

The Nullarbor

2005 Nullarbor and Roe Plains Expedition Trip Report By Paul Hosie, WASG & ASF-CDG.

This was the longest and most ambitious Nullarbor expedition undertaken for a number of years. 23 individuals from a number of caving clubs converged on the Plains during the month of January 2005 to achieve objectives of caving, cave diving, underwater videoing, aerial survey, exploration, mapping, fauna and mineral collection. In terms of exploration, 1.1km of virgin passages were explored and mapped by ASF cave divers with major leads discovered in two caves which will be pursued further during 2005.

ASF cave divers from WA, VIC and SA converged at Olwolgin Cave on the Roe Plains on 27 December 2004. The objective was to video the main underwater passages before further exploratory diving was done. Like the other diveable caves on the Roe Plains (Burnabbie, Nurina and Slot Caves), Olwolgin is an incredibly silty cave in which some areas can take many days for the water to become clear again (ie Alien World). It was hoped to video the bacterial 'jellyfish' sighted on two previous occasions in

a distant part of the cave near Babylon Lake, but this enigmatic bacterial colony organism was not to be seen on this trip.

With the videoing of Olwolgin complete, the next objective was to complete the exploration and mapping of Nurina Cave over the following five days. Ken Smith, Peter Rogers (and family), David and Petra Funda (all CEGSA) did some excellent work in this period which resulted in a previously undiscovered section of the cave being explored and over 400m of new underwater passages mapped. Several unexplored leads remain in this complicated network of shallow, interconnecting fissures and bedding plane passages. Ken Smith's excellent radiolocation 'Pingers' were utilised to establish surface GPS positions for a number of the key underwater survey stations. The result of this was the identification of a possible underwater connection between two adjacent passages which was later physically made by David Funda. Most of the underwater passages were also video'd and some pleasing footage was obtained.

Whilst the divers were working away underwater, the group was joined by Peter Ripley and his young charges:

Olwolgin passage. Image supplied by Peter Rogers.





Orange Raft Room. Image supplied by Paul Hosie.

Stuart, David and Richard (all WASG). Some effort was made in Nurina Cave to hone surveying skills in anticipation of work that was to follow in the far reaches of Mullamullang Cave. This period also saw the arrival of Sam Rolands and Alan Sharpe (WASG) from Esperance in Sam's Cessna 172 at the Madura Pass airstrip. Two extensive and fantastic flights were made to try and find new caves on the Roe Plains to explore. Although this objective wasn't entirely successful (one new feature was seen but couldn't be relocated on the ground!), the flights were awe inspiring because it was only from the air that a real appreciation was gained of the immensity of the Roe Plains and the Nullarbor. There is no doubt that many caves await discovery under the dense vegetation of the Roe Plains and the Hampton Tableland – the next generation, or maybe this one if enough speleos are willing to join the search ???!

As soon as the flying was complete, another team of

WA cavers together with a land manager representative joined the group from Perth and Kalgoorlie. WASG trip leaders Ann-Marie Meredith and Paul Hosie took all the new members and some of the land owner's station hands for a tour of some of the most impressive West Nullarbor caves including Cocklebidy, Capstan, Tommy Grahams, Murra El-Elevyn, Mullamullang, Spider Sinkhole and the Kestrel Caverns. The entire group was duly impressed and satisfied with the little taste of Nullarbor caves they had been given. During this time, the cave divers back on the Roe Plains shifted camp from Nurina to Olwolgin Cave and continued mapping efforts there, together with fauna collection and tidying up the underwater track marking. Andy Nelson (NHVSS) arrived from Canberra and also recommenced Nullarbor diving after a three year 'work vacation'!

Introducing the land manager's representative to the important Roe Plains fauna site at Burnabbie Cave facilitated further cave diving efforts in the area where a number of leads were pushed. Peter Rogers unleashed his extensive array of underwater camera equipment with the aim of obtaining some quality images. There is no doubt that Peter's beautiful results are proof

enough that this was a highly successful and worthwhile exercise. Video footage was also taken and the line re-routed past a difficult restriction to take advantage of a short cut connection discovered during dives made by Ken Smith and Alan Polini (WASG) during 2004.

Slot Cave was also dived by David and Petra and they discovered a small extension and air chamber. They emerged from their dive one at a time due to the body sized entry/exit hole. Both were convinced that there is more passage to be discovered in this short, pretty, yet intriguing diveable cave.

It was at about this time that both diving air compressors in the group's possession decided to throw in the towel, which resulted in limited diving on the Roe Plains until the NHVSS cavers from Sydney joined the group at Madura Pass on Tuesday 11 January. Mervyn Maher and family, Paul Boler and Bruce Callahan (all NHVSS)



Grotto Lake terminal chamber - Mullamulang. Image supplied by Paul Hosie.

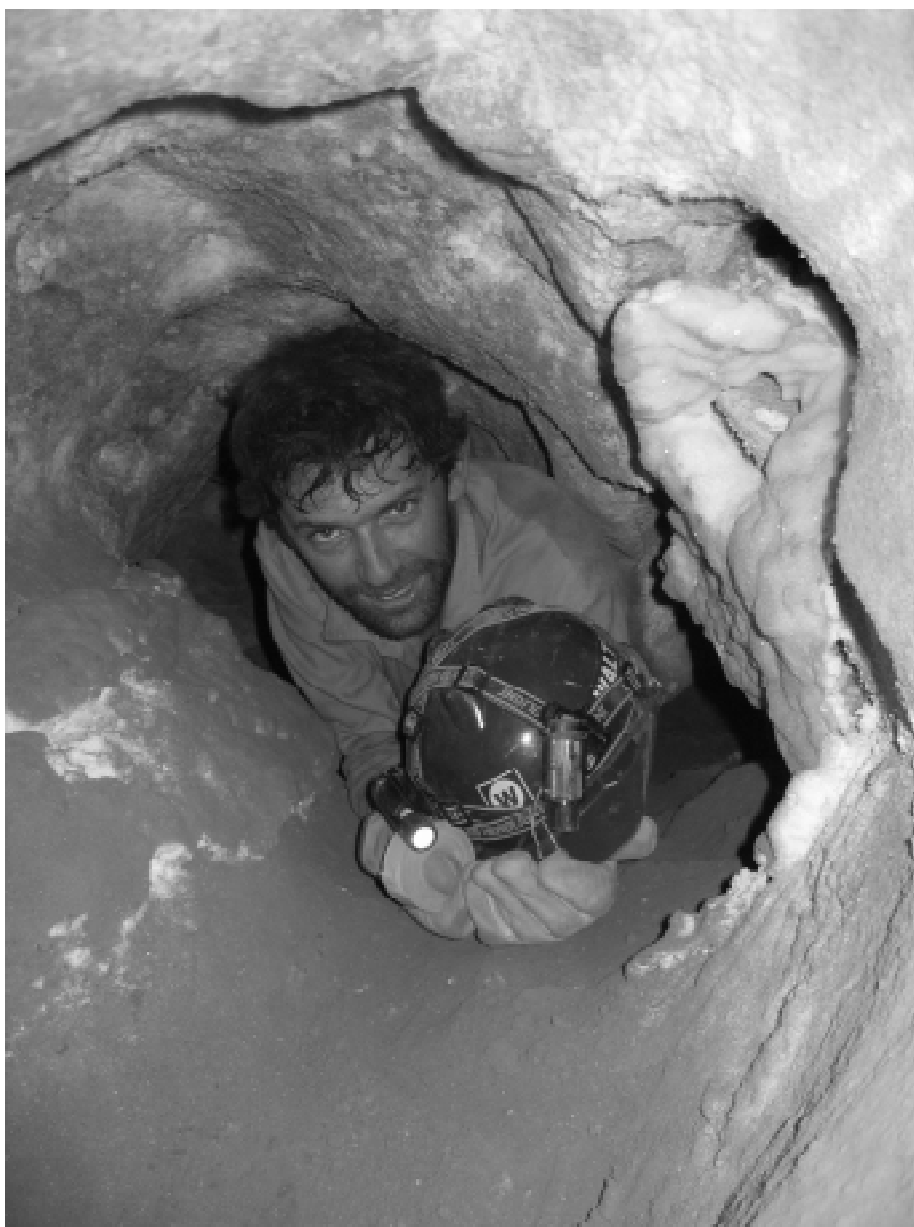
came to the rescue with air to top up some small cylinders that were to be taken to the end of Mullamulang Cave for exploration of the lakes there. This phase of the trip had been planned in detail after the last trip to the end of Mullamulang by some of the group's members in 1998. The aim was to dive and survey all the lakes at the end of the cave, between five and six kilometres from the cave's massive entrance. Finally, a team of fit, enthusiastic individuals were prepared to take camping and diving gear to the end of Mullamulang to properly survey the cave diving prospects there. This was to be a highly memorable journey, physically and mentally very demanding, but the results were well worth it:

- 400m of new underwater cave passage explored and surveyed in lakes near The Dome;
- photos and video taken of underwater passages coated with spectacular crystal deposits;
- subaqueous heligmites documented, photographed and mineral samples collected;
- large (10cm long) dead centipede collected from Grotto Lake (near The Dome);
- commencement of the Ezam survey.

One of the group's main objectives was to find out, once and for all, whether the Grotto

Lake (on north wall before the Dome) provided an underwater bypass to the Dome and the possibility of continuation in this amazing cave. Grotto Lake is a

Peter Ripley in Ezam crawlway - Mullamulang. Image supplied by Paul Hosie.





Mullamullang crew. Image supplied by Paul Hosie.

beautiful and tranquil place located under the edge of the main passage. A short but careful climb down from the main passage into the lake chamber reveals the hidden beauty below. White salt decoration adorns the walls and a large roof slab hangs suspended over the middle of the lake. The crystallised walls and roof of the wide lake chamber are perfectly reflected in the still cave water. Paul H dived beyond the end of the lake through 60m of shallow submerged passage. Many yellow and white heligmites were seen along the way and in the deepest part (-7m), the walls are jewel encrusted with yellow and white dogtooth spar crystal. At the end of the dive, the passage rises up to a small lake and terminal air chamber. Above is a jumble of boulders which were climbed as far as possible but proved to be an impenetrable rock collapse which still falls well short of the Dome, alas! Many who have visited Mullamullang Cave's nether regions dream of discovering a continuation of the cave beyond the Dome but it will have to be sought elsewhere.

The other canal passages in this part of the cave were dived by Ken, David and Petra. These secret passages lie hidden directly beneath the main tunnel that everyone walks through and would normally be completely unnoticed. They are all stunningly beautiful with crystal clear water and multi-level phreatic passageways. Some leads remain to be extended and surveyed on the next trip. As the maximum diving depth was only 7m, it will be appropriate in future to take small oxygen rebreathers to extend dive time and reduce the volume of gas needed to be carried. Although some video footage was taken by the group, the results were disappointing. Returning

to take properly illuminated, quality underwater video in these spectacular passages will be a highly worthwhile goal as they are completely encrusted in a thick coat of yellow and white 'dogtooth spar' type crystal. The diving done in Mullamullang Cave during this part of the trip is without doubt, in the opinion of the author, the most spectacular and beautiful in Australia so far discovered.

During the dives, a large (3" - 7.6cm long) dark centipede body was seen and carefully collected from Grotto Lake for identification by the WA Museum. Early review of the Dome Centipede by subterranean fauna expert Dr Bill Humphreys indicates that it is a terrestrial, not troglobitic species. This suggests that at some point in recent geological history, the Dome has been open to the surface, thereby allowing terrestrial species to enter this remote part of the cave (5.5km from cave entrance). An unfortunate lack of survey data for the incredibly complex Ezam passages near the Dome gave the non-divers of the group a good objective of starting it again. Ezam is a multi-level maze system of tubes, flatteners and crawlways that lie in a stratum directly above the main passage leading to the Dome. A new survey of Ezam was commenced, with the group spending much time ogling the astounding gypsum and halite decoration there. Due to the complexity of the Ezam area, only a couple of hundred metres of passages were surveyed. If a connection beyond the Dome is to be made, it is likely to be via one of the many leads in the Ezam – excellent incentive to spend more time surveying the passages in detail!

While the Dome Team were exploring the far reaches of

Mullamullang Cave, the rest of the group conducted day trips into the near reaches of this, the most massive and impressive Australian cave. The additional discoveries from this trip (including more crystal coated phreatic passageways) brings the total to more than 1.3km of underwater passages in Mullamullang which account for approximately 10% of the currently known passage length. The trip out of the cave after four days and three nights of intense activity and a bizarre diet of dehydrated foods was a grueling, hard slog with heavy packs of dive gear, drinking water and solid body wastes. Saving the worst until last, the final climb out of the cave to the surface delivered one final stroke to the already exhausted cavers who readily downed cold drink and collapsed into the waiting camp.

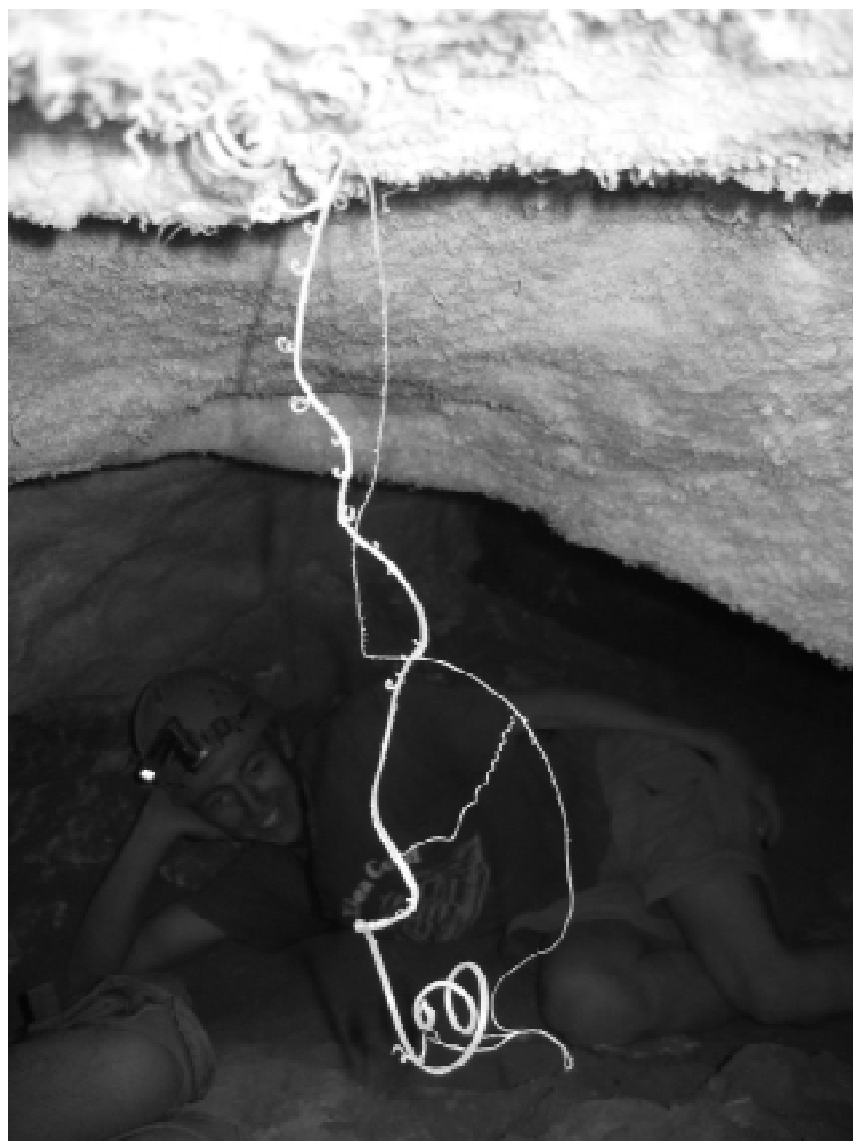
After packing up camp the following day, Ken and Peter Ripley headed for home. The Dome Team relocated to Eucla and settled in for a much needed

rest. The Sydneysiders took this opportunity to dive Olwogin Cave. A few days later on Sunday 16 January, the entire group gathered at Weebubie Cave and set up some impressive abseils for some of the younger members of the group. Following a marathon tank filling session with the only working dive compressor on the Nullarbor (Paul Boler's !!), the diving team set off to Koonalda Cave to continue the mapping efforts made by cavers and divers during the SUSS 'Escape the Olympics' expedition in 2000. To enable the team to dive in Koonalda Cave, the SA Dept of Environment and Heritage staff assisted the group greatly by processing the permit application and organized delivery of the cave gate key to Eucla. The Ceduna DEH staff would have joined the group at Koonalda Cave, but they were all fully engaged with the horrific bushfires on the Eyre Peninsula which hit the national news in January. There were two objectives for the visit to Koonalda Cave:

1. map the underwater sections accurately and in greater detail;
2. map and explore the terminal sump of the cave for possible continuation of the cave.

With some of the team's previous experience in Koonalda Cave, the group came well prepared with an inflatable raft for ferrying dive gear along the vast lakes in the easiest possible way. While David and Petra surveyed the beautiful Look Down Lake, Paul Boler, Andy and Paul H headed off to the end of the cave to pursue an objective they had waited years to return to. The water was very cool in the lakes (approx 14°C) and the bubbling, sulfurous mud of Shit Lake was just as inviting as it never had been !!! Once the gear was ferried down the lake and carried up and over the massive rockpile, the enormous tunnel lake and the terminal sump beyond was dived. The divers traversed the short sump to -22m and surfaced in the crescent shaped terminal lake. Above the lake are two small avens and one main rockface climb which ascends vertically into the darkness high above. Whilst Andy and Paul B began climbing, Paul H surveyed the underwater chamber beyond the crescent lake. It soon became apparent to the climbers that the

Ezam halite. Image supplied by Paul Hosie.



pitch height of 15m had been severely underestimated. The climbers took turns to ascend the crumbly, soft rock and succeeded in attaining a height of 10m above the waterline but with at least another 15m to the top and a dome roof visible another 10m above that. Nine hours after entering the cave, the diving team exited tired and cold yet greatly excited about the future prospects of a properly equipped return trip.

We parted company with Andy Nelson at the Koonalda Homestead and he drove to his new home in Canberra while the remaining group reunited one last time at Weebubbie Cave for a final tank filling session and farewells. Paul H, David and Petra Funda drove back to the Roe Plains for their last cave dives of the trip. Cylinders and equipment were carried to Burnabbie Cave where it was hoped to discover a continuation of the cave's end. The 2004 'end' was extended from a 670m diving penetration to 760m by the author after a zig-zag restriction was passed, enabling access to a further 90m length of tunnel. To dive to the end requires the diver to pass more than eight restrictions requiring single file diving with sidemounted dive gear and staged cylinders - quite a challenging cave dive by anyone's standards!

Rafting in Koonalda Cave. Image supplied by Paul Hosie.

David and Petra dived first and checked all potential side leads at the end of the cave. David made the critical breakthrough and discovered a small low flat connection into a new section of passage, adding 120m to the end. After a thorough briefing by the Crazy Czechs, the author headed into the cave with the remaining cylinders of gas to survey David's lead. What a wonderful experience to dive in virtually virgin passage and have the opportunity to explore new leads! After surveying the line, there was enough gas left before thirds turnaround to allow Paul H to squeeze through a silty low flat restriction directly above a point where David had laid line down into a floor hole.

The silty low flattener was only 10m long before it opened into a large spacious chamber which had a number of leads running from it. The line was tied off and surveyed back out for the long, 60 minute swim back to the cave's entrance. It was later found that the end of cave had again been extended, now up to 940m penetration and continues to NE in the same general trend as the rest of the main passages in this extensive cave. The additional 200m of passage explored and surveyed in Burnabbie Cave on this trip brings the total passage length to 2.2km surveyed and 2.5km known passage length with many leads



yet to be pushed. The celebrations back at camp that night summed up the emotions from the entire trip as preparations were made to leave the Nullarbor!

All in all, this expedition was successful in that no one was injured, the activities of all were co-ordinated and everyone participated in achieving the objectives

for the trip. New discoveries were made and strong bonds forged and hopefully, a new bout of exploration will begin. Much work remains to be done exploring the Hampton Tableland and Roe Plains where the potential for discovering extensive cave systems is high. Only one question really remains: When's the next trip ?!!



Madura Cave. Image supplied by Paul Hosie.