

Cave Diving Exploration of Australia's Top End

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(Accompanied by 2002 KNI 19 Cave Diving Video by Paul Boler)

INTRODUCTION

It is only within the past twenty years that the karst of Australia's Top End has been looked at by speleologists with more than a cursory glance. It is only within the past five years that cave divers have ventured into these areas as well. Early indications are that although it is a far more challenging environment compared to down south, the cave and cave diving exploration potential far exceeds that of the South.

CAVE KNI 19 – NINGBING RANGES, THE KIMBERLEY

KNI19 is currently the most awesome cave dive in the Kimberley with 750m of diveable passage that gives no indication of ending. This is also one of the most spectacular cave dives in Australia as it has a 5m high, active crystal waterfall 160m into the dive. KNI 19 has proven to be one of the most challenging cave dives because above the crystal waterfall, 600m+ of passage so far dived has an average depth of 25m and maximum so far of 30m. Refer to Figure 1.

KNI 19 was discovered by following a heavily calcified outflow creek to its source. The cave was first dived in the late 90s by Stefan Eberhard and line was left through to the stunning Crystal Waterfall. As no map of the underwater passages was available, this was the objective for our visit in 2002, as well as to explore the furthest extent of the cave. Cave divers Dr Jeff Swann & the author, both of the Western Australian Speleological Group (WASG), conducted the second ever dives into the cave over the weekend 19-21 July 2002. It would not have been possible without the assistance of local dry cavers, all of whom are also members of the WASG. Thanks go to John Cugley, Dave Woods, Paul Cornish, Leonie Turra and Clive Rippon for doing most of the dive gear lugging! Getting gear to the water is an awkward task due to the 100m+ of small, low-roofed, entrance tunnel. Banded Catsnakes and water monitors are regular inhabitants and they must be watched for.

Our first dive was with side mount 7 litre cylinders. From the entrance lake at the 'Tonsils' a small tunnel-like chamber sumps for 5m through to the first dome chamber and lake room. This can be duck-dived but the 130m of passage beyond it cannot. This dive passage has beautifully sculpted rock tunnels that connect several lake chambers together. The average depth is 10m and at 150m from the Tonsils, a low flat restriction is encountered that rises up into the fissure shaped Crystal Waterfall Room. Our first sight of this magnificent structure on breaking the water's surface, was truly breathtaking. The Crystal Waterfall is 7m wide and 5m high with sheets of water running down its surface in pulses.

Climbing above the waterfall, we found a 5m wide, 1.5m high canal passage and a suspended watertable held back by a number of gour pools. 20m from the waterfall, the gour pools end and the canal can be swum for 60m before it sumps again. Jeff & I decided to haul one set of gear up so that I could see whether it was worth returning with larger tanks. The passage continued shallow and straight to the NW, following a fault evident in the ceiling. After 50m the small tunnel I was in opened into a large water filled room – a room that had no floor !! The First Escalator Room dropped down to -17m and levelled for a short distance before opening into another large room – again with no floor! The Second Escalator Room took me down to -30m and at this point, with only relatively small tanks I was thinking; "I sure hope this doesn't keep on going down like Slug Lake at Jenolan (ie 90m+). If it does, it's going to be a pretty difficult dive!". Fortunately, the passage rose back up to -25m and pretty much stayed there as a 3m² sculpted rock tunnel.

General Presentations

I was now 200m into the dive and approaching thirds (air turnaround point) when the passage did an abrupt right hand turn to the NE. The passage is shaped like a large keyhole, the rock smooth and bare. There is nothing to tie off to and I was getting a bit edgy – I needed to tie off my line, cut my reel free and get out of there. Pushing beyond thirds in this environment is tantamount to putting your life on the toss of a coin – because a failure of one of my air supplies means I won't have enough gas in the other to get out. 50m from the RH bend, the passage started rising up a steep sandy slope into a tall room and there, fortuitously, was a projecting rock that I tied off to. Jeff was waiting for me back at the canal and we celebrated the fact that this cave was still going in a big way. It was to be two months before we returned to get an idea of just how big.

KNI 19 – MOST RECENT PUSH

Paul Boler (NHVSS) and the author returned in September 2002 to push the cave limit and take underwater video of the passages and chambers. A sizeable population of leafnose bats had inhabited the cave since our July visit and disturbing them was kept to a minimum by doing all our gear lugging and diving at night, after the bats had left the cave to feed. Our push dive in September was conducted between 9pm and 2am plus an hour before and after to get gear in & out.

The dive above and beyond the Crystal Waterfall (which had by then stopped flowing) commenced with a pair of 100 cuft tanks each, filled with NITROX 36. The passage remained as a large conduit at a fairly constant depth of between -20 & -30m. The conduit is generally 4m wide and 2-3m high, though in some places it was a small vertical keyhole and in other places it is wide, oval shaped with finely scalloped walls. The floor generally has silt and sand piles but in narrower and smaller sections, the rock is bare, flushed clear by the massive wet season water flows. Large rooms occur regularly throughout the dive. Swimming through a low wide tunnel for 100m, the passage suddenly opens into a wide, tall room up to 30m long, 15m high and 10m wide.

The end was extended by 315m, bringing to total 600m of passage above the waterfall and 750m from dive start at the Tonsils. The overall trend of the cave takes the passage to the North to its water source(s). The passage showed no sign of ending, branching or diminishing in size. The depth of the conduit together with the surface topography, indicates the potential for several kilometres of diveable passage. This exciting and challenging cave will be dived again in 2003 with CCRs which will allow for a penetration of 4km or more. It is hoped of course, that no end will be found to this magnificent cave !!

FUTURE CAVE DIVING IN THE TOP END

The limited amount of effort made to date, the remoteness of the areas involved, dry season only, difficult access, cave resident snakes, high CO₂ and the largely unexplored nature of the karst offers the single greatest frontier for cave and cave diving exploration in this country. As an example, many caves were discovered in the vicinity of KNI 19 during 2002, several of them leading to sumps. KNI 64 has 85m of diveable passages and the potential to continue further into a perched watertable is similar to that of KNI 19. Refer to Figure 2.

Recent efforts in the Napier, Ningbing Ranges, the Tindall Springs and Camooweal clearly demonstrate the presence of extensive cave diving systems across the Top End. It is hoped that in the next few years there will be more concerted efforts to explore these remote karsts and reveal still more of this magnificent frontier.

Once again, my sincere thanks to Paul Boler for the use of his excellent video footage from his 1999 Camooweal trip with Rod Obrien and our 2002 Nullarbor trip with David Apperley. More information (maps, photos, data) is available on our website at www.trimixdivers.com which has become a substantial database of Australasia's cave and wreck diving sites.

WASG/NHVSS

KNI 19, Kunnunurra, WA

July-Sept 2002

In-situ Sketch by Paul Hosie - Ball Compass and Knotted Line

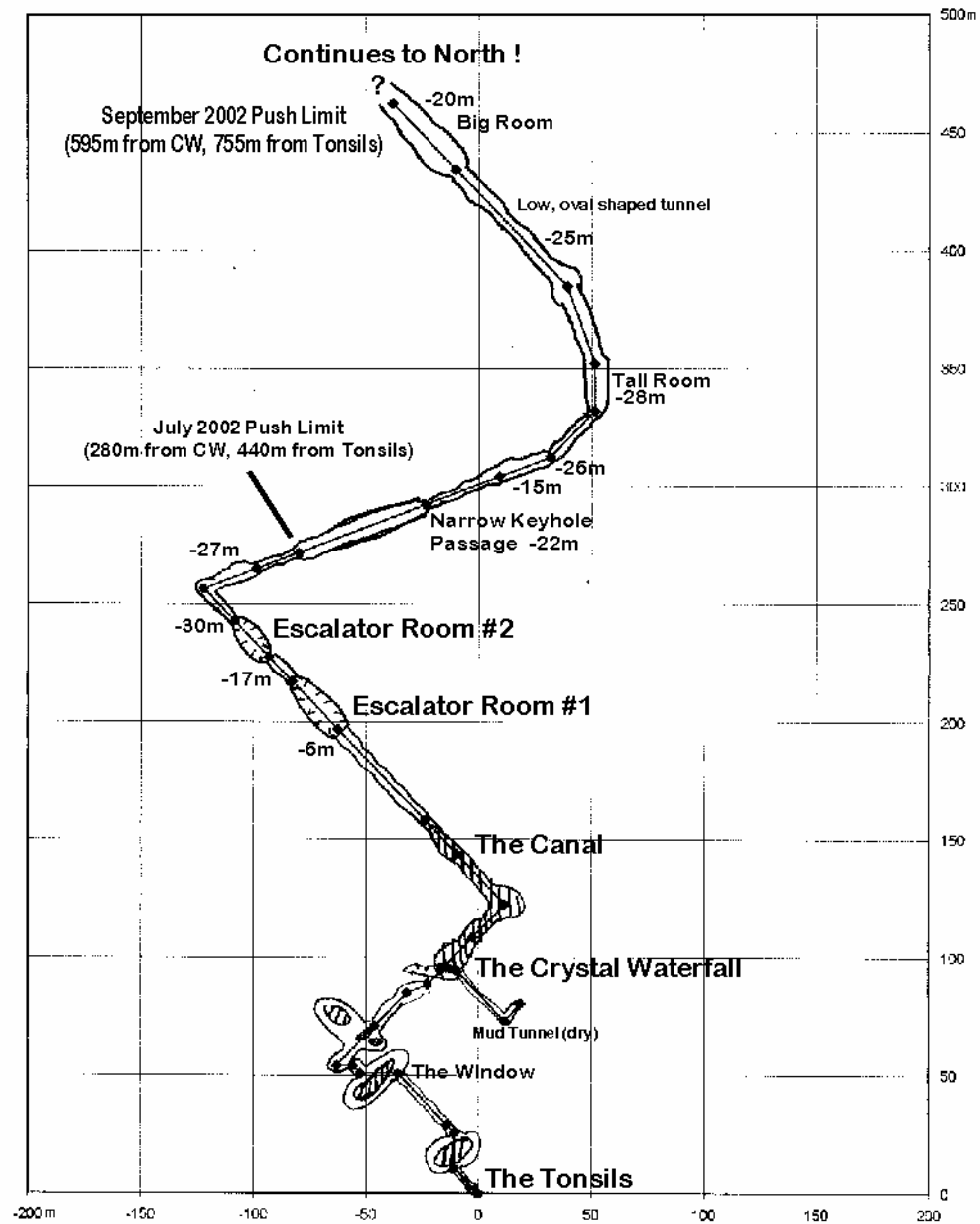


Figure 1 - KNI 19 Map

NHVSS / WASG

KNI 64, Kununurra WA

Sept 2002

Surveyed and Drawn by Paul Hosie

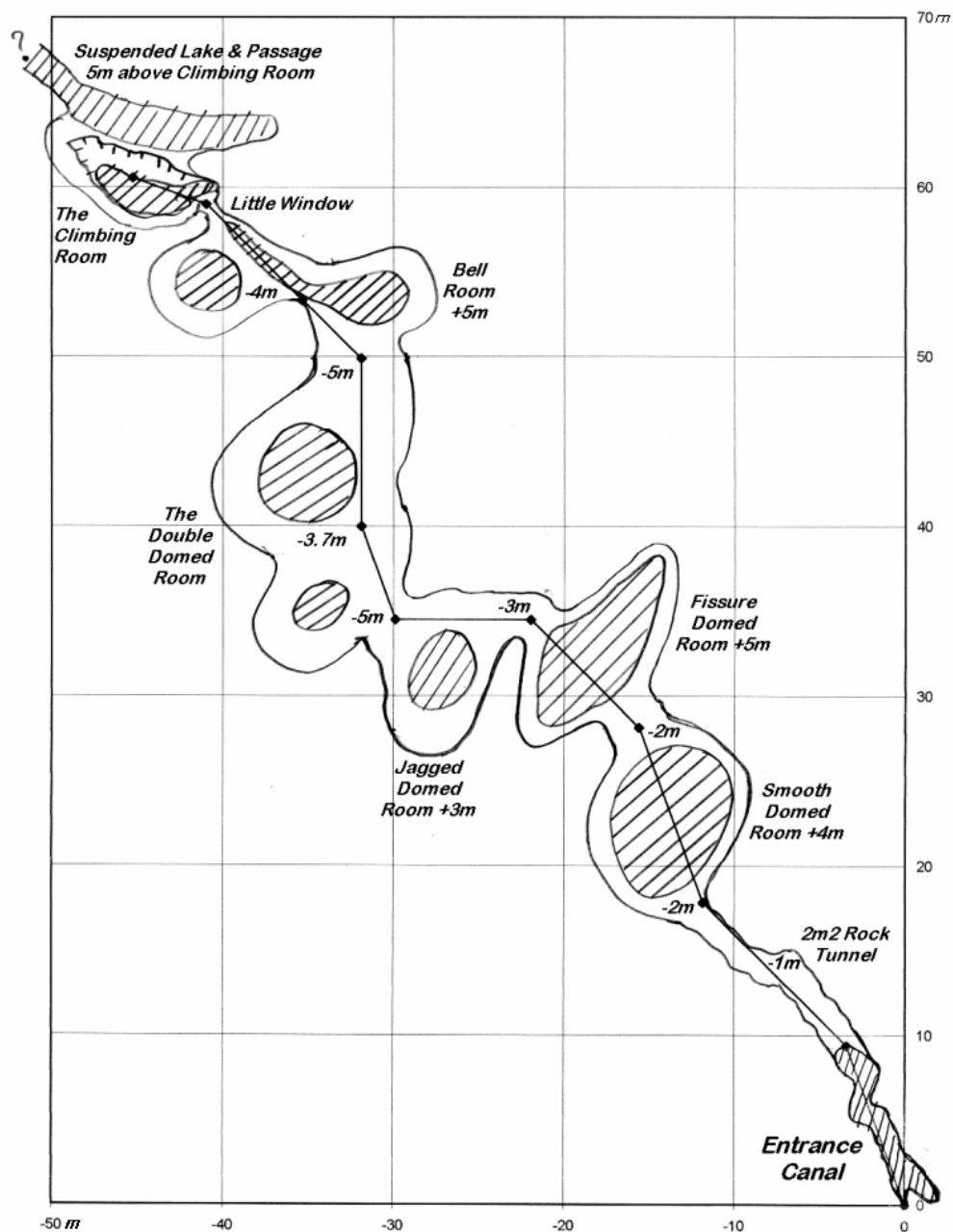


Figure 2 - KNI 64 Map