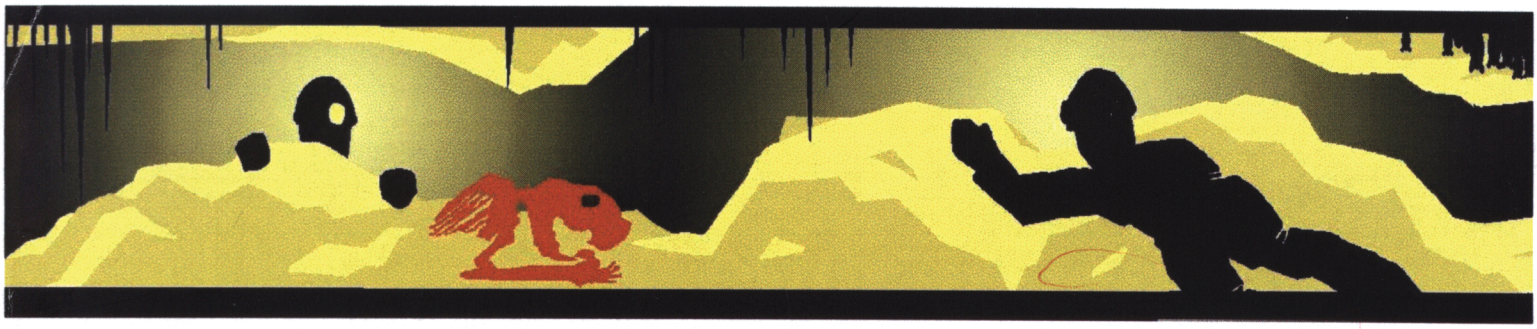
Caves, Craters & Critters.



26th Biennial ASF Conference,
Celebrating 50 years of the
Australian Speleological Federation
January 6th – 12th, 2007.
Mt Gambier, South Australia,

Conference Program, Abstracts & Post Conference Trips.

Sponsored by

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City of Mount Gambier
BLUE LAKE CITY

Limestone Coast.
South Australia.

District Council of Grant

Caves, Craters & Critters

Conference Team

Marie Choi:	Conference Co-ordinator
Kevin Mott:	Regional Co-ordinator
June MacLucas:	Speleo Art Show
Steve Bourne:	Naracoorte Field Day Organiser
Damian Grindley:	Wines, Pre & Post Trips, Promotion
Chris Gibbons:	Treasurer
Tim Moulds:	Abstracts, Proceedings, Timetables
Richard Harris:	Photo Comp, Cave Diving
Stan Flavel:	Adelaide Resources, Speleo Sports
Ken Grimes:	Field Guide Editor
Adam Branford:	Mt Gambier resources
Tim Payne:	SRT Comp Organiser
Athol Jackson:	Photo Judge, Quiz Night Master, Resources
George MacLucas:	1956 Attendees Host

Photographic Competition Judges:

Keith Seidel: Australian Photographic Society Judge
Barbara Styles: Eastern Suburbs Camera Club
Athol Jackson: CEGSA

A special thankyou for 2 trophies donated by Ivo Tadic

Special thanks to the many others who have assisted with information, advice and support through out the planning and to all those that have offered to assist with everyday tasks at the conference.

Special thanks to

Conference Program

Please note that the Blue Lake Volunteers are here to assist you with information on local services and places of interest. At the time of printing this timetable was correct, however some presentations and activities may change during the conference.

For those who have paid for a basic breakfast: it will be available from 7.30am -8.45am daily

Please note: all daily self guided activities are offered as an alternative to programmed sessions at the conference centre.

Day 1 Saturday 6th January 2007

9.00am - Ongoing	Registrations begin, Collect name tags, Satchels, Wine, T-shirts, Accommodation Information
9.30am - 6.00pm	Snorkelling available at Ewens Ponds
10.00am - 6.00pm	Self Guided local Wild Caving. Info packs available from conference workers
10.00am - 6.00pm	Self Guided tours of Sink Holes. Info packs available from conference workers
12 noon - 5.00pm	Limestone Sculpting Workshop
3.00pm - 5.30pm	ASF Executive Council Meeting
5.00pm - 6.30pm	DVD of the BBC's Planet Earth Caves: ***Andy Eavis***
6.30pm - 10.00pm	Welcome BBQ: Bar facilities open.

Day 2 Sunday 7th January 2007

9.30am - 11.00am **Official Conference Opening**

Welcome from ***Stan Flavel***, CEGSA President
Mt Gambier City Council: ***Mayor Steve Perryman***
ASF President: ***Jay Anderson***
Key Note Speaker: ***Professor Elery Hamilton-Smith***
Australian Caving the past 50 years

11.00am - 11.30am	Morning tea
11.30am - 5.00pm	Self Guided Wild Caving or Self guided Sink Holes Tours. See Conference Staff for Info Packs
11.30am - 1.10pm	**Presentation Session 1** • The Gambier Karst Province: ***Ken Grimes & Susan White*** • Forestry SA cave management system: ***Trevor Wynniat*** • North American rescue techniques: ***Ross Anderson***
1.10pm - 2.00pm	Lunch at Function Centre
2.00pm - 4.00pm	**Presentation Session 2** • ASF Conservation Forum ***Nicholas White*** (2.00 - 3.00) • Mt Etna - Recent ASF management opportunities ***Nicholas White*** (3.00 - 4.00)
4.00pm - 4.30pm	Afternoon Tea
4.30pm - 6.00pm	**Presentation** • Australian Rock Art: ***Robert Bednarik***
6.00pm - 7.00pm	Official Opening of Speleo Art Show
7.00pm - 8.00pm	Self Cater Dinner. Bar Facilities open at Conference Centre
8.00pm - 10.00pm	3D Slide Show: ***Andy Eavis***, President of International Union Speleology

Day 3 Monday 8th January 2007

9.00am - 11.00am	**Presentation Session 3** • World Rock Art; ***Robert Bednarik*** • The karst features of the SW Nullarbor - Mardabilla Plain & adjacent localities***: Paul Devine*** • Speleo Volunteers and karst environments: ***Jay Anderson***
11.00am - 11.30am	Morning Tea

11.30am – 5.00pm	Self Guided Wild Caving or Self guided Sink Holes Tours. See Conference Staff for Info Packs
11.30am - 1.00pm	**Presentation Session 4** • History of CDDA/Cave Diving: ***Peter Horne*** • Cocklebiddy, old and new techniques together: ***Tim Payne*** • Cave Diving on Roe Plain*:* ***Paul Hosie***
12.00pm – 5.00pm	Limestone Sculpting Workshop
1.00pm – 2.00pm	Lunch at function Centre
2.00pm – 4.00pm	**Presentation Session 5** • TBA : ***George Yarra*** • Vanuatu Caving/Cave Diving: ***Richard Harris*** • Kimberly Cave Diving: ***Paul Hosie & Ken Smith*** • Improving karst data using Google Earth: ***Graham Pilkington***
2.00pm - 4.00pm	ASF Commission Workshops Cave Rescue Commission 2.00 – 3.00pm *Helictite* Commission 3.00 - 4.00pm
4.00pm - 4.30pm	Afternoon Tea
4.30pm – 6.00pm	ASF Commission Workshops • Cave Diving Group 4.30 - 5.00pm • ASF Publications Commission 4.30- 6.30pm • ASF Conservation Commission 4.30 - 6.00pm • ASF Cave Numbering 5.00 – 6.00pm

Assorted Caving videos and DVDs available to view at this time

6.00pm - 8.30pm	Self Cater Dinner
6.00pm - 10.00pm	Bar Facilities open at Conference Centre
8.30pm – 10.00pm	Speleo Quiz Night

Day 4 Tuesday 9th January 2007

9.00am – 11.00am	**Presentation Session 6** • Walli Cave entrance micro-organisms: ***Jill Rowling*** • Ruteng Caves Indonesia: ***Garry K Smith*** • Sea caves or Flank margin caves: do we understand cave formation at Tantanoola and Taragal?: ***Susan White, John Mylroie & Joan Mylroie*** • King Solomon Cave: ***Dave Wools-Cobb***
9.00am – 4.00pm	4Wheel Drive Trip to Canunda
9.00am – 5.00pm	Self Guided Wild Caving or Self guided Sink Holes Tours. See Conference Staff for Info Packs
11.00am - 11.30am	Morning Tea
11.30am - 1.00pm	**Presentation Session 7** • The world scene in cave conservation: ***Elery Hamilton-Smith*** • Celebrating Planet Earth: UNESCO Assisted GEOPARKS in the Australasian-Pacific Region: ***Joanne McKnight, Susan Turner and Susan White***
1.00pm – 2.00pm	Lunch at function Centre
1.30pm – 2.00pm	**Delegates for Council Meeting must ensure they have registered and are ready to start at 2.00pm !!**
2.00pm – 6.00pm	ASF Council Meeting (part 1) All Welcome
6.00pm – 8.00pm Centre	Self Cater Dinner / Bar Facilities open at Conference
8.00pm - 10.00pm	Films (rock art sites, diving sites and underwater footage of the *Corio* and *Admella* shipwrecks) ***Geoff Aslin***

Day 5 Wednesday 10th January 2007

Naracoorte Field Day: All DAY

8.30am — Meet at Conference Centre for Bus trip to Naracoorte

There will be some wild caving available so bring your helmets, lights and harnesses.

6.00pm — BBQ Dinner at Wirreanda

9.00pm — Leave Naracoorte. Return to drop off at Conference Centre

Day 6 Thursday 11th January 2007

9.00am - 11.00am — **Presentation Session 8**

- The ASF – some visions of the future: ***Jay Anderson***
- The ASF Karst Index Database - Under the bonnet: ***Michael Lake***
- Non-entry inspections to conserve tourist caves: ***Warren Peck***
- The Exploration component of a cave management plan: ***Patricia Seiser, Ross Anderson & Jay Anderson***

9.00am – 5.00pm — Self Guided Wild Caving *or*
Self guided Sink Holes Tours.
See Conference Staff for Info Packs

11.00am - 11.30am — Morning Tea

11.30am - 1.00pm — **Presentation session 9**

- Travertine deposits cut by fluvial erosion at Mole Creek, Tasmania: ***Henry Shannon***
- The Glenelg River Karst: an under-explored area of karst potential: ***Susan White and John Webb***
- Lake speleothems of the Nullarbor: ***Jill Rowling***

1.00pm - 2.00pm — Lunch at function Centre

1.30pm – 2.00pm — **Delegates for Council Meeting must ensure they have registered and are ready to start at 2.00pm !!**

2.00pm - 6.00pm — ASF Council Meeting (part 2) All Welcome

4.00pm - 4.30pm	Afternoon Tea
6.00pm - 10.00pm	Self Cater Dinner / Bar Facilities open at Conference Centre
8.00pm - 10.00pm	Reflections Tour: ***TBA***
8.00pm - ?	Members audiovisual presentations: ***TBA***

Day 7 Friday 12th January 2007

9.00am - 11.00am

Presentation Session 10

- Christmas Island Caves & Biology: ***Brooks***
- Cave porosity and permeability: a technique for the comparison of differing karst areas: ***Susan White & John Webb***
- Cave Photography: ***Angus McCoun***
- Karst of the Ningbing Range: ***John Cugley***

9.00am - 1.00pm — Self Guided Wild Caving or Self guided Sink Holes Tours. See Conference Staff for Info Packs

11.00am - 11.30am — Morning Tea

11.30am - 1.00pm

Presentation Session 11

- Karst on Pungalina Station, Northern Territory: ***Nicholas White, Paul Brooker, Daryl Carr***
- Volcanic caves of Western Victoria: ***Ken Grimes***

1.00pm - 2.00pm	Lunch at function Centre
2.00pm- 4.00pm	SpeleoSports and SRT Competitions
4.00pm - 4.30pm	Afternoon Tea
4.30pm-5.30pm	SpeleoSports and SRT Competitions *continue*
6.00pm-10.00pm	Cavers Dinner at Conference Centre

Day 8 Saturday 13th January 2007

9.00am - 12.00pm	Pack up Conference Centre
9.00am - 4.30pm	Snorkelling at Piccaninie Ponds

Leave for Post Conference trips

PRE & POST CONFERENCE CAVING TRIPS

Corra Lynn Cave York Peninsula Pre and Post Conference

Trip Leader: Paul Harper CEGSA
Contact Details: **Home** (08) 08 8297 8878 **Mobile:** 0404 956870
Email: paulharper@lizzy.com.au
Maximum Number: 6 per trip
Equipment Required: Cotton overalls or a long sleeve shirt and loose fitting long , pants, boots with good grip, knee pads and elbow pads recommended Helmet, Light" Knee Pads" Gloves, a water bottle and some snack food (or lunch), for a longer trip a bottle / bag for human waste, a small cave pack Clean clothes to change into
Skill / Fitness Level: fit
Dates: 4th January 2007, 15th January 2007
Distance from Conference: 600km plus (7-8hours) or 180kms from Adelaide
Meeting point: The town of Curramulka at the Bowling Club which is in the centre of the town. The cave is about 3kms from this point, but all cavers must sign a land owner's indemnity and travel to the property as one group due to fire risk
Age/ Other Registrations: No children under 10, and children under 18 must be accompanied by a competent adult
Accommodation: There is no accommodation at the cave. At Curramulka there is a caravan park and the pub has rooms, there are numerous towns nearby which has accommodation be warned that it will be School holidays / Christmas holidays and accommodation will be hard to find. Another option would be to base your self in Adelaide and come to Corra Lynn as a day trip
Facilities: Public toilets in Curramulka, long drop toilet at cave Water tap at cave (poor quality water) BYO all food and drink for the day, an evening meal can be bought from the takeaway store or pub in Curramulka. Or from nearby towns No Fires or stoves allowed at the cave site. Total fire ban in state
Contact me well in advance of the trips

Y1 Corra Lyn Cave

One of CEGSA's Favourite cave, this cave has approximately 14 kilometres of passages on several levels, but for simplicity the map is drawn on three. The cave ranges from tight crawling passages, to high narrow passages to large chambers. It can range from easy to very difficult caving. Formed in a dolomite limestone the cave is not very forgiving, but sure teaches novice cavers very quickly how to move through a cave without destroying their body. You could spend anywhere up from a couple of hours to days exploring every nook and cranny. The day will be spent touring different areas of the cave. To give the participants an overview of the cave. This is a hard cave; there is little walking passage most of your time underground will be on your knees or belly. It is humid so most of the time you will be hot and sweating – dehydration is a real risk. There are moderately hard free climbs between the different levels, in several places there are fixed ropes to use as handlines No SRT or ladders needed It is strenuous, hot and dirty Time underground will depend on the participants We can have a morning (3-4 hours) session and afternoon (3-4 hours) session with lunch outside the cave Or we can spend the whole day underground

Fleurieu Peninsula Sellicks Hills Area Pre and Post Conference

Trip Leader : Dr Grant Gartrell CEGSA
Contact Details: **Home:** (08) 8556 9100 **Email:** blueberrypatch@bigpond.com
Equipment Required: Light cotton Overalls, Helmet, Light" Knee Pads"
Skill / Fitness Level: Average to Fit
Dates: Arrange with Grant

Fleurieu Peninsula Sellicks Hills Area Pre and Post Conference

Grant is happy to run the odd day / evening trip to this interesting area of South Australia, which is south of Adelaide. However due to it being his busy period with his Blueberry farm, times are restricted. Contact Grant direct to organise a suitable trip

Western Victoria Area Post Conference

Trip Leader: Ken Grimes CEGSA/VSA
Contact Details: **Email:** regmap1@ozemail.com.au
Maximum Number: Varies
Equipment Required: Light Weight Overalls, Knee Pads, (Gloves a good Idea) Bright Lights as the lava caves are very Black
Skill / Fitness Level: Caves are mostly Horizontal, Lava Caves are sharp, there is at least one vertical for those wishing to do it
Dates: 13th January –17th January
Meeting Place: Mt Eccles Campsite, Follow the Road Signs To Mt Eccles National Park, The road ends at camp Ground
Accommodation: Mt Eccles National Park Camp Ground, BYO Tent there are Toilets Showers No Power $2.50 per person per night
Food: BYO there is a pub 10 Minutes from the camp ground

Western Victoria Caves: 13th to 17th January

We will be making base camp at Mt Eccles and caving there and at Byaduk which is around half an hour away. MT Eccles camp site is a pretty little camp ground with an abundance of wildlife including Koalas. Most of the caves in both regions will only take up to a couple of hours to do, but keep in mind lava caves in this area tend to have a lot of sharp surfaces, For the best view of the caves you want a really bright light as the rock just absorbs all light. We will also be only 1 hour away from the limestone caves of Portland which we may also visit. For more information on the caves in the area check out past and present field guides i.e. ACKMA1999

Avenue Range and Surrounds Touring, Surveying and Exploration Post Conference

Trip Leader: Kevin Mott CEGSA
Contact Details: **Home:** (08) 87231461 **Mobile:** 0427 010 326 **Email:** Mott.Kevin@saugov.sa.gov.au
Maximum Number:
Equipment Required: Light cotton Overalls, Helmet, Light Knee Pads, Gloves
Skill / Fitness Level:
Dates: 13th January –17th January
Accommodation: camping possible caravan park more details at conference

Avenue Range Caves

This is not a well explored area and new caves are being discovered all the time ranging from very small to Monbulla size; however most of the caves are quite low so crawling is the main mode of movement. Some of the caves are well decorated whilst otherwise are quite bare. Still an interesting area with a lot of potential and a number of caves although located yet to be explored, so why not be the first.

Limestone Coast Photographic Caving Trip

Trip Leader : Marie Choi CEGSA
Contact Details: Mobile:0429696299 Email: mariechoi@adam.com.au
Maximum Number: 8 (no small Children)
Equipment Required: Light cotton Overalls, Helmet, Light Knee Pads, Gloves, Hand Line, Camera Gear
Dates: 13th January – 16th January
Accommodation: Whiskas Woolshed Penola Camping or bunk bed

The Caves

Day one Mt Gambier Area

5L238 Glendene Park Cave

One of the Lower South East's prettiest little fissure cave (although quite large for the region). It is located on private property and been maintained in fairly good condition due to its limited visitation. The cave has a 3mtre ladder pitch that drops in to beautiful phreatic passage that splits in two. The small walls are coated in vivid white moonmilk in excellent condition. There is minimal formation in this cave the beauty is in these passages. There are also a small amount of redeposited fossils near the entrance. This cave needs to be kept to minimum visitation to preserve its beautiful passages and moonmilk.

5L441

A simple little fissure entrance of about a meter wide and 2-3mtres deep drops into a very narrow walking passage in both directions, There are a number of these on the property but this is the most interesting one as you move down the narrow passage you begin to notice a few strange protrusions sticking out of the wall, a little further on exists a small but an amazing fossil deposit in absolute pristine condition, the cave then comes to an abrupt end. This caves location is carefully protected and since discovered by CEGSA members there has only been one other trip to this site

Day 2 & 3 Penola

5L23

This cave has interest for many it's both very pretty and geologically interesting. The first challenge is getting through the gate that thankfully the owner placed on it several years ago to stop unauthorised visitors. You pass through this restriction to a rock filled chamber with the roof high enough to stand in, then turning right you crawl following the old stream passage to the next chamber but take note of the very interesting and distinct bedding layers of the cave wall as you go, you then enter a small chamber full of fluffy tree roots, During wetter years these tree roots are covered in small water droplets and when your lite hits them rival any manmade chandelier, Moving carefully past the tree roots is a slightly elevated small crawl that now takes you past this amazing bedding plains now pushing down and hanging in mid air on a 45 degree angle, there are many thin slabs from the roof on the next short crawl. You then enter another taller chamber which central feature is this magnificent chocolate Stal rising from the floor and surrounded by some beautiful and delicate straws that are pure white. This is a magic shot when lit from the side or behind. There are some areas of pretty flowstones and stals in this chamber and the cave does go on but if you have a camera with you few make it past this point.

5L21 Wrecked Car Cave

Wrecked Cave car was thought to be separate from Monbulla Cave 5L5 until a connection was finally made. Wrecked car is smaller but quite heavily decorated amore so than its connection. You enter through a low crawl in a 3meter wide collapse; there is a relatively short easy crawl to the main chamber where you can stand again. The chamber contains a range of formation, stals, small straws and flowstone that range in colour from chocolate, caramel to off white. This chamber also contains some interesting tree roots and often has small shallow pools of water that have been known to contain frogs. Continuing on from this point eventually leads you into sections of Monbulla cave a very difficult cave to navigate in. Photographers could just spend the whole day in Wrecked Car.

Day 4 Avenue range

5U223

Not far from Naracoorte this area has been heavily visited in recent years by CEGSA members. It was a new CEGSA member who pulled out rocks from a depression to find this entrance not far from a known cave. It took many trips but eventually the 2 caves were connected. Sliding down a very narrow vertical slot for about 3 metres lands you on a small rock platform you then twist and slide down another 1.5 metres into the start of the firs main chamber. You may want to take your time here as it is probably the last chance you get to stand until you exit. You may also not want a bright light because as you pan your light across the wide flat low chamber its hard to tell what's holding the roof up as there are very few wall

features and the chamber keeps going just broken up by small sections of calcite formations that the roof appears to be resting on. It's also obvious that at one time the floor of this chamber was completely covered by water. This is a fascinating cave both for its complexity and for the other interesting things you find. In the first section you find lengths of tree root that crisscross the floor after pushing through the thin calcite floor. They then disappear and you see small volcano shaped formations and every now and again you will find 5cm high pointy fluffy brown tree roods usually covered in water droplets. Mos of the rest of the chamber is covered in sharp spiky cave coral along with some beautiful large (by SA standards anyway) shallow rim pools with unusual crystals in them and even the odd cave pearls. There are numerous other decorations spread throughout the chamber. Even though this cave has been worked on for sometime the cave still hasn't been fully mapped or explored partly due to the complexity of it along with the sharp cave coral which is usually more prolific in the tighter spots leaving your body covered in tiny black and blue bruise.

Naracoorte & Penola Post Conference

Trip Leader: Graham Pilkington CEGSA
Contact Details: Home: 83956713 **Email:** p-c-h@bigpond.net.au
Maximum Number: Varies
Equipment Required: Light Weight Overalls, Knee Pads, harness, Lights and Helmets
Skill / Fitness Level: A mixture of Horizontal and Ladder pitch entrances
Dates: 14th January –18th January
Accommodation: Will be based at Naracoorte Camping and bunk house accommodation available
Food: BYO there is a pub and shops in Naracoorte

Penola & Naracoorte Caves

On the way to Naracoorte we will be visiting Monbulla cave, this is quite an extensive cave and will take most of the day horizontal access and has a mixture of crawling and walking passages, biggest hazards in summer are snakes due to the number of entrances.

S102

This cave is on private property and has a 15mtr (approx) ladder pitch, the pitch starts off wide but narrows to a body size solution tube then a couple of metres of free hanging ladder climb, again snakes can be a hazard in the entrance so first one in needs to do a thorough snake check, done a sandy slope to a large walking passage that once had a lake in it but has been dry for the last couple of years, then a crawl up a narrow vertical crawl way into the main section of the cave. This is large chambers with large sand cones and a number of underground lakes, stains on the wall indicate past water levels of several meters

Beekeepers

A double solution tube entrance that requires a ladder cave consists of a number of chambers a dry sump and a small amount of degraded decoration. A simple cave yet a number of locals (non cavers) have become lost in this cave.

Cave Park Cave.

A large entrance with a 3 metre ladder pitch, bats are known to frequent this cave at certain times of the year. Cave varies from walking to crawling passages

Table of Contents

The ASF – some visions of the future
Jay Anderson

Members can have the opportunity to assist in developing the future of YOUR organisation. Where is the ASF going? What is your vision for the ASF? Where do you see the ASF in the future and what will it all look like? The ASF President would like to raise the issue of organisational identity and provide members with an opportunity to be involved in future planning. This presentation will examine some options and seek members suggestions for the future of the ASF.

Speleo volunteers and karst environments: A summary of some useful tools and techniques from USA speleo colleagues
Jay Anderson

Whilst on a recent trip to the USA, the author was able to attend both the NSS Convention and the National Cave and Karst Conservancy forum. It was noted that many cave and karst managers in USA utilise speleological volunteers extensively in aspects of cave and karst management. Some of these techniques may be of interest to Australian cavers. The use of cave exploration and surveying standards in cave management plans is presented (thanks to Pat Seiser of NCKRI). The NSS has a database that records speleo volunteer time on speleological projects and in performing a number of activites - the importance of "Volunteer Value". Many National Parks are utilising cavers and their knowledge of caves to perform comprehensive cave inventory's. A number of these useful tools will be presented. The author was also able to participate in a biological inventory and a useful tool for undertaking records of subterranean fauna will also be presented.

North American Rescue Techniques
Ross and Jay Anderson

Whilst in America and Canada, Ross and Jay Anderson attended three rescue courses/ forums. British Columbia Cave Rescue course in Gold River, Vancouver Island, week long theory and practical cave rescue course for vertically proficient cavers. Presented by cavers whom are members of the Provincial Emergancy Plan group (equivalent of SES for cave rescue), the course started with theory and techniques classes, packaging patients, rope techniques, rescue organisation and management, first aid considerations (not a first aid course!) and progressed through the week with increasing incave and off-site practical sessions.

National Cave Rescue Commission (NSS) Cave Rescue orientation Course, Great Basin National Park - Barker, Nevada. This Weekend course was an introductory rescue course that actively included other groups such as Park Staff and Non NSS members. 15 powerpoint presentations, a childrens playground stretcher practical and a day long practice rescue from the back of a commercial cave.

International Technical Rescue Symposium, Denver Colorado. Four day symposium on thoeretical considerations for professional and recreational rescuers, ranging from Helicopter operations, to equipment updates.

Ross will present a review on each of these courses and hopefully be able to table course and symposium notes for attendees to review. Intent is not to compare to Australian practices, merely make people aware of other techniques and organisations in America and Canada and the practices that they currently promote.

Australian Rock Art
Robert Bednarik
Convener/CEO, International Federation of Rock Art Organisations (IFRAO)
auraweb@hotmail.com

Australia is distinguished not only by possessing the largest concentration of rock art, but also by being the only country that has continuing broad access to ethnographic interpretation of rock art by its traditional custodians. Moreover, Australia has the largest organisation of rock art researchers, the premier scientific journal in the field, and the largest academic congress in the discipline. This presentation explains the reasons for some of these factors, and it offers an overview of the huge corpus of Australian rock art. The major regional concentrations of it are introduced, with special attention given to the cave art of Australia, which is the world's second-largest body of this particular phenomenon. Some attention is also given to the time periods the rock art belongs to, to the methodology of estimating the age of rock art, to the issue of its interpretation, and to the questions of its preservation and protection. The presentation closes with a brief synopsis of the current campaigns to protect rock art in Australia.

World Rock Art
Robert Bednarik
Convener/CEO, International Federation of Rock Art Organisations (IFRAO)
auraweb@hotmail.com

Rock art is a global phenomenon occurring in nearly all countries. It constitutes the major component of the surviving cultural evidence of pre-historic people, accounting for some 99% of all palaeoart in the world today. It is therefore the most outstanding part of humanity's early cultural heritage, providing a rich source of information about the conceptual reality of the ancients, and about the cognitive evolution of our species. The oldest known rock art dates from the Lower Palaeolithic period, the most recent from the 20th century. This presentation addressed the great diversity of what has survived on the rocks, continent by continent. The world's major rock art regions are defined and described, and the long history of their study is briefly reviewed. It is demonstrated, however, that the proper scientific study of world rock art is a very recent phenomenon, having been initiated only in the last few decades. Rock art research remains an embryonic science that is only now being developed through an international network of research organisations.

Karst of the Ningbing Range
John Cugley **WASG**

This presentation will discuss the Nungbing Ranges including the location, climate and access. The geological history and mode of formation of the unit and associated karst blocks will also be discussed. Previous numbering of features during SRGWA trips and current record keeping will be presented along with major discoveries. The long term surveying and exploration aspirations for the BFC and Southern Ningbings will

also be presented. Associated fauna of the area including bats, snakes and invertebrates will also be shown. The presentation will conclude with a discussion of minimal impact caving and pertinent conservation issues of the area

The Karst features of the SW Nullarbor - Mardabilla Plain & adjacent localities
Paul Devine

The Southwest portion of the Nullarbor is an area known as the Mardabilla Plain. The vegetated area consisting of the southern half of the Mardabilla Plain and an adjacent portion of the Hampton table land comprises an area of circa 7000km² and is typified by gently undulating karst terrain, isolated outcrops of basement rock in the western half, but also by dense vegetation. As a result of the latter, it has received only limited karst exploration or documentation. Prior to 2005 only 50 features appear in records [KIDSA] for this area, and $^{1}/_{3}$ of these have never been visited on the ground. A far higher number of features for this area has been eluded by the previous work and discoveries of both David Lowry and Joe Jennings.
By using remote sensing it has been possible to locate a very large number of new karst features. A systematic stereoscopic study of the area was completed using modern aerial photography, this was then compared on Google Earth imagry. As a result over 900 new defined karst features have been located. These new features consist of collapse and erosion dolines. With a smaller number likely to access shallow caves.

Volcanic Caves of Western Victoria
Ken G. Grimes
Regolith Mapping, RRN 795 Morgiana Rd., Hamilton, 3300, Australia
(*regmap1@ozemail.com.au*).

The Western District Volcanic Province extends from Melbourne across to the Mount Gambier area and has been erupting basalt lavas for at least the last 5 million years. Lava caves have formed in several areas across the region, but the best concentrations are in the ~30,000 year old lavas from Mt. Eccles and Mt. Napier.

There are a variety of volcanic caves, including large feeder tubes that are responsible for the long lava flows (60 km in the case of a flow from Mt Rouse), but also smaller but more complex shallow lava caves and one example of a still-open volcanic vent or hornito.

Lava tubes form in two main ways. The first is by the roofing of narrow surface lava channels, which can happen in several ways - simple crustal growth across the lava stream, "log jams" of crustal slabs floating on the stream, or by the upward and inward growth of levee banks that eventually join to form a roof. This type tends to form linear and simply branching or anastomosing tubes.

The second way is by draining from beneath the crust of a set of spreading lava lobes near the leading edge of a lava flow- these tend to form more complex mazes of shallow, low-roofed chambers and passages, but over time they may evolve by solidification of the more stagnant areas and erosional enlargement of the fastest moving routes to form simpler linear tubes that are difficult to distinguish from the roofed channels.

Both types of tube contain liquid lava flowing beneath a solid crust. At the end of the eruption some of that lava drains out to leave empty caves, but most tubes remain filled with solidified lava (dammit!). Many lava caves end at solid undrained lava "sumps".

The Gambier Karst Province

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The Gambier Karst Province is an extensive area of Tertiary marine limestone and overlying Quaternary dune limestone in southeastern South Australia and western Victoria. These are "soft rock" limestones: youthful, weakly-consolidated porous calcarenites (sandy limestones) that are quite distinct from the classical "hard rock" limestones of the east coast, and other parts of Australia.

The caves in the Quaternary dune fields are syngenetic with the initial early cementation of the limestone, but those in the Tertiary limestones postdate that cementation.

The caves in both limestones are characterized by cap rock effects, solution pipes, extensive low horizontal phreatic mazes and abundant collapse modification. They are locally well-decorated, especially with straws and moonmilk, which the ongoing collapse tends to destroy leaving many bare fractured walls.

The Tertiary limestones differ in showing good joint control on their passage orientation. Beside the gorge of the Glenelg River there are linear, stream caves. Near the coast there are extensive large flooded systems which formed during the lower sea levels of the glacial periods. Tank Cave has 6 km of flooded shallow horizontal passage and The Shaft extends to a water depth of 120m. The cenotes, large water-filled collapse dolines, are unique(?) within Australia. There are large springs rising from flooded caves at the coast and offshore.

The syngenetic caves in the dune limestone can be horizontally extensive but have little depth. The largest tend to be at the edges of the dunes - adjacent to the sea that existed when the dunes formed, and also to the later swamps. We use the term "flank margin caves" for the irregular chambers that formed where sea water mixed with fresh water at the old coast, and "swamp margin" for the later modifications by acidic swamp waters eating into the edge of the dunes. Both tend to be low-roofed horizontal crawly mazes alternating with rubble-filled domes rising towards the surface.

The ASF's Karst Index Database - Under the Bonnet

Michael Lake, Australian Speleological Federation

The Australian Speleological Federation's Karst Index Database is accessible on the Internet at *http://www.caves.org.au/*. Updating in NSW by SUSS and in Victoria by VSA has started and to date there has been several hundred updates.

This talk will briefly cover the updating functionality with a few screenshots and then the bonnet of the system will be opened up to have a look inside. What will be described will be the technology that underlies the ASF's server and the KID, details on why we have two KIDs, the user and system documentation, installation and maintenance, inbuilt testing suites, source code management, backup and security. Future technology directions may be covered.

Celebrating Planet Earth: UNESCO Assisted GEOPARKS in the Australasian-Pacific Region

Joane McKnight [1], Susan Turner [2] & Susan Q White [3]

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[2] Convenor, Australasia-Pacific Geoparks Network
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The recent initiative by UNESCO to establish a worldwide Network of Global Geoparks has important implications for Australia, especially western Victoria and southeastern SA.
The Geological Society of Australia and various state government departments have been
documenting geological sites of conservation and heritage value for over 30 years.

The Geopark Network aims to promote geological sites for geotourism, education and research. The Geopark model most likely to be effective in Australia is a 'Grass-roots' approach where local communities in conjunction with different levels of government take responsibility for their own region. Comparison with some of the European Geoparks Network provides useful examples. An informal network of people interested in forming Geoparks in Australia and the South Pacific has been formed.

A formal application for a Global Geopark is currently underway for the region known as the Kanawinka Geopark, extending across the South Australian and Victorian borders. This Geopark is concerned predominantly with the volcanic landscapes of the Western District Volcanic Province and its geological context.

This presentation will outline aspects of the proposed Kanawinka Geopark. The area proposed, extends from Colac and Red Rock to the coast of South Australia past Millicent and North to Nigretta and Wannon Falls and the base of the Grampians. This area has significant volcanic caves and associated karst areas and is of interest to both CECSA and VSA. Since 1998 the local Government bodies of this region commenced operation of the Volcanoes Discovery Trail Committee to promote the region and link geology with tourism.

Important aspects of Geoparks are the links between the geology and the people, their stories, culture and history that build into a sustainable source of geotourism, bring jobs to rural and indigenous people and in turn help protect sites of importance and promote geoheritage complementing the work of the interested non government and government organizations.

Cocklebiddy, old and new techniques together

Tim Payne

There was a time that Cocklebiddy was considered the Everest of cave diving, but those days have passed and visits to Toad hall, the dry chamber nearly 4km into the cave are now relatively routine. But despite the ease with which Toad hall can now be reached few trips have managed to repeat the feats of the early explorers who explored the third sump. This year three divers using techniques and equipment resurrected from the early explorers made it to Toad hall with enough gear to camp

and conduct a series of dives in the third sump allowing them to complete a map of the sump.

This talk will discuss the techniques and the modifications to the equipment which made this trip possible as well as discuss the findings and map that was produced.

Non-Entry Inspections to Conserve Tourist Caves
Warren Peck

There are sections of Australian operating metal mines where human access is not permitted, yet mining continues using remote-controlled machinery overseen by remote-sensing techniques from a nearby tunnel or alcove in the mine. If applied to tourist caves, these techniques would permit visitors to experience the full ambience of a delicately-ornamented cave without actually entering it. Whilst this concept is particularly applicable to previously undeveloped caves, thus avoiding the wholesale cave damage involved in the construction of paths and installation of lights, it is also applicable in caves already open to the public eg. a vandal-prone section of a tourist cave.

Improving Karst Data Using Google Earth
Graham Pilkington **CEGSA**

With examples from the Nullarbor, several procedures will be followed that demonstrate the use of a free interactive internet software package called "Google Earth" that supplies images of satellite data down to 0.2m pixel resolution. Absolute location accuracy when checked against GPS on-site readings proved to be better than 20m for most of the Nullarbor and down to 5m after calibration. Karst features with inadequate locations were relocated and features with scanty or no surface descriptions have been clearly identified. The images can be used to see what tracks are available for close approach and to determine the best way to get to a feature to avoid problems such as bluebush. Previously unknown features are obvious allowing a more accurate determination of feature spatial density and type as well as new caves to explore. Google Earth was used to correct cave map errors such as orientation, scale and shape as well as to make surface maps with relative positions to better than 0.3m.

Lake Speleothems of the Nullarbor
Jill Rowling

Subaqueous speleothems occur in several cave lakes on the Nullarbor Plain, Western Australia. Samples from two cave diving expeditions in 2001 and 2005 were examined. The subaqueous speleothems include structures resembling helictites, shields and pool crystal. The unusual speleothem structures include highly porous helictites, and some of them may be precipitated around organic structures. Small flakes on the surface of the speleothems resemble microbial veils. The material was sourced from Tommy Grahams Cave and Mullamullang Cave (Grotto Lake, White Lake, Lake Sh'bula and Gurgle Lake). Analysis indicates calcite, magnesian calcite, aragonite, hydromagnesite, gypsum and other minerals. According to the divers, these deposits occur in the cave lakes at depths of less than 6 m, typically between 1 to 2 m and may be associated with haloclines. The variety of deposits, including aragonite,

suggests a seepage source within the highly porous Nullarbor Limestone bedrock containing ions of magnesium and sulfate.

Walli Cave entrance micro-organisms
Jill Rowling

The entrances of Piano Cave and Bone Cave at Walli (NSW) were examined to see whether the colours of the coatings were due to minerals or organisms. Both mineral and biological coatings were found. Some of the orange colours are due to the rapid precipitation of calcium carbonate (white) together with either reddish clays or red algae, or both. The dark greens and blacks are colonies of a green algae, which appears emerald green under the microscope. A pale green colour can occur where this algae co-exists with rapidly precipitated calcium carbonate such as moonmilk, and may persist as microscopic emerald-coloured speckles a few millimetres into the precipitate, presumably according to the ambient light levels and the substrate porosity. A purple colour resulted from a reddish mineral substrate (carbonate-cemented clays) with microscopic colonies of emerald-green algae. Bryophytes also develop in the shaded parts of cave entrances, usually away from the most direct sunlight. Some organisms form a blue-green colour, coating moist speleothems where there is sufficient filtered ambient light. Two types of filamental blue-green organisms were observed under the microscope, and may be a symbiosis of fungus and cyanobacteria.

The Exploration Component of a Cave Management Plan
Patricia E. Seiser, Ross Anderson & Jay Anderson

Exploration activities are often overlooked in the development of management plans for caves, yet exploration can have a significant impact on a cave's environ. In addition, knowledge derived from exploration is a key component in the conservation and protection of caves. Few cave management plans can be considered complete without addressing cave exploration activities. Exploration management plans are not plans for how an expedition is to be run, rather they address policies and procedures for both in-cave and surface activities associated with exploration. Exploration management plans must address competency requirements of participants, ranging from necessary caving skills to required skill levels for surveying and inventory activities. Plans need to address a variety of activities including: survey procedures, the establishment of trails, and photo documentation. In addition to in-cave activities, plans must address surface activities including data management and cartography. It is important that all plans are region appropriate. Exploration can be a powerful tool in the conservation and protection caves, but only as long as it is conducted in a manner that conserves the cave and provides data and results to support conservation/protection efforts.

Travertine deposits cut by fluvial erosion at Mole Creek, Tasmania
Henry Shannon

In Croesus Cave at Mole Creek, there are sections where wall, ceiling and even floor elements are cut in travertine formations which must have been deposited in airspace but which have later been eroded under fluvial conditions. These field relations imply substantial changes in streambed level, from lower than present to some 2m higher before returning to present. Higher ceiling cuts in the cave imply the process has

happened more than once. The rise in streambed level and subsequent ceiling cut is attributable to an input pulse of gravel that makes sense as a response to soil mantle instability, likely to have been triggered by glacial/periglacial extremes, and that the travertine deposition occurs through the remainder of a glacial/interglacial cycle. The situation in Croesus Cave contrasts with that in neighboring Lynds Cave in that the 2m cut level is absent in Lynds. Since Kansas Creek is responsible for both caves and switches from one cave to the other periodically, it is thought that the last change from Croesus to Lynds occurred at least one extra cycle back and certain features of the associated flowstone surfaces, indicating relative age, are discussed.

Ruteng Caves Indonesia
Garry K Smith

In July -August 2006, a group of five Australians and one Indonesian set out on a five week palaeoclimatology research assignment to the island of Flores in Indonesia. The project revolved around the study of speleothem growth and composition to determine past changes in the regional climate. These data can then be related to human habitation, with the added bonus of possible links to the demise of the recently discovered human skeleton named Homo floresiensis ("the Hobbit"). Our goal was to visit caves in the area around the town of Ruteng to locate and collect core samples of suitable speleothems which could yield useful palaeoclimate data.

The extent of the cave systems around Ruteng was not fully known other than through brief descriptions by previous researchers of non-caving background. In total our group visited 5 major caves including the now famous Liang Bua (Hobbit Cave) which in 2004 yielded the most significant paleoanthropology find in decades. To our amazement we discovered and surveyed a large extension to this cave.

Another cave called Liang Luar was known by the locals to be approximately 100 metres long. A way past a rockpile choke revealed extensive passage and huge well decorated chambers, which was far beyond our wildest expectation. To date this cave has been mapped to just over 1.6 km with much more to be surveyed. It is hoped that a future expedition planned for 2007 will enable the survey of this cave system to be completed. This paper deals primarily with the access logistics, survey difficulties of Liang Luar cave and description of the 5 major caves we visited.

Karst on Pungalina Station, Northern Territory
Nicholas White, Paul Brooker, Daryl Carr.

VSA has now conducted two very productive trips to explore the caves and karst on Pungalina Station, NT. Pungalina Station is situated close to the Gulf of Carpentaria on the Calvert River and operates high quality safari tours. VSA became aware of caves from cave photographs in promotional material for these safaris. Enquiries led to organising an expedition during June 2005 to explore and study the karst.

The caves are in the Pre-Cambrian Karns Creek Dolomite (~ 1.3 billion years old) which, contains fossil stromatolites. To date we have discovered and explored over 25 caves and features.

Totem Pole Cave (PUN-7) was known to the owners and when surveyed turned out to be over 1 kilometre in length and to contain a maternity colony of ghost bats. Other

discoveries followed such as Ballroom Cave (PUN-11), an extensive, well decorated multi-entrance cave with a large population of orange horseshoe bats. The follow-up trip in June 2006 was nearly cancelled because of flooding during the wet season and wet conditions constrained extensive exploration, but resulted in more detailed exploration near Totem Pole Cave. Careful track-marking was done in both Ballroom Cave and Totem Pole Cave to constrain the effects of small tourist parties and to avoid bat roost areas. A lot of biological collecting was undertaken as well as some bat bone collecting to confirm the identity of the bats.

VSA is planning further trips to the area to examine the numerous possibilities, evident from aerial reconnaissance.

Sea Caves or Flank Margin Caves: do we understand cave formation at Tantanoola and Taragal?

Susan Q White [1], John Mylroie [2] & Joan Mylroie [2]
[1] VSA [2] NSS

Many caves on and near the coast in southern Australia are formed in Cainozoic limestones of limited cementation. These include both Miocene marine limestones e.g. Gambier Limestone, and the Pleistocene Bridgewater Group dune aeolianites. Traditionally caves formed close to this coast have been described as "sea caves" either without much further discussion, or invoking complex mechanisms and previous sea-levels.

The term "sea caves" implies formation by marine corrasion at sea level rather than solution. This appears to be an inappropriate mechanism for several caves in the coastal areas of the Gambier and Port Campbell Karst Provinces. Flank Margin caves are a more appropriate speleogenetic model for several such caves. Flank Margin Caves have generally been identified in island karst scenarios, but suitable conditions occur on emerging continental margins where suitable limestones occur.

Tantanoola Cave (5L-12) and Bridgewater (Taragal) Caves (3P-9) are two such caves previously described as sea caves. Flank Margin mechanisms are more probable. The cave formation in both is described and discussed in the context of the present and previous coastal speleogenesis of the area.

Cave Porosity and Permeability: A Technique for the Comparison of Differing Karst Areas

Susan Q White and John Webb
Environmental Geoscience, Latrobe University, Bundoora Victoria Australia

The understanding of karst groundwater flow and karst hydrogeological concepts and the relationship of both porosity and permeability in karst are often poorly understood. The high variability of karst areas make comparison between areas difficult. Confusing and contradictory terminology has not helped.

Worthington (1991) developed morphometric techniques relating to porosity and permeability measurement in carbonate aquifers which enhance understanding of conduit development in the aquifers. Consequently these techniques are useful tools for the comparison of the karstification of different areas.

Concepts such as conduit density and porosity can assist in determining the karstification of an area. Cave porosity is the percentage volume of the karstic rock

occupied by mapped cave. It represents only part of secondary porosity, which also includes smaller fissures. Conduit density is defined as the total length of conduits within a unit volume of rock (karst aquifer). These values are always underestimates as they will always be increased by further exploration and mapping and they are a rather coarse measure of karstification. However, they enable comparison between areas in a way that has been previously difficult.

Australia has been described as having limited caves and karst (Jennings, 1967; Jennings, 1975). However more systematic exploration has significantly extended the karst estate. The problem remains in developing methods for valid comparison of karst areas with vastly different characteristics. Comparison of several Australian karst areas and some international well-known karst areas will illustrate this technique as a useful comparative tool.

The Glenelg River Karst: an under-explored area of karst potential.
Susan Q.White and John Webb
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The Glenelg River karst area lies within the Gambier Karst Province, along the Glenelg River and its immediate environs. It has been known as a caving area for many years but its known caves are restricted. It forms part of a composite karst area on the coastal plains of the Gambier Karst Province. The influence of the incised Glenelg River on surface and underground water flows and the tectonic activity of the faults along the escarpment to the east of the river, has resulted in a significantly different karst landscape to the drowned cenote karst to the west. Within the Glenelg River karst there are known two sub-areas: the escarpment and the immediately adjacent incised Glenelg River karst area which, include several poorly defined cave documentation areas used by the VSA and CEGSA (Matthews, 1985): a small part of the lower southeast of South Australia (L) just to the west of S.A./Victoria border, known as Dry Creek, including areas of pine forest and farmland nearby, and in Victoria, the Glenelg (G), Drik Drik (DD) and poorly documented areas between the fault escarpment and the Glenelg River. Although formed in the Tertiary limestones, like Naracoorte, the karst landcape evolution is very different. This paper will look at the landscape development of the karst through the Pleistocene, compare it to what happened in Naracoorte and discuss potential for further discoveries.

ForestrySA Cave Management System
Trevor Wynniat

Many people in this region saw caves & sinkholes as; nuisance value holes in the ground; were often filled in or used as rubbish dumps - potential to pollute groundwater; those on Forest Reserves were no exception – often filled with original vegetation when cleared planted right up to or through

Background:

- 1996 With the inception of Community Forestry section TW appointed to Ranger position – interested in caves , but didn't know much about their locations
- Became aware of location of dive sites & some regularly visited dry caves

- Over period of time as machinery became bigger & mechanical treatments, caving people contacting & saying we have damaged or destroyed a cave through chopper rolling, harvesting contractors had stood logs in, etc.
- Began to erect danger / warning signs at selected sites
- 1999/2000 – started fencing – post & rail (200 x 50 treated timber) & included elongated version of our warning signs
- Could see a need to get on some sort of database
- 1999 – Tracee Perry to CF as Project Officer, so one project was to come up with how to capture on database
- Project involved local caving / CEGSA gurus, Fred Aslin / Kevin Mott, also Peter Mackenzie GIS – Peter also has interest in caves.
- About 130 known & CEGSA numbered cave sites in Forest Reserves in LSE out of over 500 throughout LSE
- Information Collected:
    - L Number (L being LSE) if already numbered
    - Sensitivity
    - If site needs fencing
    - Gating
    - Rubbish
    - Dimensions
    - Comments, eg doline, cave, etc, if visited by public, etc.
    - Popular name
    - Alternative names
    - Actual name
    - If cave has a thin roof
    - Special features, ie formations, etc
    - GPS coordinates
    - Photo
- During this process –found approx 100 more karst features (900 or 1000 series)
- Data loaded this into GIS & system developed by P Mackenzie
- When we log on, we see red dots, representing karst features, plus L numbers
- Hot-linked, so when we click on dots it will bring up photo, plus site information
- Sales will see Cpts in red, ie exclusion zones; See Troy or myself; May result in site visit with Logging Coordinator, Contractor CF, & possibly operations coordinator; Agree as to buffer, treatment, if thin roof, etc
- In meantime we have gated about 12 sites, including 4 out of 7 diving sites
- EMS & Buffer Zone guidelines were developed – cave info already collected would compliment the system well
- Continued to put new features on system as they're often found & identified in Hazard / Incident Reports

- 2005 – formation of ForestrySA caving / cave management group, which consisted of myself, Troy, Grant Pearce & Peter Mackenzie, with advice from local CEGSA people, when needed
    - Looking at: New discoveries & what to do with them; eg if sand holes GPS, photograph put on database & fill hole in example – Hells Hole Quarry; how to make secure in short term; Standardising fencing (post & cable?)
- Developed "Significant Site Record Form" (on Standard Forms)
- Where to from here?
    - Will always be opportunities for continuous improvement, eg
    - Establishing Buffer Zones at T1 around caves (eg Wandilo Siding)
    - Establishing buffers along drainage lines / creek lines at T1 (eg Claypans Everglades)
    - Should be an easy way to capture such improvements on FMS system!
    - Need to capture other hazards (eg, wells – Myora / Caroline)

Need to develop significant site on-ground marking system to include heritage (European & Indigenous), rare plants, etc (looked at Ezy Drive marker post system)

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Winn Michael	**CaversLeeuwwin inc**	**winn@molloyisland.com.au**
Watterson David	**CaversLeeuwwin inc**	**Watterson@netserv.net.au**
Watterson Bev		
Wools-Cobb David	**NC**	**tascaver@bigpond.net.au**
Wools-Cobb Jessica	**NC**	
Zollinger Reto	**WASG/CEGSA**	**Reto.Zollinger@dpi.vic.gov.au**

Jeff Butts Family Dinner Attendance

Sarah Boyle (Jeffs Widow)
Daryl Butt (Brother)
Rita Butt (mother)
Allan Butt (Father)