THE FOSSILS OF CORRA LYNN CAVE

Steve Bourne

Caving friends had often invited me to visit Corra Lynn Cave on Yorke Peninsula, however I never seemed to be able to get there on their proposed trips. It seemed like I might never see this cave, and having heard many stories and seen images of cavers stuck in small tunnels, thought that it might be a good thing anyway. In April 2011, I was asked if I would undertake an assessment of the cave for potential listing on the South Australian State Heritage List. Although the timeframe was short it was too good an opportunity to miss.

I enlisted the assistance of Graham Pilkington, who knows the cave better than anyone else and who has been responsible for many discoveries in Corral Lynn Cave. Graham recommended we also take Paul Harper, who like Graham has many hundreds of hours experience in the cave. Graham and I travelled to Yorke Peninsula meeting Paul at Curramulka. First stop was the Curramulka Quarry, an enormous limestone quarry on the edge of the property containing Corra Lynn Cave. Quarrying operations have revealed some small fissures filled with fossils, but have not located any significant caves. This is a little surprising given the quarry lies between Corra Lynn Cave and Town Well Cave within Curramulka.

Curramulka Quarry

We met up with owner Andrew Slater who unfortunately had not been notified by the Heritage Branch of the purpose of the trip to assess the cave for possible heritage listing. Andrew had concerns that heritage listing affect his ability to undertake his farming activities and have an adverse impact on the way he currently manages cave access. He has developed a strong working relationship with CEGSA and is strongly advised by them in the management of the cave. I advised that heritage listing recognises the significance of a site and provided activities such as farming are not affecting the values identified, operations could continue as per normal.

Andrew Slater has been very effectively managing the cave in cooperation with the Cave Exploration Group of South Australia (CEGSA). The cave is locked and keys are held by CEGSA (the key holder and site coordinator), and Andrew himself and local emergency agency services.

Corra Lynn Cave is a maze cave in the Cambrian limestone of the peninsula. The known cave is 14 kilometres long on three levels, making it one of the longest caves in South Australia. All of this is within a surface area of about a 400 square metres, which shows just how complex this cave is.

Corra Lynn Cave entrance

The cave entrance is located in the base of a doline virtually on top of a large hill. This is fenced protecting the entrance from the effects of farming activities and has been planted with local vegetation. The stability of the entrance is affected by rabbits which graze the vegetation and burrow, creating erosion issues. The fence is 90% rabbit proof and if rabbits were completely excluded it will improve stability in the entrance doline. On this visit there was also a mouse and rat plague, and these rodents were also removing vegetation and creating some erosion issues. The cave is gated and like any good cave gate is difficult to unlock requiring contortion of arms and wrists to access the padlock.

Graham Pilkington in a passage in Corra Lynn Cave

The first afternoon we inspected the "old" part of the cave. This section has been known for well over 100 years and is the main part of the cave used for recreation. After negotiating the Wombat Run I was not looking forward to the Bandicoot Bypass, knowing this is a much smaller marsupial. So it was with the cave passage too which is certainly not for the faint hearted - a truly awful tunnel!

The following day was to be the big day, my first trip to "Dreamland". After the previous afternoon's caving and having been told that accessing Dreamland is difficult, I was starting to wonder what I had let myself in for. To access this one must first negotiate the "Letterbox" (one of the smallest cave letterboxes I have encountered) and then through "Alberta". This is the bottom level (if you discount where Graham is currently digging) and is a long, at times very narrow passage. Some of this is a most interesting morphology, with the passage almost perfectly round which makes it difficult and uncomfortable to wriggle along. One section is labelled "The ##!*" on the map! The passage finally opens once you reach the "Portal", the access point to Dreamland which requires a short 7 metre climb up and through a squeeze. Graham and others have been excavating at the Portal for some time cleaning out a downward passage, convinced more cave lies deeper. I admire the tenacity of those working on this dig, it's a reasonable crawl just to get to this point.

Paul climbed first and then I made it up. Unfortunately Graham hurt his arm as he started to climb and decided to stay behind. That left just Paul and me to find our way to Dreamland fossil sites. We located the first site fairly quickly but then missed a key intersection and spent some time back-tracking and trying to decipher the map. It is not a comfortable feeling knowing that one person who knows that section of the cave well enough to find you should we have an issue had a sore arm and could not climb up to mount a search! Onwards and further in we came to the "Graveyard", accessed through yet another small uncomfortable squeeze. I made it through and was busy taking photos and making notes on the fossils when I noticed after a while still no Paul. Sometime later he eventually appeared, near naked as he had to remove his overalls to get into the fossil site!

The fossil accumulations are really interesting, mostly in a breccia on the walls and ceiling. Small macropods (kangaroos), snakes (similar in appearance to *Wonambi* from Naracoorte), bettongs and koala bones and teeth

Top: Paul Harper in the Graveyard
Below: Small kangaroo dentary

Access to the Graveyard is via this tight squeeze

were all visible. Cavers collected material for the South Australian Museum some of which was described by Neville Pledge. I am unaware of any palaeontologists visiting this site, which is a real pity, it's a great fossil site. Gavin Prideaux, palaeontologist from Flinders University, is a competent caver and has worked in a number of sites not easy to access, including Tight Entrance Cave in Western Australia. By some strong coincidence, Gavin's wife Rachel and her family owned the Corra Lynn property for many years but had sold it prior to Gavin and Rachel meeting. I provided Gavin with a copy of the photos and maybe he will be inspired to undertake some research here. A number of other species remain undescribed from this site. The fossils are thought to be Miocene to Pliocene in age, a period generally poorly represented in the fossil record. After photographing as much as I could, we set off for another fossil site at the other end of this level.

Gypsum crystals

The holotype of a new species of koala from Corra Lynn

A new species of sthenurine kangaroo named after Cave Exploration Group of South Australia (CEGSA). Members collected material for the SA Museum.

This next fossil site was as equally impressive; one of the first fossils I noted was a *Palorchestes* incisor lying on the surface, particularly rare animal in the deposits at Naracoorte. I would guess this site was more Pleistocene in age, more of the species were recognisable to what I am acquainted with from Naracoorte. Once I had completed my documentation of the site, Paul and made our way back to the Portal to meet up with Graham, who had spent the six hours usefully cleaning up around his dig site. Just another one and half hours and we were out.

The following day, feeling less than enthusiastic about caving, we ventured in again for a few hours to look at another section of the cave. We once again inspected some of the more often visited sections, a site where excavations were undertaken and are probably Holocene in age.

Corra Lynn Cave has a fossil record that starts in the late Miocene and reaches right through to the Holocene. The record is probably not continuous and there has been considerable reworking of material as it is transported deeper into the cave. The fossil sites are extremely well protected by virtue of their location, it took us nearly 4 hours just to reach Dreamland making day trips for excavation virtually impossible. Transporting delicate fossil material out of the cave would also be a major challenge. Cavers have collected a reasonable amount of surface material which is now lodged at the South Australian Museum. The vast majority though is still *in situ.* On the map and within the cave it is easy to identify passages that appear to be filled with bone bearing sediments. It is clear there is a huge resource for someone to work on, if they have tenacity to tackle the challenge.

The cave has areas routinely used for recreational purposes, mostly instruction of school groups in proper caving etiquette. At present, school groups are limited to 2 per year (~60 students) but have been as high as 6 schools per year. The section of the cave used for recreation is robust and has been used for many years for this purpose. It has played an important role in creating awareness in caves and their values. The sections of the cave used for recreation do not include many fossil bearing sediments and those present are away from pathways used by school groups. The cave has limited calcite speleothems but some nice areas of gypsum needles and even some larger stalagmites.

Corra Lynn Cave is one of those caves that does not give up its secrets easily. It is an excellent cave for teaching due to its robustness, you learn to avoid the walls because the rock is so hard. It has huge scientific value with the fossils, but they may be just too difficult to access. One option that has been discussed is putting a tunnel into Dreamland from the surface. Remarkably, it would be less than 20 metres, but would be a real shame to make it that easy. I hope the fossils make everyone work as hard as I did to get a look.

The complex Corra Lynn Cave. Map courtesy of CEGSA.