Field trip fun in the Flinders

I was fortunate to attend the Australian Geoscience Council Convention (AGCC) post-conference field trip – ‘Hot rocks, ice ages and the rise of complex life’. The five-day field trip was led by Jim Gehling (South Australian Museum) and Bob Delgarno. Their knowledge and enthusiasm, the diverse expertise of the other ten attendees, and the amazing exposures of the Flinders Ranges made the field trip a fantastic experience.

On the first day we travelled from Adelaide to Wilpena, stopping to examine rhythmites of the Elatina Formation near Pichi Richi, the scenic ‘Hills of Arkaba’, and features of the fallout from the Acraman meteorite impact.

Day 2 was a traverse of Brachina Gorge. Highlights were the ‘hieroglyph’ stromatolites described by Sir Douglas Mawson, the global boundary stratotype section and point (GSSP) golden spike at the base of the Ediacaran boundary, the post-glacial cap carbonate and iron-rich sediments, Cambrian Archaeocyath fossils, and a chance to stand on an Eon boundary between the Proterozoic (Neoproterozoic) and Phanerozoic (Cambrian). We stayed at the Prairie Hotel in Paraechina overnight. The owners have embraced geotourism, with Ediacaran-themed sculptures, jewellery, tours and chocolate!

The morning of Day 3 was spent looking at an Ediacaran excavation site led by Jim. It was a wonderful experience to see the range of Ediacaran fauna exposed, and have the species and features identified by this world expert. After lunch, we headed north to see Archaeocyath fossils exposed in a limestone pavement near the Beltana zin coal mine, and then across to Arkaroola stopping to check out features of submarine canyons exposed near Patsy Springs.

Day 4 began with a view to Stubbs Waterhole and Bararranna Gorge to view Neoproterozoic sedimentary and glacial features, before a trip from Arkaroola to Sillers Lookout. This has to be one of the most amazing geological trips anyone can do! More than a billion and a half years of geology is exposed in the hills and gorges, from the ~1580 Ma granite to views of modern-day deposition in Lake Frome. The hydrothermal features of Mount Painter were amazing, with some of the most spectacular epithermal textures I’ve seen. Steve Hore and the Geological Survey of SA deserve a lot of credit for their recent mapping of the area, given the complexity of the geology.

On Day 5 we returned to Adelaide via Parachilna Gorge to Blinman, with stops to view features of salt diapirism and a final look through the Neoproterozoic to Cambrian sequence exposed through the gorge.

As well as learning about the geology of the Flinders Ranges, the trip was a great chance to view different styles of geotrails that have been set up through the area. For example, we met up with Sue and Rob from Flinders Ranges Walks (www.walkingtrailssupportgroup.org.au). They have set up a series of geotrails, with markers on popular walking trails that link to maps and apps available on their website.

I also roadtested the Australian Geology Travel Maps app (see the article by its developer and GSA member David Collins in TAG 188). This allowed me to view, zoom in and query the Geological Survey of SA’s geological mapping on my phone and tablet with geophysical and mineral occurrence data overlays – even in areas without mobile reception.

A huge thanks to Bob and Jim, bus driver Paul, and the other attendees (Mike Smith, Marita Bradshaw, Kelsie Dadd, Cathy Brown, Matt Townsend, Ross Caley, Dietmar Müller, Adriana Dutkiewicz, Kerrie and Ludwig) for making trip both educational and fun.

PHIL GILMORE

Admiring the view of Rawnsley Bluff at Wilpena Pound