EDIACARA EXPEDITION: 25-29 May 2017

The expedition provided the first opportunity in several years for club members to see and share continually emerging insights with the Museum's renowned scientists Dr Jim Gehling and Dr Diego Garcia-Bellido about the increasingly well-recognised Ediacara fossil faunas of the Flinders Ranges. Demand for places was exceptionally strong and a party of almost 50 members joined the Expedition.

The program comprised three one-day outings

- Brachina Gorge Geological Trail & Ediacara Golden Spike – introduction to regional geological setting and context for greater detail of Ediacaran in following days.
- Nilpena Station Ediacaran fossils – observation, explanation, identification, search.
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- Presentation in the field was balanced between display and description, hands-on education in the identification of various fossil species, and in-field prospecting.
- Work in the field was complemented by scientists' presentations each evening.
- Program diversity was provided by Trevor Ireland's presentation on the silver-lead mining history & geology at Ediacara and Laura Ragless' presentation on her Beltana pastoral enterprise on the final evening, and wildlife encountered along the way, including the Yellow-footed Rock Wallabies in Brachina Gorge.

"Ediacara" publicity at The Prairie Hotel

Expedition party at Ediacara "Golden Spike"

Expeditioners study Acraman meteorite impact debris layer in Bunyeroo Formation, Bunyeroo Valley

. . . and fossiliferous strata of Ediacaran age in Brachina Gorge

The journey through Brachina Gorge & Bunyeroo Valley was highlighted by exposition of the diverse environments in which the sediments of the ranges accumulated ranging from shallow to deep waters (and back again); waters ranging from oxygen rich to oxygen-depleted; climate ranging from hot and arid to glacial.

The kilometres-thick sediments themselves range from finest muds to coarse sands, from primitive limestone reefs to salt-rich clay accumulations and 'diamictitic' mixtures of everything from clay to boulder-sized deposited by the melting of the ice-masses within which they were enclosed.

In the Bunyeroo Valley, the wondrous evidence for the Acraman meteorite impact, debris sourced some hundreds of kilometres to the north-west is spectacularly preserved in the monotonous muds of the Bunyeroo Formation.

Expedition convoy departing Nilpena Station towards the fossil fields (Wilpena Pound on horizon)

Jim Gehling introducing Nilpena owner Ross Fargher and SAM volunteers Denis Rice & Jan Perry

Two nights of snacks and dinner at The Prairie only enhanced Jane Fargher's already fabulous reputation as high queen of *haute cuisine* in the bush. Presentations from Jim & Diego and questions from participants continued each day's lively conversations.

Day 2 saw the party check out of the Prairie and head to Nilpena Station for a full day of looking, learning and identifying members of the Ediacara fossil family. After driving the sometimes challenging track to, and lunching at, the ominously-named Snakes's Head Rock overlooking Lake Torrens, the party returned to the fossil fields to practise their morning learnings in a prospecting exercise through the debris and scree of the lower slopes below the research area.

Nilpena "Tennis Courts" – fossil beds

Nilpena display of fossiliferous surface – Gabion-mounted

Parvancorina

Spriggina

Ovatoscutum

Dickinsonia

Eoandromeda

Expeditioners observing Yellow-footed Rock Wallabies in spectacular Brachina Gorge

Yellow-footed Rock Wallaby

Wedge-tailed Eagle

Later in the afternoon the convoy reformed to move northwards to Beltana Station lodgings for the remainder of the expedition. Laura and Graham Ragless' tourism facility takes guests to the heart of the family pastoral station operation, nicely complementing the Prairie's brand of tourist services. Diego provided great pre-dinner entertainment, his presentation moving our focus to the continuation of life's evolutionary path beyond the Ediacaran into the Cambrian, followed by Laura's hearty buffet roast dinner and soon to well-earned sleep.

The pace continued through the final day as the expedition moved to the Ediacara Fossil Reserve, west of Beltana, site of Reg Sprigg's original discovery of Ediacaran fossil faunas. Here we again enjoyed introduction, instruction from Jim & Diego, and had the chance to examine, inquire and find fossiliferous material in the area below Greenwood Cliff, site of recently renewed research projects and discoveries under the scientists' guidance. Next we moved to the site of Ediacara lead-silver mine where Trevor regaled the crew with local history and yet more geology.

After lunch, the convoy headed to the site of Sprigg's original discovery, and more prospecting with our guides amongst a slightly different faunal assemblage, before retracing our tracks, ultimately to Beltana's warm welcome and home-cooked excellence. Dinner concluded with Laura's gripping account of Beltana's recent history, and forthright fielding of a wide range of questions specific and more general around the pastoral issues identified. And one last glass of wine, as we acknowledged the various contributors to the success of the expedition.

Looking and learning, below Greenwood's Cliff

Mining relics at Spriggs' location Ediacara

No such rest for our host. Last seen after her dinner-time presentation, behind the wheel of the forklift, unloading the semi which had rolled in after dark, and then next morning, before expeditioners wandered over for the last breakfast, she was out donning the helmet with her team for a day of motorbike mustering. No rest for the wicked!

Diego in teaching mode

Jim G with long-time volunteer Don Reid

Dinner Beltana style

The track back to the ranges from Ediacara . . .

Laura tells it like it is!

Finally it was time to repack, break camp, say farewells and meander back south through our eternally beautiful Flinders Ranges.