Richard Harris

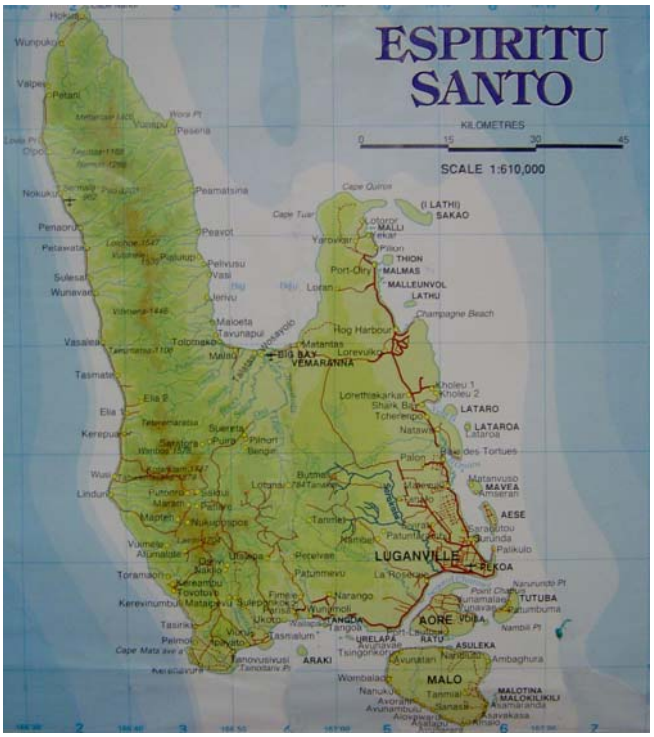
Caving and Cave Diving in Vanuatu
(2 years in paradise)

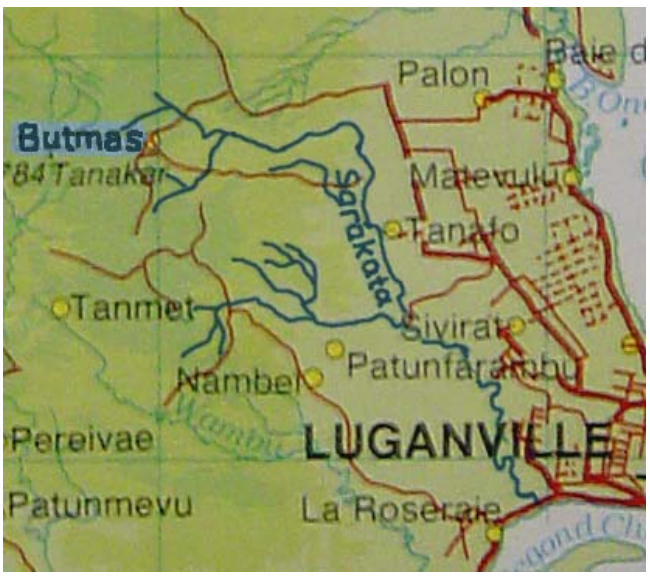
All photographs are supplied by the author.

I arrived in Vanuatu to live for 2 years in January 2004, but it has taken me this long to get my act together and put pen to paper to summarise my caving activities here. I came here as a doctor to work with AusAid at the Vila Central Hospital, but I was also drawn by tales of amazing cave diving, sea diving and fishing. In all respects I have not been disappointed! I seem to be finding or hearing about new caves almost weekly, so at some point I felt I must send this report in, although it will never really be complete! Future cave reports/updates will be archived with the ASF and CEGSA for anyone planning a trip here. Also check my website on www.divedoc.net

Geography and geology

Vanuatu (formerly the New Hebrides prior to independence in 1980), consists of a Y shaped archipelago of some 83 islands extending 1176km north south, supporting a population of over 200 000. It lies on the edge of the Pacific tectonic plate. The first islands of Vanuatu were pushed up from the ocean floor 22 million years ago (Espiritu Santo, Malekula and the Torres group), and the most recent less than 5 million years ago. The islands continue to increase in size due to slow ongoing uplift together with the formation of fringing coral reefs. Hence most of the islands are volcanic in origin but many are coral atolls and hence limestone in nature. In general, the limestone forms a series of terraces, each marking successive stillstands of sea level; caves often occur at the interface between terraces. The largest limestone area is on Espiritu Santo where the eastern half of the island consists of an uplifted block 60km long by 25km wide. Apologies for my otherwise appalling lack of geological knowledge!





I was aware of 2 main islands containing caves before I arrived. On the island of Efate (home to the capital Pt Vila) there are well-documented caves in the tourist guidebooks. To the north, the island of Espiritu Santo (home to the well known shipwreck the SS Coolidge) has been visited by cave divers from the CDAA starting in 1996 after the discovery of water filled caves in the south central part of the island.

Since coming here, it is clear from discussions with many local NiVanuatu people that caves abound on virtually all the islands and so the possibilities for exploration seem endless. However it requires significant time here to learn about and then find the sites, let alone organize an expedition to explore or dive them. For example I heard from several local sources about

a cave in the hills near Pt Vila where boys would carve their initials on bamboo sticks, throw the sticks into a deep cave and then run about 1 mile to the coast and find their sticks washing around in the surf! Such stories can make a cave diver's heart miss a beat and so I searched the area extensively for the alleged cave without success (I found a number of dry caves along the way). However I strongly suspect the cave may have existed but has perhaps been lost during a large earthquake several years before.

The object of this "trip report" is twofold. Firstly to propose a numbering system for the caves of Vanuatu that future cavers might add to, and secondly to document the tiny proportion of Vanuatu's caves that I visited. Where possible I have made a rough survey of the features, taken photos and recorded a GPS reference point. The GPS points for the caves whilst not published here will be archived with the Cave Exploration Group of South Australia (CEGSA) and with the ASF.

Cave Numbering System, Vanuatu

I could find no record of a cave numbering system here in Vanuatu, or with the Australian Speleological Federation (ASF) or Union Internationale de Spéléologie (UIS). Hence I have used the following for my own records, and put it forward for use by those that will follow. This has been ratified by the UIS and the ASF. The system is based on that in use and recommended by the ASF.

1. Country Code VU

2. Province Code

Sanma	2
Penama	3
Malampa	4
Shefa	5
Tafea	6
Torba	7

3. Island Code

Torres Is	TS
Banks Is	BK
Espiritu Santo	ES
Ambae	AM
Maewo	MA
Pentecost	PC
Malakula	MK
Ambrym	AB
Epi	EP
Shepherd Is	SH
Efate	EF
Erromango	EM
Tanna	TA
Futuna	FU
Anatom	AT

4. Cave number 4 digit identifier

E.g. Clearwater Cave, Efate Island VU-5EF0002

Should a cave lie on an island not listed, it will be referred to the nearest named island. Similarly for sea caves. In all other respects the numbering code should try and conform to the system outlined by the ASF in its document entitled "ASF Cave and Karst Numbering Code".

Cave Features in Vanuatu.

Collapse dolines and cenotes, phreatic passage, lava tubes and sea caves all exist on these islands. Speleothems and cave decorations appear to be uncommon but a healthy bat and other fauna population exists in many of the sites. Tall coralline limestone escarpments veer across the landscape in many areas and dry caves can often be found at their bases. However most of these features have been quite small to date. In other areas, river resurgences like that of the Sarakata River on Espiritu Santo, may give rise to extremely long phreatic passage. Coastal blue holes in many of the islands hold the promise of significant caves also.

The Caves of Efate Island.

VU-5EF0001 Rubbish Dump Cave

Location Eastern Efate, Le Cresionairre Property near Eton.
This property extends from the coastal road up into the hinterland hills. Lush pasture supports beef cattle and racehorse bloodstock. A steep sided gorge contains a small river, which is rumoured to end in a resurgence up stream.

To the west of the river lies a paddock containing a number of limestone features. My first exploration took me directly to the most prominent one, which I have named Rubbish Dump Cave, signifying its use over many years by the farmers there. Around the immediate area hidden in the dense scrub, there is an impression of numerous other sinkholes that will warrant further inspection.

The sinkhole represents a classic collapse doline with a steep mud slope leading to the base. The main slope runs in an NE – SW direction. Smaller extensions run to the NE and SE. At the base of the cave a small tunnel descends to a cavern filled with guano and home to a large colony of ?Minopterus australis; small fine toothed bats covered in red ticks and spiders. These bats were also found in smaller numbers in other parts of the cave, some with babies on their chests. The small lake at the base of the bat cavern was explored with SCUBA but no extensions were found. It is only approximately 30cm deep in all areas.

Half way up the wall on the southern side is a window that leads in 2 directions along tall fissures. The origin of this formation is not clear to me ?? different period.

Only in two areas of the cave were speleothems found in the form of very small (<3cm) calcite straws and small stalactites. Active water flow was seen on these formations.

Common varieties of cockroaches and Huntsman spiders were present, and the guano was teeming with small invertebrates.

VU-5EF0002 Clearwater Cave

Location Bellevue near Pt Vila. The landowner prefers the cave location not be made public.

An exciting find for me after searching for a dive-able cave for the last year, this one at least has water deep enough to warrant lugging all my dive gear in to have a proper look!

The farmer stood guard on the surface whist I made my first reccy of this pretty cave.

The 20m long, 4m deep collapse doline contains a central sheer chimney requiring an 18m abseil to the floor. In one direction, a large walkable passage continues east for around 25m. The floor of the cave contains a tiny flowing stream that was enough to get me excited about the possibility of a dive at the end of the site. At the end of the main chamber is a 3m crawlway. Down on my belly in the refreshing clear water with plenty of air space, the crawl through is pretty easy and exits into a second chamber about 10m square. Some very old looking bones are cemented in the guano and limestone here, which I was careful not to disturb, although I suspect they will prove to be from an unlucky cow. This chamber is full of bats (?bentwings) and is particularly aromatic. Some freshwater prawns (Nowra) are to be seen in the stream. No speleothems were noted. Seashells are seen embedded in the walls.

Clearwater Cave Entrance.

At the back of the second chamber, lies a still pool about 4 by 5m. In the depths I can clearly see a black hole >1m circumference.... a dive at last!!! I could barely contain my excitement and did a little war dance with my batty companions.... I have looked at a lot of dry caves! A quick duck dive with a mask confirmed that the hole in the rock continued out of my small LED torch beam. Next weekend I will return with sidemount tanks and helpers.

8th Jan 2005. Saturday morning dawns windy and very wet due to cyclone Kerry just to the north. Maybe too wet to visit the cave again. My trusty sherpa Anthony picked me up early with pastries and coffee and we loaded up the gear and head off to meet the farmer at the entrance to the farm. An hour later we are all standing around in the rain after a slippery 4WD trip, rigging the cave to enter. Anthony down first, then I lower the dive gear. The farmer wants to come down for a look so a quick abseiling lesson and he is also down in the cave. I change into my wetsuit and join them on the rock pile under the chimney. We see some more cave fauna on this trip.... brown and green skinks, a nice fat eel in the water and the usual spiders, bats and other critters. Despite the heavy rain, I am reassured to see that the cave water level has not significantly risen. Certainly drier down here!A closer inspection of the edge of the collapse rock pile shows a crack between 2 rocks full of water. The water is crystal clear and goes at least 2m down. The area may warrant a bit of digging at a later date.We move the dive gear through the crawlway and into the 2nd chamber. I kit up at the water's edge, tie off and enter the water for my first Vanuatu cave dive! A long time coming and I am very excited.

Preparing for First Dive.

Sinking down to the floor of the cave lake at 3m, the tunnel entrance of two square metres leads off in an easterly direction. On the topographical map there is a river about 1km to the east, which is encouraging. The tunnel is not large, definitely a single file job, and every few metres a log or two blocks the way forward. It takes a while to gently move these aside without disturbing too much silt, and proceed. After 15mins I have only gone about 15m into the gradually narrowing passage and the visibility is deteriorating as the almost imperceptible current is coming from behind me. The passage starts to head up after a max depth of 6m. A rock slope climbs in front of me at about 30 degrees and the passage becomes a wide flattener only just high enough to squeeze through with 7l sidemounts. At this point with the visibility all but gone, I make a final tie off and turn around and survey my way out. I think a little gardening will allow a way forward. The next dive may well reveal another dry chamber I hope.

March 2nd 2005. A further recent dive ably assisted by visiting cave divers Gary Barclay and Simon Doughty confirmed just how tight the terminal passage becomes. Even with side mounted 7L tanks and a bit of rock shifting I only moved forward a further 2m and glimpsed ahead into tight passage disappearing up the rock pile slope. I might try one more time in a couple of weeks! In the meantime we dug some rocks out back in the first dry section and found some reasonable looking water below. I'll see how it looks when I go back and the silt has settled. 2 fat Pacific Boas kept us company on this occasion, obviously pretty content with their life amongst the bats!

VU-5EF0003 Elluk Cave

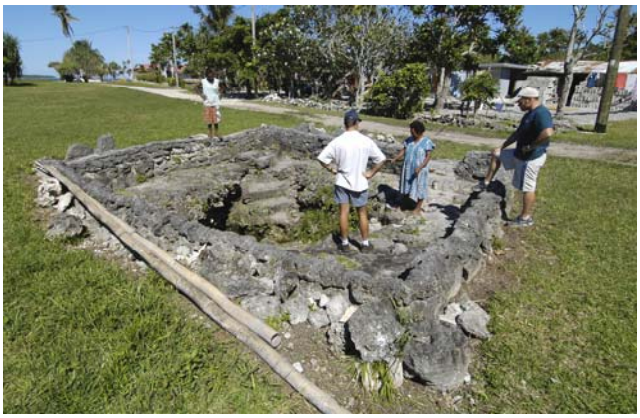
Location End of Elluk road, Pt Vila
A very small feature that may now have been destroyed by, or incorporated into a housing project in Pt Vila!

VU-5EF0004 Moth Cave

Location Pango escarpment near Pt Vila
One of the small caves I found in this escarpment. Full of beautifully coloured moths which gave it the name. Further along the same escarpment lies Chimney Cave.

VU-5EF0005 Pango Well

Location Pango Village sports ground.
The old drinking well in Pango village got my pulse racing when I first saw it! It looks like a small cenote close to the coast, full of drinkable water whose level changes with the tide. Reminded me a lot of pictures of village wells in Mexico! However the locals assure me that when they clean it out every year, it has solid walls and base, with no tunnels leading off. They have invited me back to verify this when they clean it out later in the year.



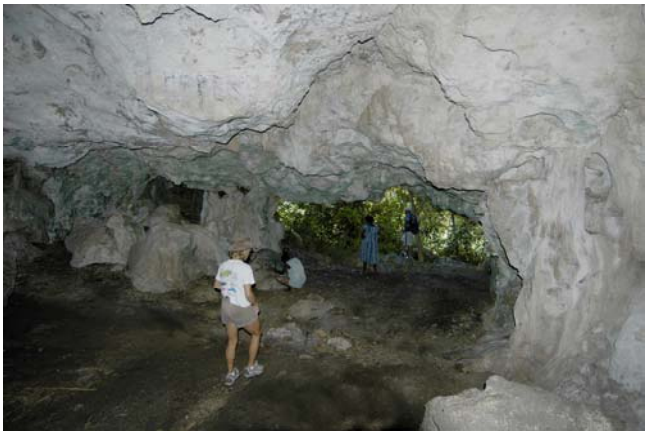
Pango Well.

VU-5EF0006 Siviri Tourist Cave (Falefa Cave)

Location Escarpment near Siviri village.
Siviri Cave lies next to the village of the same name, on the northwest corner of Efate. It starts at the base of the escarpment and after a short dry section, reaches a T-junction at a lake. To the left the lake (only a few metres deep) finishes after about 5 metres. To the right it continues about ?40m and then goes further as a low muddy dry cave for at least 50m more. I plan to formally survey this cave soon. I have snorkelled around the lake with a torch but found no obvious dive-able extensions. There is a reference to the cave in the NSS News, April 1990 page 95.

VU-5EF0007 Chimney Cave

Location Pango escarpment near Moth cave.
Chimney Cave lies on the Pango escarpment, close to Pt Vila. One main entrance and 2 chimney openings are found on the top of the escarpment, whilst a second large entrance is found at the base of the escarpment. The cave contains a number of speleothems including some nice draperies and flowstone. Appears to be regularly frequented by humans.



Chimney Cave

The Caves of Espiritu Santo

This island holds the greatest potential in my opinion for significant finds. The eastern half of the island is uplifted limestone. A drive along the eastern coast shows numerous crystal clear streams and small blue holes by the roadside. But at this time the best finds have been those associated with the tributaries of the Sarakata River, which empties into the Segond Channel just west of Luganville.

The Sarakata resurgence cave and the caves on Mt Hope Station nearby (2ES0010-2ES0032) were first brought to cavers' attention by Russell Donavan, the expatriate leaseholder of the Mt Hope cattle property. It was his original intention to develop one of the sites as a tourist site, offering the adventure of a "duck through" of the short sump in 2ES0015. With the help of local cave diver and dive operator Kevin Green, a group of CDAA cave divers came to explore the cave and discovered many more as part of the same system. These explorations occurred between 1996 and 2000.

Sarakata Resurgence.

VU-2ES0033 The Sarakata Resurgence

Location At the top of a tributary near the village of Butmas
The exact history of the exploration of this site has been difficult to pin down. It was first dived in early 1997 and then again later in that year. I think another expedition occurred in 1999 and possibly again in 2000. The groups contained different members but instrumental in the

exploration was Steve Sturgeon (WA) who coordinated much of the exploration. Unfortunately I have been unable to obtain any maps of these dives, and different accounts described a total distance of either 1204m or over 1700m, terminating in a breakdown room with only a very narrow way forward (if at all).

I first dived the site in March 2005. It involves a difficult one-hour hike through the dense jungle (only 830m as the crow flies according to the GPS) carrying dive gear. The resurgence pool lies in a north south direction and is approximately 40m long. The water wells up at the base of a cliff, and at this point divers drop straight down to the gravel at 30m depth. The cave entrance lies before you and flow in the early section is considerable. A number of masks have been lost in this section! Visibility improves as you enter the cave but in the wet season can be 2-4m with a water temperature of 22 Celsius. The water is drinkable. The resurgence pool contains numerous species of colourful tropical fish and freshwater prawns (Nowra). Further into the cave no life was seen in the fast flowing water.
The cave continues at a consistent 29-30m depth until the first air chamber at approximately 400m in, after which the depth is more in the 15-20m mark.

VU-2ES0037 Bat Cave

Location At the top of a tributary near the village of Butmas.
The mouth to this dry cave lies a short distance above the flood run-off area next to the resurgence. I am told it continues for approximately 100m and is dry throughout. Several side passages. Bat roost.

VU-2ES0010 – 2ES0032, 2ES0034 – 2ES0036. Mt Hope Station caves

Location Mt Hope Station, Espiritu Santo
Found in 1994, first dived 1996. I have included the names and numbers of these interconnected caves for future reference, unfortunately I have not been able to visit them myself. Gary Bush and other Australian cave divers produced an excellent map showing this amazing cave system on one of the Sarakata tributaries. The notes attached to these sites, were provided to me by Gary Barclay, one of the divers involved in the early exploration. I must emphasize this extensive work is not mine and all credit goes to those earlier explorers, however I feel it is important that this information is now archived. These divers used a similar numbering system to that proposed by me, so I have used the same numbers that they assigned.
Unfortunately the leaseholder of the station is not permitting divers access at present.

2ES0010 Pump Sink
Small sink below ES0021. Entrance is RHS looking upstream, 5m by 7m pool, connects to ES0011.
2ES0011 Three Way Spring
Still blue hole, 11m by 8.5m, depth 12m. 1 inflow from ES0010. 1 outflow to ES0020. 1 extension (Eel passage) to ES0012. (Penetration only, not fully negotiable).
2ES0012/0013/0014 The 3 Sisters
Sink. 1 sink (ES0012) and 2 resurgences (ES0013 and ES0014 minor) in the vicinity of ES0011. Both resurgences are non negotiable. Possible connection ES0021 to ES0013.
2ES0015 Bush Rope Hole
10m abseil to stream running west-east. Upstream to 4m duck, 100m stream passage. Standing pool with extension in bottom. Not fully explored. Downstream chokes towards ES0018.
2ES00**??**The Drinking Hole
Penetration rated. Sink leading to Clam Shell requires side mounts 600 metre traverse. Starts at 1 metre deep, ends at 36 metres deep. Passage 3-5 metres in diameter.
2ES0016 Unnamed feature
3m drop entrance leading to mud slope to tight water entrance (negotiable). Silting problems would occur with entry. On line from ES0015 to ES0018.
2ES0017/0018 Earthquake Gully
0017 – Sink in earthquake gully. Proven connection to ES0024. Minor leads past initial squeeze heading downstream. Sidemounts required.
0018 – Resurgence in earthquake gully. Upstream is choked and entrance would require significant work to clear. Water comes from ES0015.
2ES0019 Tourist Hole
Proven connection to ES0011. Still pool with log lying across, outflow of water on surface stream towards ES0019.

2ES0020 Plunge pool
Short passage through hill taking water from ES0019 via above ground stream. Stream falls into small pool with surface stream exit.
2ES0021 Champagne Hole
Resurgence from ES0022. As below. Water runs from here via surface to ES0010.
2ES0022 Cliff's Sink
Downstream from ES0023. Water sinks through hillside and appears at ES0021. Daylight visible throughout. Side passage (non-negotiable) may take water to ES0013.
2ES0023 54m Hole
Resurgence from shaft with depth 54m at bottom, restriction then heads towards ES0024. Connection not made.
2ES0024 The Clam Shell Hole
Standing pool with proven connection to ES0017 upstream. Downstream connection to ES0023 not possible due to restriction. Refer survey for detail.
2ES0025 Little Bit Long Way Hole
30m drop into collapse chamber with passage to water. Possibly negotiable with pony cylinder. Enjoy!
2ES0026 Bushman Shelter
Small feature with undercut sides.
2ES0027 Tourist Cave
Located in vicinity of ES0020. Used as tourist cave by Russell Donovan. Bat roost with stairs to exit. Through trip.
2ES0028 Unnamed feature
Small low cave with stream and mud leading to low sink (downstream so silt problem). Doubtful potential for diving.
2ES0029 Unnamed feature
Small resurgence from hillside in vicinity of ES0020. Possibly takes water from ES0034. Examined. Doubtful potential for diving.
2ES0030 Unnamed feature
Conical depression with narrow lead at bottom heading to water (deep). Difficult to negotiate with dive gear. Found on traverse from ES0018 to ES0024. Not surveyed.
2ES0031 Bullock Hole
Small depression to mud and choke in the vicinity of ES0032.
2ES0032 Trukky Buggerup
Small depression with 2 non-negotiable holes leading to water.
2ES0034 Unnamed feature
Small abseil (2m) to running water. Non-negotiable, Water running towards ES0029?? (unconfirmed).
2ES0035 Unnamed feature
Small sink, 5m drop to floor of entrance, narrow passage leading to T-junction after 50m crawl, high CO2 and formation to RHS. Passages narrowing, not fully explored. No water. Partial survey only.
2ES0036 Unnamed feature
Sink in vicinity of ES0035 at end of watercourse. 5m drop (abseil) to high CO2. No obvious passage. No water.

Other Santo Sites
2ES0033 Sarakata Resurgence
See detailed description.
2ES0037 Bat Cave
See detailed description.
2ES0040 Shark Sinkhole
Small sinkhole max depth 7m, 4m diameter, no noticeable flow or leads. Pool that lies at end of Sarakata runoff??
2ES0041 Batunard
Large sinkhole located in South Santo. Vertical sided hole 50m diameter and 40-50m deep. Trees, stream with waterfalls in bottom, resurgence at base of upstream end and a cave full of swallows at the sinking end small lake leading to sink.
2ES0042 Batunard resurgence
Resurgence below Batunard. Consists of resurgence and series of waterfalls leading down stream from it. From entrance small duck with roof sniff to large internal room with stream way and lead off to

another duck which leads to another stream way and big room, ends in another sump heading towards ES0041.

2ES0043 Shark Bay Blue Hole
29km north of Luganville. Has a man made jetty leading to it. Approx 30m across and 11m deep. Spring comes up through sand at base, no diveable extensions. Downstream creek leads to ocean. Fresh water.

Shark Bay Blue Hole

2ES0044 Matevulu Blue Hole
20km north of Luganville. Approx 50m across and 18m deep. Fresh water.
2ES0045 Blue Lagoon
58km north of Luganville. Another spring fed blue hole. Not visited by me.

Other sites – rumoured and unvisited!

Efate

1. Lelepa island Cave. Feles Cave on Lelepa Island contains charcoal paintings dated to 900AD.
2. Lelepa Island. Flying over Lelepa I have noticed a circular depression on the western side that looks like a cenote covered in green weed/plants.
3. Moso Island. Rumoured to have multiple sea caves on the western side.
4. La Colle River. Walk up La Colle River 2-3km from “Singing Bridge” ??cave
5. Epoa River Cave. Walk up river ?distance. ??River disappears into cave.
6. Harris Plantation Cave (Undine Bay Cave). I am sure this cave exists if only I could find it! Siviri cave is referred to in the Lonely Planet Vanuatu guide “it’s said that an expedition of scuba divers once travelled 5km into it before turning back”. This is obviously not the cave in question. Elsewhere (communication from Dave Walton, Australia) I found a reference to a French cave diving team pushing a cave in this area several km before going to dive Cocklebiddy in Australia (?Francis and Eric Le Guen et al). Emails to France did not confirm this. An old French map shows a “grotte” in the hills behind Undine plantation however a long day in the bush in this area failed to find the cave. The local caretaker of the Plantation “Charlie” (who keeps eels in a tank for export to China!!) led us up the right fork of the river without success. The cave may well lie on the left fork. The river is the one that passes under the road after you pass the turn off to Undine Plantation (travelling around the island in a clockwise direction).
7. Deep cenote style feature behind Bouffe Station near Pt Vila. Source of info Johnny at Club Hippiqué. 90 mins jungle walk to reach site.

Santo

1. Caves apparently plentiful in Big Bay area.
2. Another cave near the Sarakata Resurgence, owner of the lease is Alan Cort (Bokissa Island).
3. Hokua, Cape Cumberland. “Large underground caves” on tourist maps.
4. Loru Conservation area, 41km from Luganville. Bat cave.

Erromango

1. Suvu beach caves, 6km from Dillons Bay. 2 caves containing human skeletons and hand stencils.

Other Islands

Ask any NiVanuatu about their home island and they will tell you of caves on it! There is a lifetime’s work here!

Acknowledgements

My thanks for all those who gave me information about their exploration and discoveries, especially the cavers who have explored and mapped the tributaries of the Sarakata River on Espiritu Santo,

including Kevin Green, Steve Sturgeon, Gary Bush, Gary Barclay, Linda Claridge, Dave Walton, Warrick McDonald, Tony Davis, Craig Challen, Paul Hosie, Dave Warren. Apologies to any of the original explorers who have been forgotten or overlooked. My thanks also to Peter "Puddles" Horne who has been very generous in giving of his time and enormous experience, and in helping me learn the basics of cave surveying. A special thank you to the people of Vanuatu who allowed me explore their beautiful land.

Richard Harris.

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Nullarbor Trip Report, 25 march to 14 April 2005

CEGSA: Graham Pilkington.
Britain: Rob Davies, Martyn Farr.
To 30 March: Chris Edwards and Paul (Australia), Richard (Britain).

All photographs are by the author.

Features visited, all in WA:
91 pre-numbered N; 26 newly numbered N including 9 converted from NX; 7 NX not converted and 6 features that might be reported but are not karst. Totalling 117 karst features and 13 non karst.

6N2, N24, N37 to N42, N68, N131 to N133, N165, N192, N193, N201, N206, N219, N312, N359, N360, N428, N431, N481, N483, N530, N579 to N588, N611 to N613, N640 to N642, N699, N701, N731, N739, N740, N742, N743, N750, N751, N753, N755, N756, N765, N766, N872, N967, N968, N1190 to N1192, N1195 to N1199, N1221, N1316, N1320 to N1322, N1330 to N1332, N1368, N1378, N1379, N1386, N1390, N1429 to N1434, N1474, N1475, N1497, N1498, N1619, N3238 to N3263

6NX32, NX33, NX56, NX59, NX67=N3259, NX68, NX111, NX126=N3254, NX476=N3238, NX483, NX484=N3261, NX588=N3247, NX611=N3256, NX628=N3240, NX634=N3239, NX812=N3241

This trip was arranged so that I could act as a guide for three Welsh cavers. Martyn wanted to obtain information and photos for a new book he is contemplating writing whilst Rob wanted to test some new meteorological instruments on suitable blowholes. My plans were to record as many accurate GPS locations and entrance photos as I could of the pre-2001 collected data, which have poor location information due to the inaccurate GPS being broadcast then.

Thursday 24:I travelled to Max Meth's place at Ceduna and stayed the night. We discussed the new Nullarbor database and how to expand it to suit mass data input. I left a copy of the new Cuttings database containing the first few hundred entries to show how ACCESS can pull in image files automatically without having to enter links or references.

Friday 25: I was to meet the others at Madura Roadhouse at midday. I got there slightly late but no worry, they were not there either. This gave me the chance to change my van wheels from my "bitumen" set to my old off-road set and install a metal vegetation wire mesh guard in front of the radiator. Still waiting. I took the opportunity to visit N68 less than a km away up the old Madura Pass. The western slope of the pass has several interesting small caves in the cliff. N68 is a horizontal network of very small tunnels and although the 4 entrances (along 7m of roadside cliff) all "blow", it is a blowhole without the normal blowhole entrance – probably because the road cutting removed it. For a further 30m uphill there are at least 3 more blowing holes/slots intersected by the road cutting.

I had left my van at the roadhouse so that the others would know I was there, and returning I found their two vehicles parked next to mine. Dragging the five of them out of the air-conditioned pub, we left for *Mullamullang Cave* N37, stopping at *Walpet Cave* N38 on the way for a few quick photos and a GPS location.

Saturday 26: First task for the day before the others woke up was to GPS and photograph N37 and its enclosed features – N1330 (*The Refrigerator*) in the south doline; N1331 (*South Cave*); and N1332 in the north doline. Both N1331 and N1332 were located under the lip of N37 and their locations had to be made in the open where satellites were "visible". N1332 was easy; I recorded the