and 'how much is enough?'

This was an interesting discussion, considering human activity, effects on our environment and the ethics of intervening in ecosystems. The symposium ended with the conference dinner – the usual socialising followed by a hilarious 'thankyou' to the organising committee and the 'Billy Billy Dance'. After the ISSB concluded, a number of field trips occurred to Tasmania (Arthur Clarke), Cape Range (Darren Brooks and Jackie Tapper), Northern Karst (Rob Susac) and Margaret River (Jay and Ross Anderson). If Biology/Biospeleology is your interest, the next ISSB is in 2010 in Slovenia!

A group of Western Australian cavers attending the International Symposium of Subterranean Biology.

A few comments by other participants:

Ian Eddison said: 'I really enjoyed meeting such a diverse range of people from many nations, young and old, all with a passion for subterranean life forms. The presentations were so varied, consistently demonstrating the need for very specialised study from species identification, genetics, relationships between surface ancestral species and subterranean descendants, subterranean habitats from limestone caves to mining exploration drill holes.

'The new friendships of like-minded people from all over Australia and the rest of the world was stimulating, assisting me greatly in understanding more of how to and what to seek out in my own patch at Jenolan Caves.

'The social gatherings included a very interesting watering hole called 'Little Creatures', which was very appropriate. I also joined in a field trip led by Robert Susac to Jurien Bay.

'It was memorable for the nearby *Pinnacles*, some fishing, a beautiful cave, its subterranean fauna but most of all the access being amongst a series of dramatic Bee hives festooning a large sink, knowing full well that Robert is allergic to bee stings – three members of the party were stung on entry – thankfully not Rob and his epi pen was not required!'

Professor Elery Hamilton Smith said: 'I was intrigued by the way in which paper after paper accumulated the evidence that Western Australia probably has the largest and most diverse subterranean biology in the world. It all seems to relate to the fact that the Western Australia Crustal Plate has maintained a remarkable freedom from Tectonic or any other profound change. On the world scene, I was delighted to see many of the leading speleo-biologists who have maintained their commitment over a very long professional career; the number from Eastern Europe who are demonstrating a very high level of expertise. At the same time, I was disappointed that many of the molecular biologists were too often speaking to each other in jargon and hidden assumptions, which meant their work was not being adequately communicated to the non-initiates.'

Ian Millar said: 'I guess the strongest impression made on me by the conference was just the scale of these 'new' unsuspected habitats in the Pilbara and Yilgarn, and the irony that they are being discovered and understood just ahead of their potential destruction.

'I had heard about the calcretes, of course, but I guess the conference reinforced just how widespread they are and how limited the range extent for the species that live there. The pisolite fauna I hadn't heard about before, so that was new to me. I enjoyed a lot of papers given. Highlights for me included:

Guzik et al and Bradford et al – the studies on dytiscid beetles and amphipods, respectively, in the bore array at Sturt Meadows calcrete. I was especially fascinated by the dystiscid one – the amazing amount of haplotype diversity developed in such a small area, making speciation events much more likely.

Eberhard et al and Humphrey's papers on the pisolite faunas and habitat origins, as introductions to a subterranean ecosystem which I hadn't heard of before.

One of the more interesting papers was by Goater et al, working at the management/science interface in the North West Cape of WA. The paper examined fundamental questions of how much sampling was required to achieve management goals and whether the sampling results are inherently useful when considered against available knowledge on natural mechanisms driving subterranean ecosystem changes**.** For me, this was a really good overview of the difficulty of setting up monitoring programs that provide meaningful data to achieve a balance between fauna conservation and human resource use. The paper emphasised the difficulties inherent in dealing with assessing subterranean fauna in karst and the monitoring/management situation

Taylor et al – the paper on cave cricket foraging in rural vs urban locations and impacts on energy flow into caves whose main energy source was from these animals. That just struck me as a really interesting paper on how urbanisation can affect what happens below ground.'

Mid Symposium afternoon discussion in Crystal Cave. Photo: Ross Anderson.