

Mysteries of the Underground

Waterhouse Club Expedition – Tasmania 13-16 November 2024

Expeditioners

Roger Andre,
Michael Boylan
Deborah Boylan,
Anne Clancy,
Bernice Cohen,

Anne Levy,
Sue McCoy,
Anthony Nicholson,
Anne Peaston,
Gilly Sneddon,

Gary Sjöberg,
Tim Tolley,
Jen Tolley,
Agnes Weinstein,
Phil Weinstein.

Scientists

Geoff Allen, Simon Grove and Phil Weinstein

Expedition Leader

Agnes Weinstein

Wednesday 13 November

On an overcast moderately windy day (what else could you expect for weather in Hobart?), 15 Waterhouse Expeditioners gathered at the entrance of the Tasmanian Museum and Art Gallery. Luggage quickly stowed in the bus trailer, and name tags distributed (thank you Tim), the group was welcomed to the Museum by the Museum's Senior Curator (Invertebrate Zoology), Dr Simon Grove. Simon gave us an insightful tour of all things Tasmanian, from the geological structure of the island, its links to Antarctica and South America through the animal and plant fossil records, to its unique animals, birds, insects, shells, alpine regions, the famous Tasmanian Tiger (*Thylacinus cynocephalus*) and the Indigenous people. He was assisted by Dr Geoff Allen, Adjunct Associate Professor at the University of Tasmania.

A bus ride (many thanks to Sue McCoy, our 'volunteer' driver) to the town of Port Huon on the Huon River and the Kermandie Hotel, our base for the next few days. After everyone settled into their rooms, we all met in the dining room, which we had to ourselves, for a meet and greet before our evening meal. There was much chatter at the table as members reacquainted themselves with old friends and met new ones. After what was on average a selection of amazingly good meals, we all moved upstairs to the lounge, a comfortable room where we had our evening talks.

Before the evening talk, Phil had to inform the group of the only bad news on this trip: unfortunately, due to the climate becoming warmer and drier, the last of the glow worms had disappeared from the Hastings Caves only a couple of months earlier. We had sourced another known glow worm cave nearby, but after a scouting sortie to this location by Geoff in the previous fortnight, access to the cave was deemed too dangerous for our group - the track was wet, muddy, and slippery; we needed to cross a river and negotiate large slippery boulders to access the cave; and once inside, it was difficult to find secure foot holds to get deep enough into the cave to see the bioluminescence.

The talks for the first night were all relevant for the next day's excursion.

Simon: Introduction to Tasmanian Alpine Insects.

Phil: Why live in a cave?

Phil: Are geothermal waters good for your health?

By popular request, brief summaries of these talks have been provided in the Appendix.

Thursday 14 November

Up for early breakfast from 7:00am. The bus departed 8.30am sharp for Lunaris, a gem shop and display a 40 minute drive from Franklin, specialising in local Tasmanian gems and fossils ferns. Boris gave us an interesting talk about the minerals of Tasmania based on the geology of the area. He showed us many outstanding specimens that he had personally collected. There were also many fossils from overseas, which some expeditioners who were on previous geological tours could relate to, sharing their fun experiences with us. It was here we saw our first flowering waratahs.

On to Hasting Caves. The drive into the caves was our first encounter with rainforest: dense understorey and tall trees lined the dirt road to the parking area. Bird life abounded with much chattering and twittering in the canopy.



Photo: Jen Tolley

Our journey into the cave began with introductory talks about the history and formation of the cave. It is one of only a handful of dolomite caves globally, most others being limestone. Our 45 minute private tour lasted 1.5 hours. As well as seeing wonderful formations and learning about the various types of formations, our guide, sensing our excitement at the possibility of seeing cave crickets and spiders, took us to the depths of the cave where she

thought we might find some. With many eager eyes searching, we soon located a number of troglophilic crickets, *Micropathus tasmaniensis*. Lastly, back near the exit, she showed us a most magnificent cave spider, *Hickmania troglodytes*. Other highlights included that we all survived the > 500 steps... and who could forget the *eggs*agerated jokes that abounded during the tour (and well into the afternoon!).



Photos: Phil Weinstein

A packed lunch was provided by Kermandie and got consumed at the cave information centre picnic tables – it was greatly appreciated after our long tour. Hot coffee was available at the kiosk for those who needed it. A few tough souls did enjoy the warming and health-giving thermal waters here, another thing the place was famous for. The water, wonderfully warm at about 28°C, contrasted starkly with the 14°C ambient temperature. For those not so brave, there were 2 short nature walks; the one named Platypus Walk did not live up to its name.

We boarded the bus for the drive to Lake Osborne up in the alpine region of the Hartz Mountains. Simon kindly gave commentary during this journey. The lake is a glacial lake formed almost at the top of the mountain. It was blizzarding when we arrived, but snacks did something to revive our spirits, and thankfully the clouds cleared so we were able to proceed along the track. We crossed many ecosystems, expertly explained by Simon, Geoff, and Phil along the way. We were rewarded with a magnificent view of the lake with a rare King Billy Pine (*Athrotaxis selaginoides*) growing on the shoreline. Unfortunately, we did not see any of the endemic crustaceans that Simon was hoping to find. The weather threatened rain but we managed a quick stop at a

viewing platform on the steep slope of the mountain, where we could see forest that had been burnt in recent fires, unburnt areas with scattered flowering waratahs (*Telopea truncata*), and many birds.



Photo: Phil Weinstein



Photo: Phil Weinstein

Then back to the Kermadie for another sumptuous dinner and evening talks.

Geoff: Tracking the Pollinators

Simon: Documenting Tasmanian Molluscs.

By popular request, brief summaries of these talks have been provided in the Appendix.

Friday 15 November

A leisurely breakfast and a short bus ride to Franklin where we were booked in to the Wooden Boat Centre for a tour. This proved to be a fascinating experience, learning about the types of wood, types of boats and the history of boating in this southern region of Tasmania. We were able to watch some of the apprentices at work.

With free time to get lunch in the town, Frank's Cider House provided cider tastings and there were numerous other



Photo: Jen Tolley

eating venues. The town cemetery was a popular spot with information about the former inhabitants and the early days of the town. Just walking along the banks of the Huon River was a health-giving experience. At 3:00pm we boarded the wooden sailing boat *Kerraywn*. We were welcomed by our host Anastasia and her crew, given a brief history of the boat, the history of Franklin, and a most sumptuous afternoon tea. The weather could not have been kinder. We sailed slowly up the river, soaking up the sun and watching the birdlife on the islands. Just the perfect relaxing contrast to the hectic and adventurous previous day. Everyone was having so much fun that our hour and a half cruise went for well over 2 hours. Anastasia is a professional historical rigger and does the rigging for the *One and All* with intermittent visit Adelaide to check on her. It was amazing to find out that many of our group had been on other historical sailing ships that she had rigged.



Photo: Jen Tolley



Photo: Phil Weinstein

Dinner back at the *Kermandie*, tonight we shared the dining room with locals having a Friday night out. There was much discussion about which meals people enjoyed most, with a big thank you to Tim for organising the pre-ordering of people's selections.

The after-meal lectures for this night:

Geoff: *The Power of Ladybeetles.*

Phil: *Why do critters glow in the dark?*

By popular request, brief summaries of these talks have also been provided in the Appendix.

Saturday 16 November

Luggage loaded on the bus at precisely 8.30am for Geeveston, with the rest of us headed down to the Huon River's edge to start the walking track to Geeveston. Geoff and Phil were on hand to explain the various ecotones we passed through on the way. The group managed to become very widely spread by the end of the walk, with a few wrong turns, but mobile phones did the trick! Apart from a short section walking along the main road, the river walk was beautiful and health-giving – especially coming from a dry state like SA – the richness of

the greenery and dense understory were amazing to behold. Many of the group were rewarded by seeing a live platypus in the river, and most then took the opportunity to have a coffee and short museum visit in Geeveston.

We reassembled for the final leg back to the Tasmanian Museum and Art Gallery, where we disgorged the luggage to reverse the process we had started with a few days earlier. A big thanks to our scientists Geoff, Simon, and Phil for keeping us thoroughly entertained and informed throughout!

Agnes Weinstein
Expedition leader
7 December 2024

Appendix: Talks in quick review

One of the highlights of the trip was to have evening presentations of shorts talks from the three different scientists contributing to expedition: Simon, Geoff and Phil. There were a couple of requests at the time to include very brief summaries of these talks in the trip report just as reminders for expeditioners' reference, so here we go:

Wednesday 13

Simon: Introduction to Tasmanian Alpine Insects.

Simon introduced us to some of the hardy critters that survive in the Tasmanian Alpine zone, illustrated through his own incredible photography over hundreds of hours of patient stalking. There were camouflaged insects that survived by hiding from predators against the background; there were aposematically (warning) coloured insects that survived from predators by advertising their toxicity; and there were ancient relictual Gondwanan crustaceans in the alpine freshwaters, hanging on since the breakup of the continents.

Phil: Why live in a cave?

Phil made it his mission to introduce us to a few new scrabble words, including troglobites (obligate cave dwellers), trogliphiles (facultative cave dwellers), and troglonexes (accidental cave dwellers). Later, in Hastings Caves, we saw trogliphilic cave crickets, and a troglonexic fly that had followed us in! The selection pressures that drove the evolution of cave-dwelling included resource utilisation (leaf litter) and climate refugia (cool moist atmosphere).

Phil: Are geothermal waters good for your heath?

Phil presented evidence from a literature review that Australian geothermal waters could indeed alleviate the symptoms of arthritic and rheumatic disease, because of the warm, 'weightless' environment that they provided for joint and muscle mobilisation. However, there was no evidence of beneficial effect from the chemical composition of the water *per se*. A few of us later experienced the detrimental effects of exiting a warm geothermal pool into the cold and breezy Tasmanian outdoors.

Thursday 14

Geoff: Tracking the Pollinators

Geoff provided a fascinating introduction to the different duties performed by worker bees as they mature in the hive, the human equivalent of first being on nappy changing duty, then feeding the babies, and later going shopping for them. The unknown was about foraging behaviour, who went where and why and for how long to collect pollen and nectar? His team developed tiny miniature tracking technology for individual worker bees, helping to answer some of these questions with interesting early findings.

Simon: Documenting Tasmanian Mollusks.

As curator of invertebrates at the Tasmanian Museum and Art Gallery, Simon wrote the first summary guide to the known Tasmanian molluscs. As he continued to collect with a vengeance, and with the help of a sailor friend and a bit of marine trawling, his species discovery curves indicated an explosion of biodiversity that was simply not previously appreciated. In a world experiencing a global biodiversity crisis, Simon's work illustrated the essential nature of documenting biodiversity to help better monitor and protect it.

Friday 15

Geoff: The Power of Ladybeetles.

Geoff surprised everyone by showing how tiny apparently innocuous ladybeetles had the power to shut down massive hydroelectric turbines. They did it by aggregating in massive numbers in the air vents, and the industry had approached him to try to help out work out

why and if there was an easy way of controlling them (other than shovelling them into wheely-bins and wheeling them away!). The beetles were responding to both visual and chemical (pheromone) cues, providing opportunities to use design modification and lures to address the problem. The students who trained on this project, given adequate funding, will be the next generation of researchers to help industry solve these types of problems.

Phil: Why do critters glow in the dark?

Phil described the basis of bioluminescence, biologically produced light as utilised by glowworms and many other lifeforms. He described an experiment undertaken on Kangaroo Island in total darkness on moonless nights, to determine why the ‘ghost fungus’ *Omphalotus nidiformis* bioluminesces. Insect traps baited with the glowing fungus did not attract any more insects than did control traps, so it seems unlikely that the phenomenon had evolved as a result of natural selection favouring glowing fungi that attracted spore-dispersing insects. Other organisms and different environments however do confirm that bioluminescence can provide a selective advantage – including glowworms whose light attracts prey.



Photo: Phil Weinstein