

ARKARoola WILDERNESS SANCTUARY



From the ARK

NEWSLETTER NUMBER 10

SPRING / SUMMER 2008

Christmas came early to Arkaroola with the best late spring and early summer rains in more than a decade. Both Arkaroola and Wywhyana Creeks have run four times since mid November. Hallelujah!

With cleanup and rehabilitation works completed we are now waiting to hear if Marathon Resources will be allowed to resume drilling activity. The company was able to conduct stream sampling and gravity surveys during 2008 and has indicated it is keen to extend its drilling program. We await with interest the outcome of Green's MLA, Mark Parnell's Private Members Bill, which will be tabled in the coming months.

In the Spring / Summer 2008 issue of *From The ARK* we introduce a new feature, *Too Precious to Mine*, which will explore Arkaroola's special values. Thanks Senator Minchin – we've borrowed your line!

To join our mailing list just email us at marketing@arkaroola.com.au
To download *From the Ark* visit our Web site at www.arkaroola.com.au/breakingnews.php
For an informed commentary on the ongoing Marathon issue visit <http://unknownsa.blogspot.com>

A MESSAGE FROM MARG



Just as we were planning to truck in drinking water for the motel, and were lamenting the desperate conditions across the sanctuary - some of our permanent waterholes had completely dried up for the first time in forty years - it rained! The creeks flowed and the waterholes filled. The vegetation response has been miraculous. We need more rain but are hoping that the ten-year drought has broken.

Marathon Resources has completed the clean-up at Mount Gee, a year after Doug and I discovered the buried waste. During the operation, I went to Mount Gee regularly with a PIRSA officer and an environmental expert to observe the process. The job, done under the watchful eye of the regulator, was tedious and demanding. Marathon field staff and contractors did a really good job in difficult conditions. But the battle continues. We remain totally opposed to any mining in the ranges on Arkaroola.

A Happy New Year to you all.

Marg

IN THIS ISSUE

A Message from Marg

News From The Ark

Rivers of Hope

A Rich Collaboration

Cycles of Wrecktification

Mine or Ours?

Plant Profile

Just Add Water

Too Precious to Mine

Access Denied?

From the Arkhives

Seshat's Apprentice

Creature Feature

It's Busy in Barraranna

Geonote

The Perfect Pudding

Conservation & Research

An Alien with Attitude

Product Information

Star Party Down Under 2009

Ark Postcard

There's Gold in Them Thar Hills

Design, & Text Lorraine Edmunds
Images provided by Lorraine Edmunds, Marg Sprigg, Bren Lay

NORTHERN FLINDERS RANGES

SOUTH AUSTRALIA

AUSTRALIA

ARKAROO LA WILDERNESS SANCTUARY

NEWS FROM THE ARK



- Top** Wywhyana Creek crossing at Arkaroola Village 25 November 2008
Middle Froth and bubble Arkaroola Creek 7 December 2008
Bottom Arkaroola Creek at Nooldoonooldoona Waterhole 17 December 2008

RIVERS OF HOPE

Radar watch. Satellite screens. Road closure reports. Stranded visitors. Calls from television networks chasing images for the evening news. Rations and improvisation when the truck can't get in with the weekly delivery. Yes, it's been years!

Late spring and early summer rains have changed the face of Arkaroola. 140 mm have been recorded since mid November with rain falling on nineteen days. After so many years without significant rains, a succession of floods have brought new hope that some of our most stressed plants, like the river red gums, will recover.

But let's not confuse weather with climate. We're not out of trouble yet. Summer heat continues to be extreme with very high evaporation rates. Without follow-up rains much of the new growth may be lost. Good summer and autumn rains are needed to consolidate Nature's latest investment. Vi Amiamo La Niña !

A RICH COLLABORATION

"And when we finally reach Europa, with its ice-covered seas, we are more likely to meet the animals in this book than we are to encounter anything resembling a dinosaur."

Timely words by Arthur C Clarke, written just months before his death, in the foreword to a new book master-minded by Victorian palaeontologist Dr Pat Vickers-Rich.

With a clutch of dinosaur books already under her belt, Dr Vickers-Rich has collaborated with four of the world's leading 'Early Life' palaeontologists to produce *The Rise of Animals*. The book is exquisitely illustrated by artist Peter Trusler. Peter provided the artwork for two 'fossil' stamp issues by Australia Post, including *Creatures of the Slime* in 2005.

The Rise of Animals traces the Earth's earliest animal life and follows its discoverers from Namibia to Newfoundland, from the White Sea, the Ural Mountains and Siberia to Ediacara on the edge of the Flinders Ranges. The book is dedicated to the pioneers of Pre-Cambrian palaeontology – Boris Sokolov, Reg Sprigg and Mary Wade.

Anyone with an interest in palaeontology and things Ediacaran will be mesmerized by *The Rise of Animals*. It is published by the John Hopkins University Press and retails for \$110.

NORTHERN FLINDERS RANGES

SOUTH AUSTRALIA

AUSTRALIA

ARKARoola WILDERNESS SANCTUARY

NEWS FROM THE ARK

CYCLES OF WRECKTIFICATION



As long as exploration and mining leases continue to be granted over the Arkaroola Wilderness Sanctuary, wrecktification cycles are inevitable.

Any regeneration gains are likely to be lost over time, as happened when Marathon Resources re-opened and widened a number of mining tracks established by Exoil in the 1960s. With the recent completion of rehabilitation works and rain-triggered germination, one can only wonder whether another cycle of wrecktification is about to begin.

MINE OR OURS?



Who will decide the future of this Geological Monument? The directors and shareholders of the Chinese company CITIC and Queensland-based Talbot Holdings? Or the Rann government, elected by the people of South Australia?

Arkaroola's conservation credentials are widely recognised. It's cultural significance for the Adnyamathanha people, undisputed. Yet, as a state, we seem unable or unwilling to provide adequate protection for Arkaroola's tangible biodiversity and heritage assets and intangible spiritual values. When news broke twelve months ago, of the unauthorised burial of drill cuttings and other general waste by Marathon Resources at Mount Gee, Arkaroola was repeatedly identified as a pastoral station. This was despite the 61 000 hectare property having official sanctuary status under the NPWS Act. In a Ministerial Statement issued on 12 February 2008 Minister Holloway also suggested that because Arkaroola had a strong mining industry history, *"This co-existence of mineral exploration and tourism is the key to understanding the unique nature and character of the region."* In fact, there have only ever been a few brief pulses of mining activity on the property. And it has been mineral exploration that has seriously scarred the landscape.

Will this living museum, this laboratory of Nature, this sanctuary for the soul, prevail over the desire for wealth? For the Sprigg family, Arkaroola has, and will continue to be Ours, all of Ours.



Above and below: Contractors and Marathon field staff systematically retrieve and empty bags of drill cuttings buried in an unauthorised pit at Mount Gee.



CONGRATULATIONS Geoffrey Tapps!

You are the winner of a complimentary Ridgetop Tour for two on your next visit to Arkaroola Wilderness Sanctuary.

Geoffrey provided several answers to the question *What do Marathon Resources and the leopard have in common?*

To all those other newsletter recipients who emailed answers, we thank you for your great suggestions. We won't publish Geoffrey's answer just in case Marathon's directors don't have a sense of humour.



ARKAROOLA WILDERNESS SANCTUARY

PLANT PROFILE

JUST ADD WATER



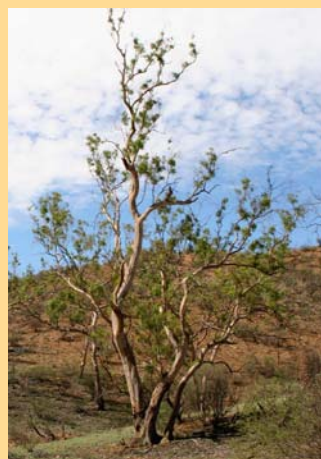
It's simple really. If you want plants to grow in the Flinders Ranges, just add water. Now a standard watering-can won't do the trick. You need a much bigger vessel, preferably an imported one from the Indian or Pacific Oceans. Or better still, a visit by that girl-child of the Pacific whose bounty is often a blessing for the Australian interior.

Rainfall drives major regeneration pulses in the northern Flinders Ranges. One-off events may bring relief, but will do little for the long-term survival of our plants and animals. It is the tropical rain depressions and La Niña events that deliver lasting benefits. Widespread regeneration occurs when good winter and spring rains follow exceptional summer or autumn rains. At such times, the regeneration of plants like mulga, eremophilas, bullock bushes, acacias and eucalypts occurs. 1956 and 1973, two of Arkaroola's wettest years, were La Niña years. But many years can separate La Niña events. And during this time that other child of the Pacific, El Niño can overturn La Niña's good work. For more than a decade Arkaroola has experienced a severe drying event which has resulted in the death of long-lived perennial plants like mulga, bullock bushes and red gums.



Late spring and early summer rains have brought new life to the northern Flinders. The waterholes have been flushed and filled, with many ephemeral pools persisting through the gorges. Everywhere, the intense green of new growing tips on gums and wattles, bullock bushes and triodia, melaleucas and santalums can be seen. Native orange trees are awash with Iga flowers, perhaps the most magnificent of all our flowering plants. And all about the caper butterflies dance.

Images from top left to bottom right
Stressed mulga woodland (*Acacia aneura*) with flowering survivors.
Iga tree (*Capparis mitchelli*) in full bloom.
Re-sprouting Plumbush (*Santalum lanceolatum*).
New growth on Gum-barked coolibah (*Eucalyptus intertexta*).
Triodia plants re-sprouting in foreground with Gum-barked coolibah behind.
Mature *Acacia victoriae* re-sprouting from base.



NORTHERN FLINDERS RANGES

SOUTH AUSTRALIA

AUSTRALIA

ARKAROOLA WILDERNESS SANCTUARY

TOO PRECIOUS TO MINE

ACCESS DENIED?



EL's or Exploration Leases impact upon public access arrangements for sites held under the leases. Areas where drilling activity takes place become off-limits under an EL.

For forty years, hikers have had unrestricted access to all parts of Arkaroola Wilderness Sanctuary. Whilst a strict no camping policy prohibits vehicle-based camping outside the village area, walkers and hikers have been able to explore even the most inaccessible reaches of the sanctuary. Bushwalking clubs, school and university groups, and hiking enthusiasts are typically low-impact visitors who leave little trace behind. With only one access track into the Mount Painter heartland, a track strictly controlled for Arkaroola's tour operations, there has been little to intrude upon the walkers' experience. Remnant tracks from an earlier era of exploration and mining, when companies had no obligations to rehabilitate, are still visible. But the land slowly heals. The old mining tracks soften as native plants gradually return.

EL 3258 has destroyed the solitude of walking in the Mount Gee area. Located in the very heart of the sanctuary, exploration activity has compromised the wilderness values that bring hikers to Arkaroola. Increased traffic on the Ridge Top Track, the rawness of old tracks made new again, the noise of operating rigs which carries beyond the operational area, the visual intrusion of plant and equipment, and access restrictions, de-value hiking in this part of the sanctuary.

For those walkers who have sat above the Mount Gee waterfall after rain, who have crawled over Mount Gee, spellbound by the splendour and diversity of its quartz crystal, who have been humbled by the silence at the cairn on Mount Painter summit, you understand something that the Rann government fails to comprehend.

Arkaroola is TOO PRECIOUS TO MINE.



FROM THE ARKHIVES

SESHAT'S APPRENTICE

Measurement is the stuff of science. The development of hypotheses, the great debates and controversies, might be the sexy face of science. But whether it is biology, geology, astronomy or medicine, it all comes back to measurement.

There was little in the natural world that did not interest Reg Sprigg. An innately curious man, Reg collected data about rocks and minerals, fossils, sand dunes, sea-grass meadows, submarine canyons and much more. So it is not surprising that he monitored creek flows, bore water production rates and water salinities on Arkaroola until his death in 1994. Reg's work table was a chaotic landscape of graphs and tables, charts, maps, equations and diagrams.

Reg monitored the big flows of the 1970s, the wettest interval since European settlement of the Flinders Ranges in the 1850s. During such events, saline waters trapped in waterholes and creek gravels, are flushed out, leaving standing water bodies fresh, with salinity values as low as 200 ppm (parts per million). But after a few weeks, when creeks have stopped flowing, values rise, reaching 4400 ppm within a year. During prolonged droughts, salinity values of 18 000 ppm have been recorded for Arkaroola Waterhole, values beyond the tolerance of native animals. Reg was also able to show that salinity levels varied greatly along different creeks, reflecting the local geology.

Reg snorkelled the deeper waterholes to sample pockets of water at different levels in the water column. He revealed that waterholes have complex layering, with the freshest water found at the surface. Rock-wallabies, euros and other animals, utilise this layer, by drinking in slow, shallow sips.

If Reg was the apprentice, then who was Seshat? None other than the Ancient Egyptian Goddess of measurement and record-keeping. Reg always kept good company!



Marg Sprigg recently purchased a salinity meter and has resumed record-keeping of salinity values for Arkaroola's waterholes.

"Arkaroola Creek is indeed a major life support system for a whole region. It's great gorges harbour a sequence of rocky and gravelly water holes."
Reg Sprigg 1984

ARKAROOLA WILDERNESS SANCTUARY

CREATURE FEATURE

IT'S BUSY IN BARRARANNA



Recent rains have provided a valuable insight into the Yellow-foot population of Barraranna Gorge and Spotted Schist Pass.

Soft silty muds provide a perfect canvas for capturing the movement of wallabies. The siliceous muds, with their very small particle size, beautifully preserve wallaby footprints. The size, shape and texture of the distinctive footprints readily distinguish them from euros. Just as the patterned tread of bushwalking boots help to keep walkers upright, deeply granulated soles provide rock-wallabies with the grip they need to move across steep and broken rock faces.

Arkaroola Wilderness Sanctuary is home to one of the most secure Yellow-footed rock-wallaby populations in the Flinders Ranges. Even during the prolonged drought, numbers appear to have remained stable. On-going fox-baiting and feral goat control have removed two of the critical threats facing rock-wallabies - predation and competition for food and shelter. Rock-wallabies can be seen the length of the Arkaroola Creek system, from Bolla Bollana spring all the way to Arkaroola Springs on the edge of the plains.

A maze of rock-wallaby and euro tracks in Barraranna Gorge.



GEONOTE

THE PERFECT PUDDING



With the season of pudding cloths, silver coins and brandy sauce just gone, we offer you the perfect festive pudding recipe for next Christmas.

1. Take several million tonnes of mixed rock.
2. Place in a mortar and pestle with ice and grind to a mix of smaller pieces. (To enhance the texture and colour of your pudding, select green epidotes, red sand stones, yellow jaspers and pink quartzites).
3. Transfer to a deep mixing bowl and add rock flour. (For a dark pudding add iron and manganese oxides to the flour).
4. Add sufficient water until ingredients bind together well.
5. Cook at very high temperatures in a pressure cooker for several million years.
6. Rest the pudding and allow to sit in the open air to develop a firm crust.
7. Serve with a silt, sand or mud custard of choice.

This pudding keeps exceptionally well, matures with age and is suitable for freezing. This recipe makes a large pudding, perfect for all those unexpected guests!

Puddingstone or plum pudding rock, belongs to a group of rocks of glacial origin, called tillites. These distinctive rocks may have formed when glaciers, upon reaching the sea, calved off as icebergs and dropped their rocky burden. Or, like the rocks at Stubbs Waterhole, they may have once been the terminal moraines of glaciers. The best place to see glacial rocks on Arkaroola is Tillite Gorge where walkers can explore several kilometres of colourful puddingstone.

ARKAROOLA WILDERNESS SANCTUARY

CONSERVATION & RESEARCH

AN ALIEN WITH ATTITUDE!



Sincere thanks to Bren and Lizzie Lay, Sony Manning , Peter and Kathy Stevens and their son Will who, with Lorraine Edmunds, spent 8 days in the hills around Arkaroola Village killing cactus in November.



They call it Jumping Cholla. And there's no doubt about it. This beast can make you jump higher than you thought possible.

If ever there was a plant with attitude it is Jumping Cholla (pron. Choy-ar). Probably introduced to gardens at Arkaroola Village about 35 years ago, *Cylindropuntia prolifera* has indeed jumped its terracotta pot and now occupies a 3 km² area around Arkaroola Village. It can be found from the Acacia Ridge walking trail, over Griselda Hill and down Mawson Valley, as far as Sitting Bull. With no natural cactus-feeding insects to control it, this native of coastal California is spreading like a cancer.

Well-known to Arkaroola and recently retired, Brendan Lay collaborated with Lorraine Edmunds to secure funding through the South Australian Arid lands NRM Board, to implement a control program. In late spring a team of enthusiastic cactus-killers climbed, cursed and cried (well almost), as they walked tight transects across the affected area, spraying all cactus plants they found. The most courageous in the party used ropes to lower and stabilise themselves in order to reach plants in precipitous locations. More than 4000 plants were treated.

Jumping Cholla branchlets are easily dislodged and the long spines attach to fur, feet and walking boots. With plants often encountered along wallaby pads, the group were left in no doubt that rock-wallabies and euros, with gravity are the main dispersal agents for a highly invasive and particularly nasty plant that has rapidly extended its range. Long-term follow-up will be required to ensure that this highly successful coloniser does not rebuild its numbers.



They roll and ride,
And swim and spill.
They pierce the hide.
They injure.
They kill.

ARKARoola WILDERNESS SANCTUARY

PRODUCT INFORMATION

STAR PARTY DOWNUNDER 2009



Each January a group of stargazing enthusiasts gather at Arkaroola for the annual Star Party DownUnder. A collaboration between Arkaroola and the Astronomical Society of South Australia (ASSA), the Star Party provides opportunities for amateur astronomers to meet with experts in the field. Whilst most stargazers bring their own telescopes and cameras, they also have access to facilities in Arkaroola's three observatories. Of course the major attraction is Arkaroola's dazzling night sky!

Thirty-eight stargazers took part in the 2009 Star Party held from January 22 to 26. Some participants travelled from Sydney and Perth, and there were a number of familiar faces. Most of the group travelled together from Adelaide by charter bus. The program included tours, guest presentations, and deep-space viewing, with some die-hards just managing to get back to their rooms before first light.

Watch out for more photos, including some astro-photography, in the next issue of *From The Ark*.

Above: Stargazers enjoy bubbly, beer and nibbles before Professor Ian Plimer delivers his evening Earth History lecture at Coulthard's Lookout.
Below: A spectacular shower of golden light is Nature's parting gift as stargazers leave Coulthard's Lookout.

FROM THE ARK POSTCARD



There's gold in them thar hills!

NORTHERN FLINDERS RANGES

SOUTH AUSTRALIA

AUSTRALIA