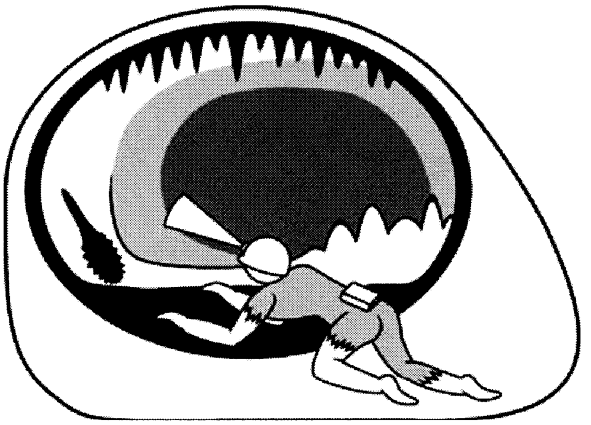
Conference Handbook & Abstracts



Karstaway Konference

27th Biennial ASF Conference

January 4th – 9th 2009

Gippsland Grammar School Senior (Garnsey) Campus

Sale, Victoria

Sponsored by:

Outdoor Recreation Centre Victoria

Cave Divers Association of Australia

Wilderness Shop, Box Hill Victoria

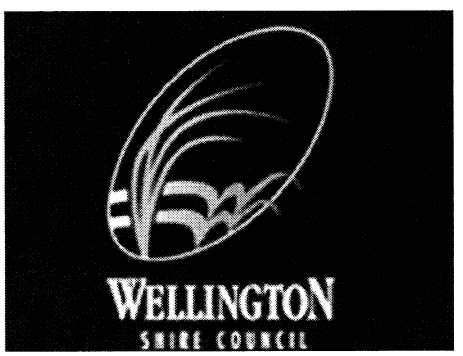
Wellington Shire Council

Victorian Speleological Association

Caving Club of Victoria

Victorian Scout Caving Team

Sponsors



Acknowledgments

Ken Grimes for designing the logo and help with the field guide layout.
Brett Wakeman for all the IT help, especially setting up the Registration database.
Rhonwen & Miles Pierce for the Trivia questions
Lloyd Mill for organising the extra tourist trips.
Darryl Carr for photography.
The members of VSA, CCV, VLCT and VSCT for all the help in lots of ways, especially with the field trips.

Contents

Introduction

Welcome to our Karstaway Konference, the 27th Biennial Conference of the Australian Speleological Federation. We have come to Sale in Victoria because this is the nearest town to the karst areas of East Gippsland capable of holding a conference of this size during the peak summer holiday period. Any closer to the limestone areas and we would all be elbowed aside by the summer tourists who flock to visit our celebrated tourist caves.

ASF is older than many of the cavers who are its members. However there are still old cavers around who joined at its very beginning, so we have not yet lost contact with our earliest foundations. At each conference we move on a little, acknowledging our earlier achievements and building on them as new generations discover the lure of the unknown, and the challenges and pleasures of sharing what they do and find with other like-minded characters.

Our conferences have always provided wonderful opportunities for caving groups and individuals all over the country to showcase their special projects, large and small. They enable our technical wizards to demonstrate all those unimaginable new uses for old and new technology. And of course we get to hear about all those fantastic discoveries made by determined and hard working speleos who have been too busy caving to write about what they've been doing.

All conferences offer many opportunities to share, compare, learn and be amazed by the things that are happening outside our own little patch. So take every opportunity to meet other cavers from other places who are doing things differently to the way we do at home - wherever home may be.

That's what conferences should be all about!

Margaret James
27th ASF Conference Convenor

Major Conference Contact Numbers:

Karstaway Konference **Bat Phone** (central contact point for duration of the conference) 0419 493 396
Boarding house main phone 03 5143-6311
Website http://www.caves.org.au/conf2009/.

Conference information

Registration is in the foyer of the Theatre. Registration times are: Sunday 4th January, 12 noon – 5 pm and from 8.15 – 9.15 on Monday morning. **The Conference Opening** is 9.30 am Monday. Later registrants can register first thing each morning in the foyer.

Registration covers the program, Welcome BBQ, morning & afternoon teas and lunch, information kit and proceedings on CD. The Caveman's Dinner (Wednesday evening) is extra cost. All other evening meals are self catered. Paper copies of the proceedings will be extra.

Please wear your conference tag as this entitles you to morning and afternoon teas, lunch, participation in the Speleosports and Prussiking as well as being your ticket to the Caveman's dinner for those who have paid.

Coffee and tea facilities are available in the common room upstairs. Please clean up after you and do not leave dirty cups etc on the benches. Any questions about this area see Rhonwen Pierce. Cold drinks are also available for $1 in the honesty tin

Sales: Some sponsors will also have merchandise and information available. ASF and club publications will be for sale, especially books. Some Helictite subscriptions and limited back issues are available. These stalls will be in one of the upstairs class rooms. A list will be posted in the foyer of who to see for particular material, eg Timor book, ASF 50th Anniversary Book, CDAA DVDs etc. For queries on this please see Susan White to organise a site.

Conference Merchandise: Extra conference merchandise is available from registration (see a committee member wearing a maroon shirt). Polo shirts are available for sale with the Karstaway logo; you can have any colour as long as it is an elegant ROYAL BLUE. Sand coloured bucket hats are also available. Red wine and port are also available to commemorate the event. Price details are on the registration form and the website.

During the conference, especially on the Tuesday and Wednesday afternoons, **trips** to the nearby Gippsland region are being organized. These will be at the participants cost (if any) but there are several interesting areas in the Sale region if you become overdosed with speleological matters! Some can be undertaken merely for the cost of driving but others will have a charge. Look at the notices near registration and see Lloyd Mill for details.

The **Auction** of pre-loved goods for the Environment Fund will be mainly run as a Silent Auction. The items will be available for perusal and bids in one of the upstairs classrooms. Bidding will start when set up and will finish on Thursday night at the social function. A few more significant items will be auctioned verbally on Thursday night at the final social event. Please note that the items will not be released until paid for and payment is to the ASF Treasurer, Grace Matts. For any questions see Susan White, John or Jeanette Dunkley.

Meetings: As well as the Council meetings (Tuesday & Friday afternoons, see detailed program) ASF commissions often need short meetings. Please see Susan White for a time and place if you need it. These meetings will be announced during 'housekeeping' notice times.

Presenters: Please organise to have your presentation, either slides or Powerpoint to be downloaded onto the computer via CD or data stick. Please see the program Co-ordinator Susan White or her delegate, prior to your session. Posters will be displayed with the Photographic Display.

The **Photographic Display** is located in the upstairs common room. As previously advised, for this Conference there will not be a formal photographic competition. However, conference attendees are invited to vote for the photograph that they like most in each of the four categories on the coloured (pink) voting paper included in the registration bag. The completed voting paper should be placed in the ballot box in the photographic display area by the closing time shown on/at the ballot box. The results of the 'people's choice' voting in each of the categories will be announced before the end of the conference and prizes will be awarded to the respective photographers. In voting, please consider technical quality, composition, subject depiction, lighting effect, etc, as well as more subjective factors.

Persons submitting prints for the photographic display are to present them at time of registration and the conference organisers will arrange for mounting them on display panels, as previously advised ('Photographic Display' information on Karstaway web site). Prior notice of the numbers of prints should have been given, and if not, the conference organisers may decline to include them in the display area. Those who have organised to submit photographic prints for display, please see Miles Pierce to organise the displaying of your photographs.

If you are offering them for sale make sure a 'For Sale' sticker with the asking price is supplied by the vendor for display with each print. Payment can be organised through the registration desk. At the conclusion of the Conference, the owners of the photographs will be responsible for collecting them from the Conference Organisers before departure.

Website: This will not be accessed during the conference and will not have been updated since before the New Year. There is no internet access at the conference

but information on public internet facilities available in Sale will be at the registration desk.

The Speleosports are being organised for Thursday afternoon . This will be an individual event rather than a team event. For any questions see Greg Leeder. The **Prussiking Time Trial** is in the Gymnasium on Tuesday evening and is an individual event. For questions see Tony Watson or Tom Aberdeen. This will be run at the same time as the **Trivia Team Trial** and all questions regarding this please address to Rhonwen Pierce.

Publications: A limeted number of conference handbooks may be available at registration (small fine if you lose yours!) The conference proceedings will be produced as a CD. Presenters are asked to have final papers to the editors (Susan White and Glenn Baddeley) by 1st February 2009. The format details will be placed on the website as soon as possible but will be very similar to the format used by Helictite. Some details of format are on page 11 of this handbook. For questions about this please see Glenn or Susan.

The **venues** used will be mainly at Gippsland Grammar School Senior (Garnsey) Campus, supplemented by the Wellington Shire Tourist Information Centre, the Showgrounds camping area and the Greyhound Racing Club (Figure 1: map).

Gippsland Grammar School Senior (Garnsey) Campus is situated in the block bounded by Princes Hwy, Raglan, McGhee and Dawson Sts Sale. The boarding house is entered from Raglan Street which runs off the Princes Highway just south of Gippsland Grammar school campus or from the school campus.

The Welcome BBQ on (6 pm) Sunday 4th is at the Information Centre in Foster St.

The Showgrounds campground is 100m to the north of the school. Camping fees are $16 per night for a powered site and $12 per night for an unpowered site. Camping is permitted on the grounds surrounding the recreation oval. BYO tent, panel van, camper or caravan. A limited number of powered sites are available. Hot showers and toilets are available. No booking is required and sites are selected on a first come first served basis. Enquiries may be directed to the caretaker on 03-5744-6432. The contact person from the conference committee is Greg Leeder.

The Greyhound Racing Club is located to the west of the Showgrounds and is the venue for the dinner. This is also a good place to eat for evening meals.

A list of eating and other facilities in Sale is listed on page 22.

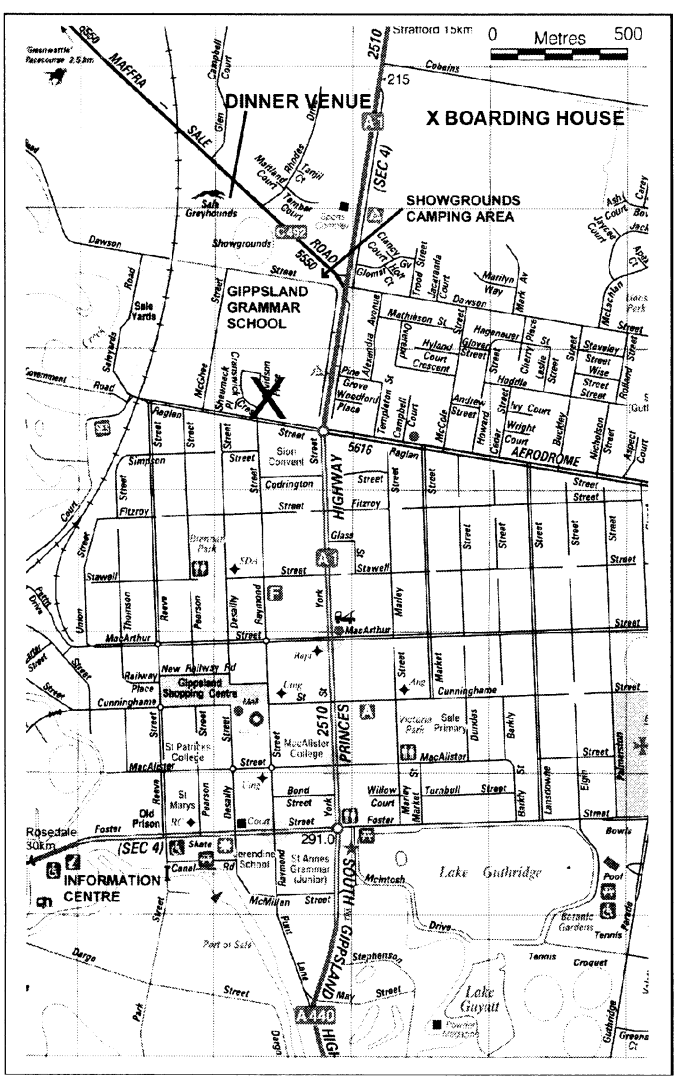


FIGURE 1 Map of Sale showing venues. (NB the Welcome BBQ is not in the school complex or nearby).

(Modified from RACV Publications Department map and reproduced for non commercial purposes).

An extra map is included in your conference bag

...from previous page

Gippsland Grammar School

The entire site is smoke free. This is a school requirement and it includes all the grounds.

Limited parking is available in the staff car park off McGhee St. There is plenty of parking in McGhee St itself and it is a very short walk to the school from the Showgrounds campsite and the boarding house. Please do not park in the front of the school.

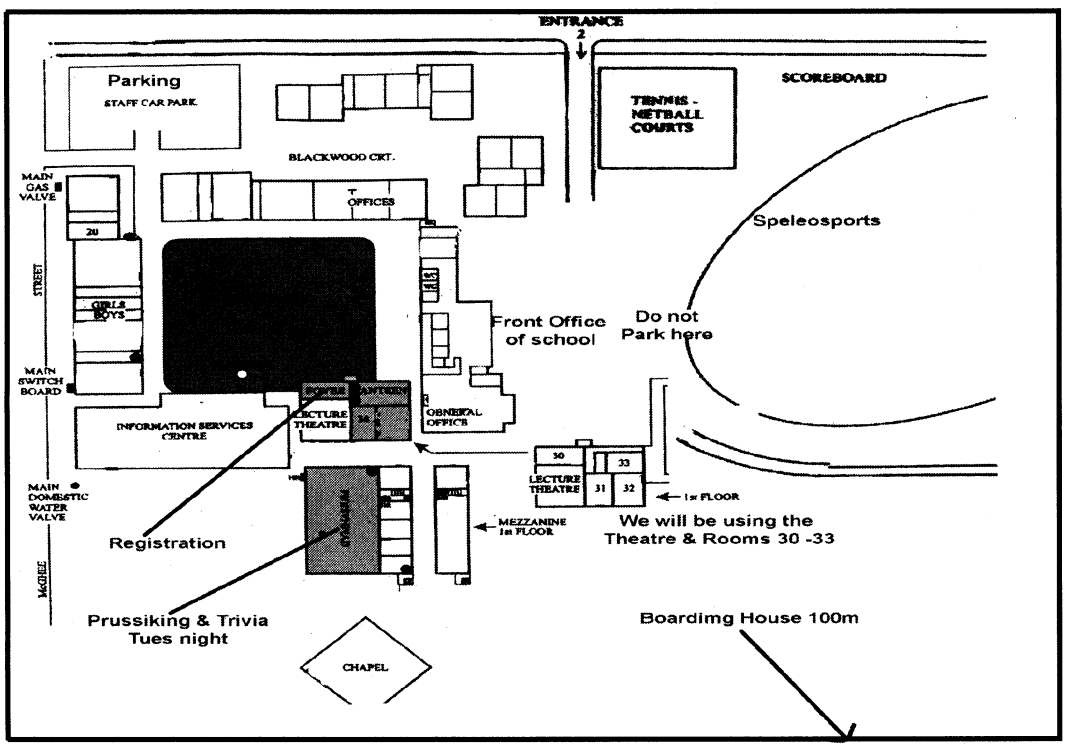
For majority of the conference will held in the main (air conditioned) theatre, which is equipped with audiovisual equipment and seats 150 people. The associated classrooms and a small common room will be used for the silent auction and smaller meetings. The common room is for socialising and will have tea, coffee etc available. The photographic Display wil be also in the common room. The main toilets are across the quadrangle. Specific locations are included in the detailed program. The morning and afternoon teas and lunch will be served from the Quad Caf near the theatre and seating is available around this area. You need your registration tag to get fed!

The speleosports will be held on the oval in front of the school where there is an adults "play ground". The prussiking and trivia night is in the Gymnasium. The DVD showing and the auction will be held in the Boarding House as access to the school is not possible after 8.30 pm (except the gym).

Some basic requirements of the school:

- **NO Smoking** on school grounds
- All rubbish must be placed in bins
- Keep to the main areas we have hired and do not wander around the school buildings (there are people at work)
- Socialising to be done either outside or in the common room
- Please use the parking in McGhee Street or the staff carpark off McGhee Street.
- Clean up after yourselves in the common room (wash up cups etc)

Figure 2: Map of school Some modifications have occured since this map was drawn, but it gives a general view of the layout.



Boarding House: Blackwood House:

General operations:

This information is mainly for those using the Boarding House. However as two evening social activities will be held here, all conference registrants need to understand the operations.

Location and contact:

The boarding house is entered from Raglan Street just south of Gippsland Grammar school. It is a short walk from the back gate of the boarding house across the ovals to the school buildings, and from there to the Showgrounds (watering hole and cavers' camping area included). The telephone number for the boarding house is 5143-6311, and although it will not be monitored during the day, somebody should be present on

most evenings except when there are conference events organised elsewhere e.g. Caveman's Dinner. Please do not invite anyone to ring this number late at night.

General information:

The boarding house is a spacious,modern single storey building. Like the school, it is strictly NO SMOKING, either inside the building (which will set off the fire alarms) or in the grounds. In addition, no candles or naked flames please, these are a fire hazard and will set off the fire alarms. Please don't stick anything on the walls; this will damage the new paint. There will be "Members-in-charge" from the organising committee who you should talk to about anything to do with your accommodation.

Bedrooms:

The large bedrooms have no more than two single beds per room; most beds are king size singles. No linen, blankets or pillows are supplied. It's BYO everything. There is plenty of cupboard and hanging space.

You are welcome to share a room with anyone of your choice, but you need to tell us who so it's booked for you both. If you prefer a room to yourself, this should be possible if bookings are not too heavy.

No bedroom can be locked. (It IS a boarding school for both teenage boys and girls after all!) However all rooms have a small bedside table or cupboard which can be locked, but you may need your own small padlock. The lockable storage varies slightly, but will usually hold a few small things like a laptop computer plus the odd camera or smaller item. Any larger valuables can be locked away in a room which can only be accessed via a key held by a conference committee member. Although inconvenient, it is more secure than an unlocked bedroom.

Bathrooms and toilets:

Some bedrooms have their own en suite. Otherwise no room shares its bathroom/toilet with more than one other bedroom (the en suites are between the two rooms).

Shared spaces and other facilities:

There several open spaces where people can just relax, chat, have a cuppa, watch TV or videos, or find a quiet spot to finish preparing their presentation or council business. Some of these spaces are large and will be used on Monday and Thursday evenings for the DVD show and the auction. There are two courtyards, a recreation lounge (with table tennis & pool table) and TV /DVD facilities in the lounge.

Washing machines are available, but you need to supply your own detergent. There are washing lines outside, but no drying machines.

Food and cooking:

There will be a light serve-yourself breakfast provided at no extra charge. This will be essentially cereal, toast, probably fruit juice, and tea/coffee. You will be able to make a cuppa at any other time you want: there is a wall urn for hot water, and we will supply the makings. There is a frig available if you want to keep something cool.

We do not have access to the industrial kitchen; no extra cooking will be possible at either breakfast or dinner times. If you want something cooked, you will need to go out for it. However there are plenty of good cheap eating places in Sale, both sit down and take away. We have been asked to NOT have any food in bedrooms.

Looking after the place:

We will need to keep the place clean ourselves as there are no cleaners coming in during the week. That includes the shared spaces as well as your bedroom and bathroom. We will need to organise our own cleaning up of the dining room and kitchen after breakfast. We will need to keep the tea/coffee area clean and tidy.

Parking:

There is parking off the street (Raglan St) for about 20 cars. The front gate will be unlocked all day enabling you to come and go as you wish. We have been asked to lock the gate to the parking area at night to keep the local hoons out. If you come back very late at night you may have to ask a MIC (Member-in-Charge) to unlock it for you. (See "Access and security" below.)

Access and security:

Guests will not have access to the Boarding House during the day. While this is inconvenient, it means that nobody else can sneak in and pilfer your belongings from the unlocked bedrooms while we're away. Because of this we do ask that people take everything they think they'll need for the day when they leave the building in the morning. If you do need access during the day, a MIC may be able to open up for you, providing one is available. Once in the building, you can get out any time. You'll only need the key to get back in during the day.

At night when there are people inside, anyone who wants to come in can use the phone at the front door. You can't talk on it, but if it rings and there seems to be nobody there, someone will need to go and open the front door to let people in.

For safety reasons we are obliged to have an accurate booking register, and a system where you sign in when you come home for the evening. This is purely a safety issue for use in emergencies, not because we wish to know where you are. (We don't!) For example if there is a fire, we are obliged to know who was in the building that night, then tick off everyone as they escape. Otherwise we will have no way of knowing whether everyone is safely out of the building, or needs rescuing by the Fire Brigade.

Program

The conference has included the usual mix of meetings, social activities and presentations, workshops and forums. Papers are 25 minutes long, including questions. Abstracts are included in this handbook (Page 12).

Commissions and working groups etc, needing meetings should arrange times and places with the Program Co-ordinator, Susan White.

Morning sessions will generally begin at 9 am, lunch at 1 pm and afternoon sessions start at 2 pm. Afternoon finishes at about 5.30 pm. Evening activities will be 7.30 pm + until close, but generally should finish by 10 pm at the latest.

Day 1 Sunday 4 January 2009

Pre 12.00 noon	Committee set up GGS
12.00 noon – 5 pm	Registrations GGS Theatre Foyer
6 pm +	**Welcome BBQ** Wellington Shire Tourist Centre, Foster St (see map Fig 1). Welcome by the Mayor, Mr Darren McCubbin BYO Alcohol. [***Sponsored by Wellington Shire Council***]

Day 2 Monday 5 January 2009

8.15 am – 9.15 am	Registrations GGS Theatre Foyer
9.30 am – 11.00 am	**Official Opening Ceremony, Welcome** Welcome to Country Marg James, Conference Convenor Susan White, VSA President ASF President, Stan Flavel

Keynote Speaker Al Warild, Recipient of Australian Geographic's Lifetime of Adventure for 2008, ***Extremes of Latin American caving.***

11.00 am	Morning Tea
11.30 am – 1.00pm	**Presentation Session 1** Andy Higgins, (CDAA) ***The CDAA, training and diving in Mt Gambier*** Julia James, et al (University of Sydney and oth***ers)*** ***The Jenolan Caves Survey Project as of 2008***
1.00 - 2.00 pm	Lunch
2.00 - 3.30 pm	**Presentation Session 2** John Webb & Ken Grimes, (Latrobe University & Regolith Mapping) ***Origin of Cenotes near Mt Gambier, South Australia*** Iain McCulloch (ANU) ***Cave-Producing Processes in Soft Porous Limestone Regions of Southern Australia*** Ken Boland (VSA) ***A Serendipitous Study of the Nullarbor***
3.30 pm	Afternoon Tea
4.00 - 5.30 pm	**Workshop Session 1**
Workshop 1	***Action Figurative Art for Cavers and Non Cavers*** June MacLucas (CEGSA)
Workshop 2	***Documentation and the Karst Index Database Forum*** Nicholas White (ASF Senior Vice President)
5.30 - 7.30 pm	Self cater dinner
7.30 pm – 10 pm	**Evening event:** Caving DVD/video session in Boarding House Lounge. BYO drinks and nibbles. Tea & coffee provided.

Day 3 Tuesday 6 January 2009

8.15 am – 8.55 am	Registrations GGS Theatre Foyer

9.00 am – 10.30 am	**Presentation Session 3** Deb Hunter (Mole Creek CC) ***Slope Hydrology, Karst Drainage & Water Quality Related to Land Use: Great Western Tiers, Tasmania*** John Webb & Bob Musgrave (Latrobe University) ***Paleomagnetic dating of Pleistocene cave sediments at Buchan, southeastern Australia.*** Glenn Baddeley (VSA) ***Recent exploration in Jones Ridge Cave (DD-4) at Drik Drik, Western Victoria***
10.30 am	Morning Tea
11.15 am – 12.45 pm	**Presentation Session 4** John Dunkley & Scott Melton (JCHAPS) ***Cave Tourism Brochures*** Elery Hamilton-Smith, (IUCN / WCPA Task Force) ***The Buchan Story*** Elery Hamilton-Smith, (IUCN / WCPA Task Force) ***Australia's First Karst Scientist***
1.00 - 2.00 pm	Lunch
2.00 – 5.30 pm	**ASF Council Meeting 1**
3.30 pm	Afternoon Tea
5.30 - 7.30 pm	Self cater dinner
7.30 pm – 10 pm	**Evening event:** Prussiking Individual Time Trial & Trivia Team Trial. Gymnasium. BYO refreshments.

Day 4 Wednesday 7 January 2009

8.15 am – 8.55 am	Registrations GGS Theatre Foyer
9.00 am – 10.30 am	**Presentation Session 5** John Dunkley (HCG) ***The Thailand Project: 25 years of progress*** Steve Trewavas (CDAA) ***China Caving Project 2008*** Nicholas White et al (VSA) ***Pungalina Explorations, Northern Territory***
10.30 am	Morning Tea
11.00 am – 12.00	**Presentation Session 5** Yvonne Ingeme (VSA) ***Subterranean fauna that are Groundwater Dependant Ecosystems*** David Wools-Cobb (Northern Caverneers) ***Karstcare - Cavers Looking after Caves and Karst: an update.***
12.00 - 1.00 pm	**Workshop Session 2** John Dunkley: ***The ASF Environment Fund; its structure and operations.***
1.00 - 2.00 pm	Lunch
2.00 – 3.30 pm	**Workshop Session 3** Nicholas White (Conservation Commission) ***Conservation Forum***
3.30 pm	Afternoon Tea
4.00 - 5.30 pm	**Workshop Session 4** **Sharon & Peter Dykes** ***An ASF Indigenous relations policy: a discussion***
7.30 pm – 11+ pm	**Evening event: Caveman's Dinner** Greyhound Racing Club.

Day 5 Thursday 8 January 2009

8.15 am – 8.55 am	Registrations GGS Theatre Foyer
9.00 am – 10.30 am	**Presentation Session 6** Garry Smith (NHVSS) ***Cave Photography with Digital Cameras*** Greg Andrews (ORC) ***The ORC, the AAS and you*** Caroline Forrest (ASF Leadership, Safety & RM Commission) ***The Real cost: Some Principles of Risk Management***

10.30 am	Morning Tea
11.00 am – 1.00 pm	**Workshop Session 5** Caroline Forrest (ASF Leadership, Safety & RM Commission) ***Out of Harm's Way: Best Practice for Risk Management in Caves.***
1.00 - 2.00 pm	Lunch
2.00 – 5.30 pm	**Speleosports** on the school oval.
3.30 pm	Afternoon Tea
5.30 - 7.30 pm	Self cater dinner
7.30 pm – 10 pm	**Evening event: Auction & social event** Boarding House Lounge. BYO drinks and nibbles. Tea & coffee provided.

Day 6 Friday 9 January 2009

8.15 am – 8.55 am	Registrations GGS Theatre Foyer
9.00 am – 10.00 am	**Workshop Session 6** Susan White (Publications and Helictite Commissions) ***Publishing: a means to give a wider understanding of caves and karst to the community.***
10.00 - 10.30 am	**Presentation Session 7** Susan White (VSA) ***Karst and Pseudokarst in Victoria; An Overview*** Tom Aberdeen on Post conference trip final arrangements
10.30 -11.00 am	**Closing Ceremony**
11.00 am	Morning Tea
11.30 am – 1.00 pm	ASF Council Meeting 2
1.00 - 2.00 pm	Lunch
2.00 – 5.30 pm	ASF Council Meeting 2
3.30 pm	Afternoon Tea

Clean up and leave for field trips.

Post Conference Trips:

The post-conference caving trips are planned for Saturday the 10th, Sunday the 11th and Monday the 12th of January 2009, with further trips into the week depending on demand.

The conference post trips are taking place in bush-fire season, and fire risk may modify trip plans and availability without notice.

The planned trips are:

Buchan: the major limestone area in East Gippsland, around 1.75 hours eastwards from the conference venue. Limited beds available in the area, or camping. The areas will include Buchan, Murrindal, East Buchan, New Guinea Ridge and The Basin.

'Homeleigh' is the Buchan caving lodge conveniently located in Buchan and a short drive from many caves. However beds are limited and should be booked well ahead of time. Details for booking can be found at: http://www.rimstone.org.au. Rimstone is not an ASF club and is run as a service and does not have subsidies.

No restricted caves or caves in the main Parks Victoria reserve will be used (except the Tourist Caves if you want to pay). This is due to the heavy visitor pressure in the tourist areas at this time of year.

Limestone Creek (Remote North Eastern Victoria): Camping only. Limestone, Claire and Stony creeks and Indi. A permit has been obtained for Indi (NSW). Limestone Creek is completely remote area camping. ALL food and equipment needs to be taken; there is no local shop closer than 3 hours drive away

Labertouche: a granite boulder cave nearer Melbourne; a day trip. Self guided trip.

Den of Nargun: an overhang cave behind a waterfall on the Mitchell River; a half day self guided trip.

Walkerville: relaxed coastal caving, camping on farm.

Participants will need to arrange own transport to the caving areas, and need to organise their own accommodation. Directions to each area, as well as suggested accommodation and trip lists are posted in the Common Room. Please sign up and make sure you talk to the trip organizers regarding details.

Detailed information is in the field guide and cavers are encouraged to organise their own trips, with the basic information (location, directions, description, and a guide to any required rigging if needed) available. Individuals or groups wanting to join the scheduled trips should book these as soon as possible, as guidelines for maximum numbers in each cave will be adhered to. Not all scheduled trips will have a local leader, only those with special requirements or complex navigation/local permission will involve a leader familiar with the cave. No caves on the schedule or in the field guide require permits except Indi where a permit has been obtained.

A range of trips is possible; in varied environments, some involving SRT and water. Consult the field guide for more information on each cave. Cavers will be expected to supply their own gear. There will be some trips suitable for novices or non-caving family members. Tom does not expect hold your hand and lead you through the dark. He may allow you to tag along if he does go caving. The same applies for the other trip leaders!

Victoria has some great caving to offer; have fun!

Any Questions? General – Tom Aberdeen; Buchan – Tom Aberdeen; New Guinea Ridge – Miles Pierce; Limestone Creek & Indi – Nicholas White

Proceedings

The conference proceedings will be produced as a CD. Presenters are asked to have final papers to the editors (Susan White and Glenn Baddeley) by 1st February 2009. The CD will be in printable quality pdf format to enable anyone needing hard copies to print at good quality. Hard copies will not be provided.

Publication Format

The title should be upper case bold and the author's names and addresses should follow. A brief and explicit summary of the notable aspects of the paper, headed abstract, should precede the main text. Acknowledgements should be placed at the end of the text before the references.

Please submit as "plain text" (.txt) or "rich text" (.rtf) version of the file as well as a formatted one. This avoids the problems of "fully" formatted word-processor documents which tend to embed all sorts of unwanted hidden codes about margins, tab settings, spelling dictionaries, font changes etc. which can override our system defaults. It does save us editing time if basic formatting such as bold and italics, is included (especially for biological papers with numerous species names), and tables are formatted in full by the author. If you do use a full word-processor format, then note the following:

- Avoid changing fonts and other settings within the text.
- Rather than format your headers and sub-headers specifically in terms of fonts etc., use the Header level style codes: Header 1 is the title, header 2 is for main headers and Header 3 is subheaders.
- Do not use "paragraph styles" - this is what generates all the spurious code in the files.
- Special characters (eg the 'degree' symbol, the 'mu' symbol in 'mu'metres etc...) tend to get corrupted in the various conversions that occur between you and us.

Thus a printed hard copy of your FINAL version (after editor's comments etc.) is essential for checking purposes (and you should check it yourself first!).

Diagrams

Diagrams should be in .tiff or .jpg formats and should be a minimum 300dpi resolution. Low resolution diagrams do not reproduce very well. We can however read a broad variety of digital formats.

Using fine hatching or dot screens to get grey effects will greatly increase your file size, and we cannot guarantee that the grey tone will print without drop-outs or interference patterns. Your thinnest lines should be at least 5 pixels wide (for 600 dpi printing) to be certain that there are no drop-outs. If you need to show a lot of very fine detail, then 3 pixel widths might work, but avoid that if possible.

Photographs or full-tone diagrams

As the Proceedings are being produced on CD rather than in hard copy, photographs can be submitted as full colour. If grey scales are used use a resolution of 150 dpi (480 pixels wide for single column, 1020 pixels for full page width). Any hard copies produced will be printed as B&W and colour photos will be produced in greyscale. Do contrast and "gamma" adjustments if you wish, but note the comment below about avoiding excessive contrast. Note also that what you see on your screen may be quite different to what appears in final print (it could be darker or lighter or more contrasty depending on your screen type!).

Avoid more complex "enhancements" (especially edge and sharpen filters), which could destroy your effect. However, do not hesitate to discuss any effects you would like to do. For plain photographs the JPEG (.JPG) format is the most compact for email or CD transfer, but can introduce some 'spotty' edge effects if you have sharp edges or have added lettering or arrows. Check a printout of the file at your end before sending. Photo contrast should not be too strong.

Abstracts

The paper abstracts are arranged in alphabetical order according to the first named author. Joint paper presenters are underlined. The workshop abstracts are similar but follow the papers.

The ORC, the AAS and you

Greg Andrews, Membership Manager
Outdoor Recreation Centre - Vic - Inc
Contact email: greg@orc.org.au

The Outdoor Recreation Centre (ORC): The ORC is the central hub for all providers of outdoor recreation-based activities within Victoria. Its mission is to advance the cause of outdoor activities in Victoria through communication, networking and representation.

Recognition and support of existing peak and community organisations enable the ORC to support the many outcomes and experiences available from the outdoors.

Where necessary, the ORC provides a single point of contact to and from the outdoor industry when liaising with State Government Departments in the areas such as Community Participation, Land Management (access) and Regulatory influences.

The ORC provides Victorians with the opportunity to contribute towards initiatives in the outdoors that may affect them, as they arise. The ORC Committee of Management is made up from nominees from member organisations.

The Adventure Activity Standards (AAS) AAS are voluntary guidelines for undertaking potentially risky activities in a manner designed to promote:

* Safety for both participants and providers
* Protection for providers against legal liability claims and criminal penalties
* Assistance in obtaining insurance cover

The AAS have been established as minimum standards for organizations conducting outdoor recreation activities for dependant groups, where participants have a level of dependence upon the leader(s).

The necessity for minimum standards has arisen as the outdoor recreation sector continues to develop 'best practice'.

The AAS originated in Victoria and have been in place here for 5 years. All of the States around Australia are now introducing their own AAS.

This session will:

1. Give an overview of the work the ORC is currently involved in, as well as where we can assist our members
2. Introduce you to the concept of what the AAS are and update you on future plans
3. Give ideas and tips on how to constructively contribute to the AAS.

Recent exploration in Jones Ridge Cave (DD-4) at Drik Drik, Western Victoria

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The 25m deep DD-4 doline has been known since the early 1900's and was notable enough to be shown in profile on the parish geology map of 1929. In December 1995 cavers became aware of a small entrance at the base of the sheer sided doline which led into an active stream passage heading upstream beneath Jones Ridge. The ridge is an uplift about 10km long running parallel to the Glenelg River, consisting of a thin recent volcanic flow atop Miocene Gambier limestone, tailing off into Quaternary dune limestone down to the river. Since 1995 the Victorian Speleological Association has run nearly 30 trips to explore the stream passage and higher level dry areas of the cave, resulting in about 2400m of surveyed passage. Much of it is extremely muddy and wet and there are about 30 rock-falls and some pools and cascades to negotiate. 2km into the cave the stream emerges from a sump pool which is only a few hundred metres from a streak sink (DD-18) on the east side of the ridge. Efforts are continuing to push the sump, with the hope of further negotiable passage, which may extend through to DD-18. The stream continues downstream from the DD-4 entrance but human passage is currently blocked by rock-fall beneath the doline only a few metres in. The stream appears to continue to a small resurgence at DD-25, about 2km distant near the Glenelg River, but this has yet to be confirmed. There have been some interesting discoveries in the cave, including a big loop in the stream passage, a whale bone, shark teeth, unique mud stalactites, several waterfalls up to 4m high, side passages, and evidence of bat habitation in the past. Studies have been done on water chemistry and levelling. Surface exploration has added about 25 new karst features to the Drik Drik area, but no other significant caves. The limestone is nearly all on private farm land and cavers continue to foster very good relations with the land owners.

A Serendipitous Study of the Nullarbor

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Areas of sometimes one, two or three hundred square kilometres were known to be apparently untouched by any existing tracks, and to contain no known features.

The idea grew during previous survey expeditions to known caves at and beyond the treeline to study such an area in some small primitive way so as to ascertain whether there might be matters of interest. Consequently a solo three day walk was undertaken, and some ten small features were found, some being small caves. At the same time it became evident that the method would be futile for anything more than a minute sample of the whole plain.

Discussion led to the acquisition of a conventional tri-axis aircraft. Methods and processes were developed for efficient data collection both in the air and on the ground. In time further work produced verification of the validity of the processes.

Annual results since 2000 have varied greatly, and a firm commitment is producing results. There is no one aim other than to document what is there, though particular aims may emerge in time, also serendipitously. Documentation is itself a major part of the daily expedition, while some characteristics are emerging from the data and experience gained.

Cave Tourism Brochures

John Dunkley[1] & Scott Melton[2]
[1] Highland Caving Group & JCHAPS
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Ephemera is characterized by being of a public nature, often mass produced & freely distributed, but equally mass discarded, of little or no intrinsic value at the time. Postcards and books are post-trip souvenirs, often kept for many years, and many have become collectables. Brochures are usually pre-trip advertising and publicity, more frequently discarded and overlooked. The National Library of Australia has a section devoted to ephemera and has mounted several exhibitions including, for example, superb early posters promoting our caves.

Brochures can be useful measures of social history and of the way our caves were promoted and displayed. They record a move from package tours to more individual programs; they reflect on changing values such as standing on decoration, smoking in caves, provision of disabled facilities; there are changes in the promotional language utilised; there is a rising emphasis on special interest tours, attractions or themes such as music, adventure tours and regional attractions. They throw light on the history of caves no longer shown to the public, such as Scotts, Baldocks, Cammoo, Nettle and Arch. Privately owned caves often differ from publicly owned ones by promoting an incorporated gift shop, restaurant, motel or other profit centre.

Interesting Australian and foreign brochures will be displayed including some quirky examples: a Jenolan one advising that "cabin trunks and hat boxes cannot be conveyed as luggage"; a woman in swimsuit next to a column; the bathrooms of Samcheok; the American obsession with safety and comfort; and appeals to Ripley or the Guinness Book of Records in the quest for biggest, tallest or whatever.

The Thailand Project: 25 years of progress

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Many, if not most of the caves of Thailand were known locally for centuries, but not much recorded in speleological sources. In 1982, after several private trips to Thailand, the peripatetic Austrian caver Heinrich Kusch published a list of 94 known caves, some known to Australians such as Andrew Pavey and Mike Bourke. In that same year I made a reconnaissance trip to the north of the country. The project blossomed after a paper at the 1984 ASF Conference, and over the next 15 years a sustained effort resulted in 18 small and 8 large Australian expeditions, with up to 15 participants. As local residents were gradually attracted, several further expeditions followed with Australian participants, and other foreign expeditions arrived, mostly from France and UK. John Spies & Nopparat Naksathit received ASF Awards of Distinction for their contributions. The superb and highly recommended book "Caves of Northern Thailand" drew heavily on the work of these expeditions.

Major achievements included:

- an increase in the number of documented caves from 94 in 1982 to over 2,000 in 1997 and about 4,000 today
- developing a national cave numbering and documentation system
- exploring & surveying the then two longest caves in mainland South-east Asia

surveying over half of the then 34 longest caves in Thailand

- discovering the tallest column in the worlddiscovery of two new species of blind cave fish, which eventually starred in the Planet Earth TV series
- location of numerous unrecorded sites of prehis-

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toric coffin sites

- about 60 publications, including 5 books, 10 management reports, 24 speleological articles, 15 scientific papers in Helictite, Cave Science, Australian Archaeology etc. and an entry in the Encyclopedia of Cave and Karst Science.

- assisting and inspiring local interest in cave exploration, documentation, conservation and sound management

In the last decade the Australian work was continued by expatriates Dean Smart and Martin Ellis along with Shepton Mallet Caving Club (UK). Working partly with Dean's records, Martin has a prodigious fund of information on Thailand's caves. The project is an exemplar of what can be achieved by a sustained effort, and there are still numerous leads to be followed throughout the country. Despite the many publications and now several valuable websites (notably Martin's), this is the first overview of the project other than a privately produced, lighthearted retrospective produced only for 30 or so participants.

The Real cost: Some Principles of Risk Management

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The ASF Safety, Leadership and Risk Management (SLARM) is a committee that exists to serve the needs of ASF members and represent these to karst managers, landholders and others who have an interest in caves and caving. This paper sets out some of the basic principles that have been (or should be) applied to develop the ASF Safety Guidelines.

Risk assessment is only part of risk management. Risk management begins with the fundamental attitudes that define acceptable situations and behaviours. What does it mean to be an ASF member? What does ASF expect of its members and leaders? The idea of duty of care and responsible leadership from the perspective of new members needs to be clarified. Does this change over time? How and why?

This paper introduces some of the basic principles of risk management, starting with risk assessment – what do all the words mean anyway? This is followed with an overview of how, where and when ASF members can address these risks; and finishes with a brief look at the consequences of poorly managed risk for members.

The application of these principles is Management Practice and will be explored in a workshop at the ASF conference.

The Buchan Story

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The Buchan caves were first recognised and described by Stewart Ryrie in 1840. They were given little attention until the Stirling expedition of 1889 and the subsequent efforts of J.H. Harvey and others to ensure that the caves were protected and made available to tourists. Hotelier J.H. Wyatt and others conducted tours on a more-or-less casual basis for some years, citing Jenolan as an example of what should be done. This was taken up by geologist A.E. Kitson. Then Frank Moon arrived home after working on the Western Australian goldfields and commenced exploration of the caves. Kitson than arranged for him to be employed and in due course he discovered "Jenolan's Rival" – the Fairy Cave.

Frederick Wilson, former and long experienced manager of Jenolan Caves was then appointed to undertake the development of Buchan Caves for tourism access and to manage the caves reserve. At that time the normal tour route was by way of a train to Sale, a boat trip on the Gippsland Lakes, and a coach journey to Buchan. The responsible oversight was placed in the hands of a Committee of Management for many years but today Buchan Caves Reserve is managed by Parks Victoria.

Australia's First Karst Scientist

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In March 1857, Father Julian Tenison-Woods arrived in Penola (South Australia) as a newly-ordained Parish Priest. Over the next ten years, he rode to and fro across his immense parish, carrying out his responsibilities as a priest, and making a significant contribution to the development of the Church in Australia.

But at the same time, he was a keen observer of the natural environment, including the karst landscape and the caves beneath it. His first publication appeared in 1857 and in 1862, his Geological Observations in South Australia, principally in the district south-east of Adelaide was published in London. This is a landmark publication in speleology, although that was only of the topics upon which he wrote.

He discussed the prevailing theories of that day about caves and karst, but also described his own observations and understandings, a number of which have been validated by recent research. By the time of his early death in 1889, he was recognised as one of the leading natural historians of the country.

One remarkable aspect of his crowded and creative

life is that he was subject to continuing illness which was only properly diagnosed in 2006!

The CDAA, training and diving in Mt Gambier

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The CDAA was formed in the 1970's after several fatalities in the Mt Gambier region. Needing a formal training agency to train open water divers in overhead environment and to control access for qualified divers to safely dive caves in Australia, the CDAA now has three levels of rating for cave divers.

Each of these ratings has prerequisites and extensive theory and practical sessions to assess the standard of each diver and to prove they are competent in the environment they will be trained for. Deep Cavern is the start of the ladder, followed by Cave and then Penetration (Advanced Cave), which is the highest award that can be obtained in cave diving training.

Cave diving training in Mt Gambier (S.A.) allows premium training sites for instructors to teach in and students can continue their diving here post course.

We'll have a look at some of these sites with training standards and the expectation of CDAA members diving these truly magnificent sites.

Slope Hydrology, Karst Drainage & Water Quality Related to Land Use: Great Western Tiers, Tasmania

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In karst landscapes, where permanent surface water can be scarce, springs can be important local water supplies. Parsons' Spring, rising at the foothills of the Great Western Tiers in the Mole Creek valley, northern Tasmania, has failed in recent years without historic precedent. Coincidentally, rapid recent conversion from predominantly native forest land use to tree plantations has occurred locally, concentrated at the altitude where Quaternary deposits obscure the geological contact between the karstic limestone and overlying rocks.

The land use change was analysed using GIS. The recharge regime of the Spring's aquifer was investigated by studying the physical and chemical characteristics of waters of the study spring, other nearby waters and those of a reference spring (forested catchment) across different flow conditions. Rainstorm response discharge hydrographs and chemographs were charted for springs of both catchments. The results suggested a mixed (conduit and diffuse) aquifer recharge regime for the study spring and the implications for future water resources were identified.

Subterranean fauna that are Groundwater Dependant Ecosystems

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A variety of animals have become adapted to living in subterranean habitats and are generally characterised by loss of body pigment and eyes. These include stygofauna which are aquatic animals and live in a variety of groundwater systems including limestone, alluvial and fractured rock aquifers from a variety of geological histories, whereas troglofauna occur in air chambers in underground caves or small voids. Stygofauna are clearly part of Groundwater Dependant Ecosystems, and are likely to be negatively impacted by activities that reduce groundwater tables such as extraction and harvesting or dewatering for mining along with outright habitat removal.

WA is currently leading the way in Australia, in both surveys and taxonomic identifications, but also from a legislative point of view where subterranean fauna assessments and surveys are part of the Environmental Impact Assessment process with the WA EPA developing Guidance statements. WA is proving to contain great diversity of subterranean fauna, with some areas now regarded as Global Hotspots. In some cases the level of biodiversity discovered is a reflection of the level of survey effort.

Unfortunately Victoria is lagging far behind the other states regarding survey and assessment of subterranean fauna. Recent studies directly across the border in SA have revealed a diversity of stygofauna, so similar diversity would be expected in Victoria.

Stygofauna are currently valued for their great biodiversity of species, they are believed to play an important role in maintaining the quality of groundwater and providing ecosystem services, and they may prove to be valuable indicator species as measures and early warnings for groundwater health.

It is now becoming very urgent to ensure that these Groundwater Dependant Ecosystems are fully assessed before they are threatened with extinction. Climate change and the current reduced rainfall and associated reduced groundwater recharge and increasing demand and extraction of groundwater are potential threats to these ecosystems. Groundwater allocations must be carefully assessed and regulated to maintain ecological sustainability.

A three staged approach for sampling has been put forward as a means of progressing our knowledge and

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understanding of the biodiversity of these ecosystems. This involves firstly establishing the presence of stygofauna using simple low cost sampling methods, monitoring bores, wells and springs. This should be the minimum compulsory assessment. The second stage is to identify the main types of invertebrates present and the diversity of biodiversity present, even if it is just grouping the specimens into species 1,2, 3 etc. The final stage involves more detailed quantitative sampling and using taxonomic specialists to identify the specimens collected.

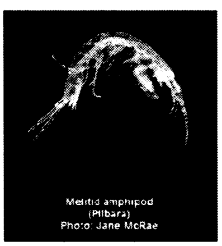
Useful web sites to get you started:SURVEY AND MONITORING METHODS

PASCALIS Protocols for the ASessment and Conservation of Aquatic Life In the Subsurface (ie monitoring protocols) *http://www.pascalis-project.com/*

http://groundwater-ecology.univ-lyon1.fr/nouveau/methodes-souterraines.htm

WA EPA Environmental Impact Assessment Guidance Statements

http://www.epa.wa.gov.au/docs/1720_GS54.pdf



Diversity of Subterranean fauna in Australia

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Pictorial display of a selection of Australian Stygofauna and Troglofauna aimed at raising awareness of the biodiversity of subterranean fauna that exists within Australia.

The Jenolan Caves Survey Project as of 2008

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The Jenolan Caves Survey Project Group is preparing a "State of the Art" survey of the Jenolan Tourist Caves. The only complete survey of the tourist caves was carried out in the early 20th century and was published as a plan and section in 1925. A re-survey was commenced in 1987 and "Walls" (Texas Speleological Society) was chosen for reduction of the survey data because of its simple text file input and Scalable Vector Graphics output that imports directly into Adobe Illustrator. Cave entrances were linked by a surface theodolite network and tied in to the Australian Map grid. Computer drafting was performed using Adobe Illustrator as its brush and symbol libraries allow a consistent style and its layers are maintained when exported to Adobe Portable Document Format (PDF). An aerial surface survey with a resolution of five metres was used to produce a 3D model with the caves below the surface terrain. The current survey plan will be compared with that published in 1925. In collaboration with the Jenolan Caves Historical and Preservation Society naming and location of features has been carried out; so far 567 named features are identified. This detailed examination of the cave features has enabled the creation of "Then and Now" files in which older engravings and photographs have been compared with the present state of the features. The Adobe Illustrator files have additional layers that may be devoted to any particular task such as speleothem cleaning or infrastructure changes such as re-lighting a cave. The plan and surface map have been used to assess the impact of a car park on a cave and in a paleaontological study. It will be argued that for illustrating what visitors will encounter on a traditional or adventure tour; a developed long section and associated sketch is best.

Cave-Producing Processes in Soft Porous Limestone Regions Of Southern Australia

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Cave development in the Mt Gambier region, and indeed in soft porous limestones throughout Southern Australia, is very different to that of caves in the massive jointed limestones of Eastern Australia.

The minimal surface relief in Southern Australia is generally associated with caves developed at a single level, often at no great depth below the land surface. Equally obvious is the common single-chamber nature of these caves compared to the greater linear extent of many Eastern caves. Also, it is often clear where surface waters enter a Southern Australian cave, but not where they eventually leave it, in contrast to Eastern Australia where cave effluxes are more common than influxes.

It has long been my view that mixing corrosion has played a far greater role in the development of most

caves than has been generally acknowledged, but I am now convinced that this is especially true of the Mt Gambier-region type caves. However, the "solution-tube" features of the Mt Gambier area, which are crucial to the early history of many if not most caves of that area, are not corrosional but corrasional features. The processes involved in the development of the small Mt Gambier "solution pipe" caves are of a series with those ultimately responsible for the development of large "bottle-neck" caves like The Shaft; of large collapse dolines such as Mt Gambier Town Cave (Cave Gardens) and Umpherston Sinkhole; and of the deep "cenotes" such as Hell Hole. Ultimately, with an understanding that "dome-like" chambers in soft limestones are not actually dome structures but cantilevered beam structures, the large caves of the Nullarbor Plain can be seen as the end result of the same processes.

Key Words: porous limestone, mixing corrosion, solution pipes, corrasion, dome structures

Cave invertebrates of the Northern Territory.

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Cave invertebrates from two karst areas in the Northern Territory were sampled during June and July 2006. The karst areas sampled were Pungalina in the Carpentaria region, and Bullita Cave in Gregory National Park. This was the first invertebrate sampling conducted at Pungalina. Invertebrates were sampled in both karst areas using a combination of hand collecting and baited pitfall traps.

Six caves at Pungalina were sampled and revealed a diverse and abundant fauna was collected especially associated with guano deposits within the significant cave systems of Totem Pole Cave (PUN7) and Ballroom Cave (PUN11). Invertebrate groups collected included arachnids (spiders and pseudoscorpions), Myriapoda (millipedes) crustaceans (isopods, and anaspid syncarids), and insects, with the latter being the most diverse. Insects collected consisted of Coleoptera (Tenebrionidae, Dermestidae, Jacobsoniidae?, Scarabidae), Hemiptera (Reduviidae and Cixiidae?), Orthoptera (Grylloidea), Blattodea (Nocticolidae). The majority of all invertebrates collected were from the transition zone and classified as troglophiles.

Bullita Cave was sampled opportunistically in numerous sections of the cave to allow for possible varied invertebrate distribution within greater than 100 km of surveyed passage. Invertebrates were more abundant within the deep cave zones situated at the eastern and northern extent of the main limestone outcrop. Invertebrate sampling was also conducted in adjacent karst areas. Invertebrates collected included arachnids (araneae, pseudoscorpions, scorpionida) and insects (coleoptera, hemiptera, orthoptera, and diptera). Special note is made of the collection of a troglobitic scorpion (Buthidae: Lychas) from the deep zone of Bullita Cave. This single specimen represents only the third confirmed troglobitic scorpion recorded from caves in Australia (excluding Christmas Island).

Cave Photography with Digital Cameras

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Taking photographs in the damp and confined spaces of a totally dark cave is not everyone's idea of fun. Sure, a caver can take happy snappy shots with a point and shoot Compact camera using only light from the camera's inbuilt flash, but the images achieved from this type of photography can be very flat and lifeless. To achieve a more in-depth photo with plenty of contrast (Figure1), a cave photographer needs to become more dedicated to the art of flash illumination in order to capture that 'wow' factor image.

This paper describes in simple terms, the fundamentals of digital cameras and main distinguishing features between the three broad classifications; Compact, Prosumer and DSLR. Also discussed is equipment suitable for cave photography and what to look for when purchasing a camera and flash unit.

Other topics covered include; choosing the photo subject, composition, lighting, framing the subject, taking the picture and general flash photography tips.

China Caving Project 2008

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In April 2008 a contingent of Australian cave divers were invited to the Fengshan area of the Peoples Republic of China to assist with an international caving project. Dry cavers from Britain had previously mapped in excess of 40km of cave in the region. Assistance was sought by the Fengshan government to link several karst windows in what is hoped to be one of the longest underwater cave systems in the world.

This presentation incorporates photographs and video of our discoveries. It will pose many opportunities for those interested in caving in the largest limestone karst plain in the world.

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Extremes of Latin American caving

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Madre de Dios is an island about as far south as you can go before you fall off the bottom of the world or get eaten by sea monsters. It also has some of the most spectacular karst and worst weather that you'll find anywhere on earth. Madre de Dios is the 'raison d'être' for the French caving group 'Centre Terre' that has run three big budget expeditions to the island since 2000. At the northern extreme of Latin America is Mexico where several small, no name, low budget expeditions go each year to explore its deep caves.

Paleomagnetic dating of Pleistocene cave sediments at Buchan, southeastern Australia.

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The Dukes cave system at Buchan consists of three horizontal epiphreatic levels, which can be correlated with terraces in the adjacent river valley. The lowermost contains extensive stream-deposited sands, gravels and minor clays, whereas the uppermost has deposits of red silty clay. Paleomagnetic samples from both levels are dominated by magnetite of multidomain size (>10 μm), which has been subject to viscous remagnetisation so a normally-polarised remanence, in the direction of the present field, has replaced any depositional magnetisation. The main depositional magnetic carrier was probably very fine-grained (superparamagnetic) haematite; this is still present in one sample admixed with the magnetite. The coarser magnetite which now dominates the remanence may have grown in-situ, possibly due to bacterial reduction of the sediments. Hysteresis parameters of a few samples from both cave levels indicate an admixture of slightly finer-grained, pseudo-single-domain sized magnetite, which preserves a primary reversed polarity magnetisation. This remanence was presumably acquired some time after sedimentation, during authigenic growth of magnetite in the sediments. Although short intervals of reversed or mixed polarity are known from the Brunhes Chron, these represent only a very small fraction of its duration. Thus cave sedimentation most probably occurred prior to the Brunhes Chron, i.e. before 780 ka. This accords with uranium series dates of >300 ka on speleothems from the upper cave level. The lower epiphreatic level, >0.73 Ma old, is only 2-3 m above the nearby surface stream-bed, indicating that river incision rates have been very slow (<5 m/Ma), and that the sea level and climate fluctuations of the Late Pleistocene left little discernible trace in the Buchan area. The red clays and silts in the upper level are probably aeolian in origin, and represent the onset of aridity in central Australia, dated elsewhere as prior to 0.9 Ma.

Origin of Cenotes near Mt Gambier, South Australia

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The Southeast Karst Province of South Australia is notable for its cenotes, collapse dolines containing water-table lakes up to 50m wide at the surface and extending down to 95m below the land surface. They are developed in the flat-lying Oligocene - Early Miocene Gambier Limestone, which is exposed at the surface over much of the province. The cenotes are all characterized by collapse; they have vertical and overhanging sides and are floored by large cones of rubble, which may be overlain by finer grained sediment. Exploration and diving have revealed no major phreatic passages extending off any of the cenotes, despite the fact that typical shallow phreatic joint maze caves, both dry and water-filled, are common in the Gambier Limestone throughout the Southeast Karst Province. Collapse dolines are associated with some of these phreatic caves, but are shallower than the cenotes in that they do not have deep lakes.

The distribution of the cenotes is uneven; they are concentrated in two small areas, each ~3km in diameter, located 5km W and 10km NW of Mt Schank (a few other cenotes are scattered through the province). Within these areas they are distributed along two joint sets, a dominant set trending 320° and a subsidiary one at right angles. These are the dominant regional joint directions.

The depth of the cenotes indicates that they represent collapse into large caverns dissolved at or close to the base of the Gambier Limestone; the boundary between the Gambier Limestone and the underlying Tertiary siliciclastics lies at about 100m below ground surface around the cenotes west of Mt Schank. It has been suggested that the caverns were dissolved by acidified groundwater containing large amounts of volcanogenic CO2, which had ascended up fractures from deep-seated reservoirs related to the magma chambers that fed the Quaternary volcanoes Mt Schank and Mt Gambier. Approximately 10km east of Mt Schank is a CO2-producing well (Caroline); the isotopic composition of the CO2 identifies it as magmatic in origin, and it is probably related to the Quaternary volcanics in the area.

Evidence for the influence of volcanogenic fluids on the cenotes comes from strontium isotope analyses of a stromatolite collected at ~8m depth from Black Hole, one of the larger cenotes. Stromatolites grow on the walls of many of the cenote lakes, and are large structures up to 4m long formed of calcite precipitated by the microbial communities growing on their surfaces. In cross-section the calcite of the Black Hole stromatolite shows submillimeter-scale laminations, which may be annual. Detailed sampling of one section of this stromatolite showed that overall it has a 87Sr/86Sr ratio of around 0.7088, but one sample has a lower ratio (0.7079), probably due to an input at this time of volcanic fluids, which have a much lower Sr isotopic ratio (0.7037-0.7058 for the Quaternary volcanics of the region). The layer with the anomalous 87Sr/86Sr ratio has an age of ~6000 BP, from C14 dates on the stromatolite either side of the layer, and assuming a uniform rate of growth. This age corresponds closely to that of the eruption at Mt Schank (6000 BP, based on recent thermoluminescent dating).

Thus the Sr isotope data show the apparent influence of volcanogenic fluids within the cenote lakes during a time of eruption. Larger amounts of fluid, including volcanogenic CO2, could have been injected during previous eruptions, dissolving the caves that collapsed to form the cenotes.

Karstcare - Cavers Looking after Caves and Karst: an update.

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Karstcare is an environmental group set up in 2001, working principally in the Mole Creek Karst National Park in Tasmania. The group is made up of both ASF & non-ASF cavers and Karstcare has given these cavers a very different reason to go underground.

To date this group has contributed over 1500 hours to both surface and underground projects. Such projects have included weed eradication, rubbish removal, installation of boot washing stations, track marking and cleaning both tracks and speleothems. Our aim has been to install good management practices that will pay dividends for many years to come.

Some of the work sites are unusual and often difficult to access, requiring an innovative approach to achieve results. David will give an outline of a number of these projects, supported with photos. of these caves.

In this paper you will be given a summary of the lessons learned, and what can be achieved by a group of motivated cavers.

Pungalina Explorations, Northern Territory

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VSA members have been to Pungalina for several weeks in each of the last four years. The caves are in an ancient dolomite set in tropical savannah woodlands. Initially we were shown several known caves by the owner. We then, through systematic searching have found many more. There are now some 45 caves and numerous other karst features. There are many subjacent dolines which do not penetrate into the dolomite below, Some of the caves are extensive and care is needed to avoid snakes and not disturb bats. The property was initially being run as a safari park operation and we were able to influence the cave tours. The property has now been acquired by the Australian Wildlife Conservancy

Karst and Pseudokarst in Victoria; An Overview

Susan White
Environmental Geoscience, La Trobe University, Vic
Victorian Speleological Association Inc
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This paper will give an overview of the many caves and related landforms known in Victoria, but will concentrate on the karst and pseudokarst of Gippsland.

Some are true karst but others are volcanic caves and pseudo karst. These features have scientific, recreation, aesthetic, conservation and education values and are an important part of the state's heritage. The karst and pseudo karst features are the result of the following natural processes: solution, precipitation, volcanism, weathering, piping, and wave action. Some karst is buried under the volcanic flows of western Victoria.

Solution and precipitation, primarily of carbonate rocks is the single largest group. These fall into two main groups at widely separated in geological time: karst in the Palaeozoic limestones, mainly in the eastern part of the state, and that in Cainozoic limestones which are found from East Gippsland to the South Australian border. The next largest group is the volcanic caves of the Western District Volcanic Province which have a wide range of features, many of national and international geological significance. Significant features are found in a range of other rock types including granitic rocks, quartz sandstones and silcrete.

Workshops

The following workshops will be organized. These will be between 1 – 2 hours in length and are intended to be discussion and activity between interested participants. The abstracts are arranged alphabetically according to title.

Workshops are intended to be interactive discussion groups rather than presentations. Some workshops may wish to ccontinue to duscuss issues at another time. See the Program co-ordinatior for a place.

Action Figurative Art for Cavers and Non Cavers

June MacLucas
CEGSA

Life Drawing: You don't have to be a caver.

Learn to capture on the spot cavers in action in or out of caves. This could assist in drawing figures at any time - in any situation

An ASF Indigenous relations policy: a discussion

Sharon and Peter Dykes

A discussion.

The ASF Environment Fund; its structure and operations.

John Dunkley
ASF Environment Fund

This workshop will discuss the structure and operations of the Environment Fund.

Conservation Forum

Nicholas White
Conservation Commission

This forum is to provide an avenue to air problems and look towards solutions. The following questions are just some to prompt a contribution to the forum.

- What is the state of play in your patch?
- Are you in control?
- Are the caves being trashed and is it us or them?
- Does the Minimum Impact Caving Code need reviewing?
- Could the caves be better managed by your local management agencies?
- How should ASF support local karst conservation initiatives?

Documentation and the Karst Index Database Forum

Nicholas White
ASF Senior Vice President

The KID is ready to go! It is time to examine the impediments to putting it into use. This forum is for everyone, not just geeks because it affects the ASF's capacity to claim to be Australia's Karst Experts and Specialists.

- What problems are there in clubs using the KID?
- What is stopping the KID being used to record new cave data?
- Should there be additional facilities added to it such as GIS capacity?
- How should we treat specific location data?

Out of Harm's Way: Best Practice for Risk Management in Caves

Caroline Forrest
ASF Leadership, Safety &Risk Management Com.
Contact Email: 16458143@student.uws.edu.au

What do the ASF members want from the Safety, Leadership and Risk Management Committee? I would like to workshop the issue of new members and what would be reasonably expected from an ASF member who "puts themselves out there" as a leader. Risk management should be seen as an opportunity that any true leader would welcome as a challenge.

For effective risk management, the rewards are to be found in the events that do not happen. It is a fact that good risk management results from constant risk assessment, evaluation and monitoring. The lack of risk management can be seen in incident reports and relatives faces. What can we say when the judge asks "what else could the defendant have done to minimize the harm?" How do you respond when your comrades say "if only we had... done something differently, thought this through, done another cave, stayed at home."

Come to the SLARM workshop to begin the ongoing commitment of ASF to be leaders. Agenda items are as follows:

- What is a leader and what is expected?
- What is Duty of Care?
- When is a beginner not a beginner?
- Risk Perception
- Environmental Risk
- Formal Training and qualifications
- What's the law got to say?

What do you want from the SLARM Committee?

Meet the convenor and show them what you've got and what you want. Open to discussions questions. I welcome this opportunity to serve ASF members effectively within the constraints of the law. To prevent injury and suffering is always worth the effort. I welcome the opportunity to do what I believe is a moral and ethical thing, and support safe caving and safe cavers in the future.

Publishing: a means to give a wider understanding of caves and karst to the community

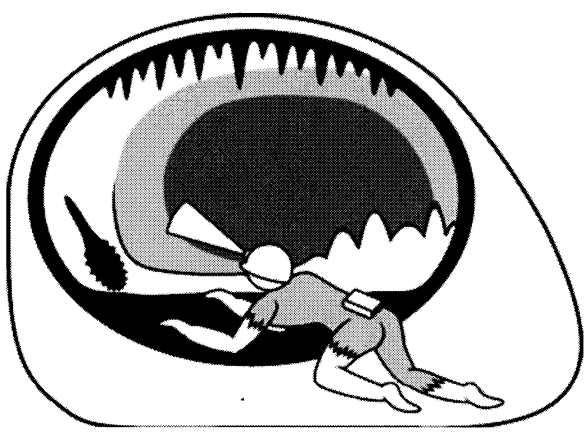
Susan White
Publications and Helictite Commission

Publishing material about caves and karst is a major way of disseminating information and publicizing messages of good karst management. There are several forms of publication that can be used to get our messages across to cavers, the general public and to participate in scientific discussion. This workshop will explore the different modes of publication and what their advantages and disadvantages are and how the relevant ASF commissions can be used. The various publications of ASF will be used as the framework.

Karst away Konference Committee

Margaret James	VSA	Convenor, Venue, Catering
Tom Aberdeen	VSA	Field Trips
Erica Baddeley	VSA, VSCT	Treasurer, Registrations
Glenn Baddeley	VSA, VSCT	Publications, Registrations, IT support
Bruce Downes	CCV	Merchandise, Venue
Greg Leeder	VSA, CCV	Website,
Miles Pierce	VSA	Photographic Display, Trivia Team Trial
Tony Watson	VSCT	Merchandise, Sponsorship
Susan White	VSA, CCV	Program Co-ordinator, Publications
Nicholas White	VSA, CCV	ASF Representative, Merchandise

Various people shared the secretarial tasks and thanks particulalry to the Pierces and the Baddeleys for hosting most of the meetings



Eating in Sale

This was compiled a couple of months ago and my not be completely accurate for the time of the conference.

Eatery	Open	Type of food
Alexanders Milk Bar 249 York St, Sale Ph 51445094	Monday - Friday 7.00 to 3.00	Take-away / Snack Bar, Sandwiches, Pies etc
Apron Strings Gippsland Centre Shop 32, Sale Ph 51431088	Monday – Saturday 8.00 to 5.00 Friday 8.00am to 9.00	Eat in and Take-away Breakfast and light lunches
Bis Cucina 80 – 100 Foster St , Sale Ph 51443388	Tuesday – Saturday 9.00 to late Sunday - Monday 9.00 to 5.00	Daytime Café Evening Fine Dining Mediterranean Cuisine
Black Pearl Fish Café Gippsland Centre Shop 3 Cunningham St, Sale Ph 51445696	Daily 9.00 to 8.00 Friday to 9.00	Eat in and Take-away Seafood, Fish'n'Chips Fried Food
Bronte's Coffee House Restaurant 112 Foster St Sale Ph 51445855	Monday – Friday 10.00 to 4.00 Saturday 11.00am to 3.00	Café Light Lunches. Restaurant BYO Evening By Reservation
Café Rossi Restaurant 90 Raymond St, Sale Ph 51447708	Lunch Wednesday – Friday 12.00 to 2.00 Dinner Monday – Saturday 6.00 to Late	Modern Australian Cuisine BYO
Ph 51447708 **Café Succulence** Inside Grow Master Nursery 34-38 Princes Hwy, Sale	Daily 10.00 to 4.00	Coffee, Cakes Café style Food Light Lunches
Centre Bakery 103 Cunninghame St, Sale Ph 51441202	Monday - Friday 6.30 to 5.00 Saturday – Sunday 7.00 to 3.00	Coffee, Cake Light meals
Chit Chats 240 Raymond St, Sale Ph 51442446	Monday – Friday 8.00 to 4.00	Sit In or Take away Light Meals Focaccias, Sandwiches, cakes etc
Crown Hotel 240 Raymond St Sale Ph 51443075	Lunch Monday – Saturday 12.00 to 2.00 Dinner Thursday – Saturday 6.00 to 8.00	Bistro Meals Sunday Indian cuisine Live Music Friday Night
Daffodil Café 344 Raymond St, Sale Ph 51442438	Monday – Friday 8.00 to 3.00	Snacks Bar & Catering
Dutchy's Cruisin Shack 306 York St, Sale Ph 51447999	Wednesday – Saturday 9.30 to 5.00 Sunday 12.00 to 5.00	Light Lunches & Coffee Bikies Haven with apparel Friendly for customers with or without motorcycles
El Sombrero 168 Raymond St, Sale Ph 51431855	Thursday – Saturday 6.00 to close	Mexican Food Restaurant & Take away Fully Licensed BYO Wine Only
Foster St Pizza 110 Foster St , Sale Ph 51441919	Monday – Saturday 5.00 to 10.30 Sunday 5.00 to 10.00	Pizza Take way
Gaslight Room (Gippsland Hotel) 153 York St, Sale Ph 51444003	7 days 11.00 till late	Bistro Bar meals
Gippsland Centre Café Gippsland Centre Ph 51445414	9.30 to 5.30 Lunch 11.30 to 3.00	Snack Meals All you can eat Asian for Lunch
Gippsland Dragon Pedestrian Mall Cunningham St, Sale Ph 51447088	Monday – Saturday Lunch 11.00 to 2.30 Dinner 5.00 to 9.00	Chinese Restaurant Self Service BYO
Gippsland Palace Asian Restaurant 58 Macarthur St. Sale Ph 51447399	Everyday Lunch 11.00 to 2.00 Dinner 5.00 to 10.00 Friday till 11.00	Asian Dine In or Takeaway Fully Licensed & BYO
Handy Store 114 Raymond St,Sale Ph 51442402	Monday – Friday 5.30 to 5.30 Saturday 7.00 to 2.00	Café Hot Cooked meals Takeaway or Eat In
Il Nido 29 Desaily St, Sale Ph 51444099	Monday – Saturday Lunch 10.00 to 3.00 Dinner 6.00 to Late	Modern Italian Cuisine Restaurant Seafood, Mariscada, Steaks Etc BYO

Jack Ryan's Irish Bar 154 Raymond St,Sale Ph 51444008	Everyday 11.00 till late	Bistro Meals
La Porchetta Gippsland Shopping Centre Cunninghame St, Sale Ph 51441999	Everyday 11.30 till Late	Italian Dining Pizza Fully Licensed BYO (Wine)
Masia's Coffee Lounge 188 Raymond St, Sale Ph 51443536	N/A	Authentic Home-cooked Croatian Foods Dining and Takeaway
Midtown on York 91 York St, Sale Ph 51441444	7 Days Breakfast 6.30 to 9.00 Dinner 6.30 to 9.00	Varied Menu Including Steaks, Roasts & Seafood
Mr Pizza 768 Macarthur St, Sale Ph 5144744	Monday – Thursday 4.30 to 10.00 Friday & Saturday 4.30 to Midnight	Pizza
Noodle Supreme 170 Raymond St, Sale Ph 51430896	11.30 to 3.00	Varity of Noodle Dishes Café & Takeaway
P.J. Snack Shack 305 Raymond St, Sale Ph 51446767	Monday – Friday 9.00 to 4.00 Saturday 10.30 to 1.00	Take Away Food Pies, sandwiches, Ham Burgers & Chips
Olive Grove Café 196 Raymond St, Sale Ph 51445606	Monday – Friday 7.30 to 2.00 Saturday 8.00 to 2.00	Courtyard Dining; No Evening Dining Coffee, cakes & Dessert Sandwiches Roasts Beer & Wine
Raglan Pizza Restaurant 221 Raglan St, Sale Ph 51446866	Monday – Thursday 5.00 to 11.00 Friday & Saturday 5.00 to Midnight	Pizza Take Away and Dining Room BYO
Rainbow Chinese Restaurant 389 Raymond St, Sale Ph 51445200	Everyday Lunch 12.00 to 2.30 Dinner 5.00 to 10.00	Chinese Licensed Restaurant & Take Away BYO
Redd Catt 192 Raymond St, Sale Ph 551431911	Monday – Thursday 8.30 to 5.00 Friday & Saturday 8.30 to Late	Modern Australian Local produce
Red Rose Café 239 York St, Sale Ph 51447668	Monday, Wednesday, Thursday, Saturday & Sunday 8.15 to 8.00	Eat In or Takeaway Fried Food, Sandwiches, Snacks Etc
Relish at the Gallery Port of Sale Civic Centre, Sale Ph 51445044	Lunch Tuesday – Sunday 8.30 to Late Monday Dinner Only	Variety of Australian & Asian Food Fully Licensed & Open for Breakfast
Sale BBQ Chicken & Salad Bar 309 Raymond St, Sale Ph 51445044	11.00 to 8.00	Chicken & Salads Eat in or take away
Sale Community Club Cnr Palmerston & Cunninghame St,Sale Ph 5144400	11.00 to 8.00	Bistro meals Licensed Children's Playground
Soap Wine Bar & Curry Club 89 Foster St, Sale Ph 51430613	Wednesday – Saturday From 3.00 pm	Eat in or Takeaway from the Curry Club Wine, Beer, & finger Food in the Wine Bar
Sporting Legends of Sale 233 York St, Sale Ph 51432345	7 Days Lunch 12.00 to 2.00 Dinner 6.00 to 8.00	Selection of Light Lunches Good Selection of Menu for Evening Meals
Star Hotel 173 Raymond St, Sale Ph 51442024	Open 7 days a Week Lunch 12.00 to 2.30 Dinner Sunday – Thursday 5.30 to 8.30 Friday & Saturday 5.30 to 8.30	Bistro meals Gaming Machines
The Meeting Place at the Princeton 25-41 Princes Hwy, Sale Ph 51446599	Monday – Thursday 6.00 to 9.00 .	Varied Dining Cuisine
Trackside Bar & Grill Sale Greyhound Club Maffra Rd Sale Ph 51445033	7 days Lunch 11.45 to 2.30 Dinner 5.45 to 8.15	Mon – Pot & Parmigiana; Tues – Children free; Wed – Steak night Thur – Schnitzel; Fri & Sat – Varied menu; Sun – greyhound meeting