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#### Contact:

Scientific Expediton Group INC. SEG email: scientificexpeditongroup@gmail.com

**SEG Secretary: Sarah Telfer** PO. Box 501, Unley SA 5061 Email: sarahtelfer@internode.on.net

**SEG Treasurer: Graeme Oats** Email: gdoats@bigpond.net.au

**SEG Website:**Http://www.communitywebs.org/ ScientificExpeditionGroup/default.htm



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Cover Photograph: from South Australian "Advertiser" archives with permission.



Warren on the Mount Lofty Track

Foundation President of the Scientific Expedition Group, Charles Warren Bonython, AO, died, after a short illness, on 2<sup>nd</sup> April 2012, aged 95.

The remarkable life of this great and visionary man was celebrated at his funeral in St Peters Cathedral with hundreds of friends and family in attendance, as well as representatives of the many organisations with which he was associated. All members of his family - Bunty, Simon, Veryan and Alice - contributed to the service. Terry Krieg, long-time friend and walking companion, told the story of Warren, in the days before satellites and GPS, finding a cache of water in a desert area with no obvious land marks.

A proud fourth generation Australian, Warren trained in Adelaide as a chemical engineer, then went to London for postgraduate work. He had to leave UK in 1939 because of the outbreak of war, arriving home at the time of the death of his grandfather, Sir Langdon Bonython, founder of The Advertiser, and a participant in negotiations which led to the Federation of Australia. Warren spent WW2 working on explosives in Melbourne, after which he managed the ICI salt-fields north of Adelaide, becoming a world authority on production of salt using solar evaporation. It fuelled his interest in Lake Eyre.

After he retired from ICI in the 1960's, Warren was able to concentrate on his passions - love of the outdoors, bushwalking, exploration and conservation. He completed walking the Flinders Ranges, crossing the Gammon Ranges, crossing Simpson Desert, walking the McDonnell Ranges, walking around Lake Eyre, and later, Lake Torrens. These desert places usually involved carrying water, and he was renowned for the size and weight of his loads. He was a founding member of the National Parks Foundation (later Nature Foundation), and was instrumental in establishing the Heysen Trail, the walking trail extending 1200 km from the northern Flinders Ranges to Cape Jervis. He was made an Officer of the Order of Australia in 1980. His trekking activities extended well beyond Australia and included Mount Kilimanjaro, the Scottish highlands and Lo Manthang in the Himalayas. He trained regularly and vigorously with timed walks from Waterfall Gully to Mount Lofty summit and back, in later years allowing himself an extra minute per extra year of his age.

Warren's association with SEG goes right back to the beginning - in fact, precedes it. During the 1970's the Australian and New Zealand Schools Exploring Society (ANZSES) was formed, with the SA Branch in Adelaide. Warren became president, and I was part of the committee. During those early years the group ran expeditions including the Coorong and Flinders Ranges, leading to a successful Expedition Coffin Bay, in the newly proclaimed Conservation Park, in the summer of 1983-4. Later disharmony with the national body led to our branch severing ties with ANZSES. Many of us felt that to disband would be a waste of much expertise, and that our activities should continue, so SEG was born at a public meeting in August 1984. Warren remained president of SEG until 2003, when he retired and was awarded the title of President Emeritus. He was a Life Member of SEG, and remained a Trustee of the Scientific Expedition Foundation until the time of his death. Unlike ANZSES, SEG is still active in running expeditions.

Warren and Bunty were married for 71 years. As the family arrived she regarded her role as keeping the home fires burning while Warren was away exploring the arid parts of Australia. One occasion that she "went bush" with Warren was to celebrate 25 years since the completion of Walking the Flinders Ranges. It was a memorable trip with Warren, Bunty and Alice, and ten people who had been associated with Warren's exploits driving or flying to Mount Hopeless, the most northerly point of the Flinders Ranges. Joc Schmiechen cooked a gourmet meal on a camp stove, washed down with fine wine. Flying home the next day, with Bob Mossel piloting the light aircraft, Warren commented on features of the Flinders Ranges passing beneath us. It was something very special. He enjoyed celebrating anniversaries, and was a very generous host.

Warren went on several of the early SEG expeditions, and led walks after the science work was done. Later he settled for a "Presidential visit" to expeditions, for a few days, often driving with Gwen and me. Camped at Balcanoona one chilly morning, snuggled deep in our sleeping bags, Warren left his tent, announcing "Good morning, Gwen and Dick, it is 7.30 am, and the thermometer says three degrees" – a mild reproof that drove us out of bed!

Another occasion involving Warren was the installation of a commemorative plaque on the top of Mt Babbage, in the Northern Flinders Ranges, coinciding with the 1986 SEG Expedition Freeling Plateau, and the start of relays of High School teams walking the Heysen Trail. With VIP visitors from Adelaide, plus hikers and expeditioners, more than 70 people were assembled on top of that small hill – probably it's largest population ever.

Warren's vision, drive and enthusiasm will be sadly missed, but he has left an enduring legacy of good works throughout South Australia. Members of the Scientific Expedition Group are privileged to have known him and had him as our leader.

### **Richard Willing**

President, Scientific Expedition Group.

Contact email: **rwilling01@gmail.com** Photograph by: **Joc Schmiechen** 



# Walking with Warren

### Graeme Oats



Figure 1: In 1988, the trek 100kms to Beltana on the occasion of Opera in the Outback.

Warren retired from ICI Australia in 1966 at the age of 50 to further his other interests in conservation and walking. He is credited as the pioneer of the Heysen Trail. I joined the Adelaide Bush Walkers Inc (ABW) in April 1981, and I was not surprised to find that he had been their Patron since 1969.

Each year the ABW holds an Annual Dinner and a "Patron's Day Walk" to which Warren was invited. During 1986-87 as the President of ABW I got to meet Warren more frequently. As a result of this the following events occurred.

### **OPERA IN THE OUTBACK – 1988**

In 1987, Warren began his planning of a "Walk to the Opera" which was to take place in the spring of 1988 and he invited me to be his planning assistant.

The walk of 100 kilometers was planned to start in the Aroona Valley and finish at a site near Beltana, at the "Opera in the Outback" starring Dame Kiri Te Kanawa. Part of the planning coincided with SEG's expedition to Coongie Lakes.

Warren attended the last week of the Coongie Expedition and arranged for me to travel with him in his 4WD Suzuki (SA EYRE 01) on the return trip, to assist with some "on the ground" planning of the walk. I recall stopping off near the Nuccaleena mines and doing some research of the proposed route north of Oratunga. At our overnight camp Warren wasn't to be denied the pleasures of a "good drop of red" – even in a plastic cup it tasted great.

The Walk to the Opera of some 35 people from SA, interstate and overseas commenced on Monday 29<sup>th</sup> August and was assisted logistically by the Australian Army Reserves who transported our tents and rucksacks by truck.

We arrived at our final camp site about 1km SE of the Opera site in Trebilcock Creek (Yalkarinha Gorge) on Friday 2<sup>nd</sup> September.

Next day we were piped into Beltana and welcomed by Premier John Bannon. That evening we walked to the Opera in our special T-shirts which had printed on the back – "We Walked 100kms to Hear Kiri"



Figure 2: Walkers piped in to Beltana. EYRE'S MYTHICAL lake- LAKE FROME 1990

In 1840 Edward John Eyre led expeditions to the Flinders Ranges. Warren understood that Eyre was frustrated looking for a route north and west as his route seemed to be blocked by lakes. In May 1990, Warren had begun to follow what he called "Eyre's Mythical Lakes" which seemed to surround the Flinders Ranges. He intended to walk north along the eastern shoreline of Lake Torrens, and then south down Lake Frome. Previously he had walked along the southern end of Lake Eyre South and Lakes Gregory, Blanche and Callabonna.

Heavy rain in May 1990 had preceded his walk making the shore of Lake Torrens damp, and this impeded his progress to such an extent that after a couple of days he returned to Adelaide. The wheels of the cart were too close to the frame and had become jammed with mud. Warren called a meeting with Richard Willing, Roscoe Shelton (Flinders Camping) and myself to re-evaluate his cart and equipment.

Throughout 1990 he continued to follow the eastern shore of Lake Torrens. Sometime in the winter of 1990 he contacted me asking if I would accompany him on his final leg south along Lake Frome. In early November we travelled in his trusty Suzuki to Moolawatana where we met Michael and Audrey Sheehan. My job was to drive the Suzuki along the western shoreline of Lake Frome whilst Warren set out onto the dry salt lake. Over the next three days I watched Warren through the shimmering haze of the lake. We met for lunch and evening meals and camped alongside the lake. Around 3.30pm on 13 November in scorching 33 degree heat Warren said "I've done that". Another mission accomplished for Warren. We returned to Adelaide the next day.

### Mt. HOPELESS – 1993

To commemorate the 25<sup>th</sup> anniversary of his completion of "Walking the Flinders Ranges" on the 4<sup>th</sup> November 1968, Warren organised a "re-enactment" of his final day's walk to Mt Hopeless.

On 4<sup>th</sup> November 1993, Bunty and Alison Bonython, Richard Willing and myself flew with experienced bush pilot, Bob Mossel from Adelaide in a small Cessna to Moolawatana. Mike Sheahan drove us via station tracks to a spot near Mt Hopeless. Terry Krieg had made his own way from Port Lincoln. Warren had started his walk earlier that day some kilometres south of Mt Hopeless. We all welcomed him at the summit and then celebrated the event over a sumptuous meal prepared by bush gourmet cook Joc Schmiechen washed down with various wines and ports including two bottles of Grange Hermitage.

I quote from "Walking the Flinders Ranges" by Warren "*I* started up the last slope with hurrying step and knees that trembled – but with excitement, not tiredness, although there was every reason for tiredness as I had covered more than 17 strenuous miles that day." and I breasted the last slope walking side by side."

I think that those words sum up Warren's courage and mental strength to carry feats of endurance that only a few accomplish.

#### GAMMONS 1996

Warren, Terry Krieg, Joc Schmiechen and I again regrouped in August 1996 to re-enact his first attempt in 1946 to explore the then untraversed wilderness of the Gammon Ranges from south to north. The 1946 attempt was thwarted when his walking partner Bob Crocker fell and broke a leg. Warren returned in 1947 to complete the crossing. I clearly recall Warren saying that he wanted to do it in '96 (now in his 80<sup>th</sup> year) as he was not sure if he would be fit enough to do in 1997.



Figure 4: Joc Schmiechen, Graeme Oats, Warren Bonython and Terry Krieg.

We followed his original route starting in Little John Creek near the foot of Mt McKinlay, north to Mt Changeweather, swinging west past Streak Gorge, over Four Winds Hill (the 1996 party located a stored cache of wine left there by a SEG walking party led by Chris Wright, the previous month), over Prow Point and into and across Mainwater Pound, and onto and over Yankaninna Range to Snake Gully near the old Yankaninna homestead.



Figure 3: Terry Krieg & Warren Bonython on Mt Hopeless



Figure 5: Admiring the view from Prow Point



Figure 6: Celebrating the event at Copley Hotel

#### Mt. BROWN – March 2002

To commemorate the bi-centenary of Capt. Matthews Flinders sailing along the South Australian coast, SEG secured funds to re-enact the first ascent by Europeans of Mt Brown (east of Port Augusta). Alun Thomas (SEG Chairman) drove some SEG members and others in a hired bus from Adelaide to Port Augusta on Friday 9th March 2002. A walking party of about 10 boarded the tall ship "Enterprize" (from Victoria) late that afternoon which then sailed to a point off Redcliffs, so named by Matthew Flinders for the reddish colouring of the shoreline. We overnighted on the "Enterprize" and before dawn we set out in the ship's zodiac. Once ashore we walked in a NE direction towards Mt Brown. It was exactly 200 years to the day that Robert Brown and others made their attempt to climb the then un-named peak. For us it was hot - well over 30 degrees- on reaching Woolundunga (near the start of the climb) around lunch time we met Alun with the bus and refreshments. Warren (now aged 85) joined us for this final section of several kilometres and 700 metres elevation. A tough ask for anyone on a very hot March afternoon. He took it in his stride.

Several hours later we reached the summit (970m) – this was my last walk with Warren.

#### Contact Email: gdoats@bigpond.net.au



### Thanks for the memories

# The Nullarbor Expedition 2012

### Helen Johnson



Figure 1: Sunrise over Ifould camp on the Nullarbor Photograph by: Jill Tugwell

In late 2010, Harald Ehmann, Alintyjara Wilurara Natural Resource Management Board (AWNRM), Department of Environment and Natural Resources (DENR), approached the Scientific Expedition Group's Committee with a proposal for an expedition to the Nullarbor region in 2012, as part of a follow-up to a baseline survey done in 1984. Subsequently SEG accepted the proposal and arrangements proceeded, with a reconnaissance trip being undertaken in March 2011, and the actual survey taking place over a two week period 31 March-13/14 April 2012.

The original survey in 1984 comprised sixteen survey locations, half of which were in SA and half were in WA. The eastern eight locations in the South Australian part of the Nullarbor were of interest to the AWNRM/ DENR/SEG Nullarbor Expedition 2012. Additionally, some new metrics to measure climate change effects on this relatively pristine environment were to be trialled. SEG's role was to participate in logistics, site preparation, camp management and the biological surveys led by AWNRM/DENR scientific personnel. The involvement of the Anangu Community was and continues to be foremost in the preparation for this substantive monitoring event (over almost three years), with Traditional Knowledge provision, preparation of monitoring sites (pitfalls and photopoints), community engagement, advising and field reconnaissance work.

The expedition of about fifty people was divided into four teams which worked in widely scattered locations across the Nullarbor. Each team worked on twelve to fourteen trap-lines/transects in one of the previously surveyed locations for the first week, and moved camp to another surveyed location (sometimes hundreds of kilometres away) for the second week. Each team was independent of the others, and was largely self-reliant. Sleeping, cooking, scientific work and toilets were in tents, and water was carted to each camp. Cooking was mostly done over open fires with a gas ring to supplement the cooking. On previous SEG expeditions only one location with numerous trap-lines/transects has been surveyed. On this expedition it was necessary to prepare four sets of all equipment and supplies for camping, safety and surveying.

The four teams were located at: Hughes (HU) and Muckera (MU), HUMU team; Yalata (YA) and Merdayerah (ME), YAME team; Catacombs (CA) and Colona (KO), CAKO team and Ifould (IF) and Koonalda (KD), KDIF team. Five of the eight campsites were fairly near the coast, with Hughes and Muckera being the most northerly and remote locations (Figure 2).

The article written by Trent Porter in SEGments (June 2011) about the reconnaissance trip undertaken by Harald Ehmann, John McDonald, Trent Porter and Jill Tugwell in March/April 2011 makes interesting reading for Nullarbor expeditioners'.

Each of the four teams comprised a Team Leader, science specialists and SEG personnel. The scientific survey covered: mammals (1 person); botany (2

people); birds (2 people) and herpetology (lizards) (1 person). The Team Leader was also one of the science specialists. Three of the scientists, Cath Kemper, Tony Robinson and Lorraine Jansen were on the 1984 survey, and three SEG personnel were included in the science group. There were four to six SEG people in each camp management group led by a Camp Manager. One nominated SEG person undertook to conduct an invertebrate survey, using micropits and opportune captures.

The Team Leaders and Camp Managers for each team were: HUMU, Harald Ehmann and Kevin Burrett; YAME, Cath Kemper and Trent Porter; CAKO, Rob Brandle and Duncan MacKenzie and KDIF, Dave Armstrong and Jill Tugwell.

Harald Ehmann in a post-expedition communication sent to expeditioners wrote: "Others with wider experience of monitoring projects have commented that this was definitely the biggest field crew and works program yet in South Australia."



South and Western Australia in 1984. Figure 1. Edited by N.L. McKenzie and A.C. Robinson. 1987.

Figure 2: Outline of the Nullarbor in S.A. showing locations for surveys.

### Kevin Burrett

The Hughes/Muckera Team was the most remote and furthest north of the Nullabor Survey. The first week was spent about 40kms north of the Trans Australia Railway at Hughes, on the treeless Plain. The second location was about 110kms north of Cook in the transition zone between the treeless plain and the sand dune systems to the north.

The first day proved a long one indeed, between a bit of sightseeing and some flat tyres, we finally arrived about 9pm and were greeted with a short but enthusiastic rainstorm. We camped in one of the only features on that part of the Plain, a feature (visible on Google Earth) called 'The Dip' which is an old Paleo-drainage system. It's about 400 metres across, 14 metres deep and about 35kms long. When we were there it was mostly filled with housemice, who hammered the camp every night, discovered custard, scampered over tents and made a general nuisance of themselves. They also managed to fall into pitfalls and walk into Elliots, so the daily catch, (apart from some reptiles and the odd bird) was Mus musculus. The flies, heat, wind and house mouse combination proved a challenging one indeed, especially cooking on the open fire, but we more than managed and there was a hot meal every night to look forward to.

Despite the sites being re-commissioned some time before, it was a difficult couple of days setting up the lines, and heat exhaustion/dehydration was a factor for all. The good nature and hard work of the whole team showed through



Figure 3: SEG members David White, Graeme Oats and Kevin Burrett at Muckera camp



Figure 4: Notomys alexis

and all was well. A lot of Mus were trapped, the vegetation group spent a lot of time out in the sun and a lot of water was consumed!

We were happy to pack and head for Cook where we fuelled, showered and took on a supply (over-supply) of Gatorade sent up on the train from Pt Augusta. We also re-plenished our water supply. The Muckera camp was a pleasant relief from the Hughes camp, with plenty of trees, sandhills and cooler weather. The sites were much easier to set up, and the collection was predominantly 'native' which made a welcome change from 'mus'. The camp management was made much easier by the improved conditions. We even managed a poetry and sing-a-long evening around the fire and lots of good ole cameraderie, plus witnessed Harald's attempts at launching hot air balloons, (unsuccessful), and his manufacturing of a Morley Winder (successful).

We then returned to Cook and on to Ceduna, the trip back being marred by numerous punctures and the nursing of vehicles (without spares) to Nundroo where new tyres were fitted.

In summary then, while the conditions were tough (as expected) the camps worked well, the goodwill and cooperation was tremendous and it was an unforgettable experience. I look forward to the Report with all the data sometime.

Contact Email: keburrett@tadaust.org.au

### Helen Johnson

### NULLARBOR DREAMING

There was movement at the depot, for the word had passed around

That young Harald was assembling a crew,

To roam across the Nullarbor where white men can't be found

In search of species plentiful and few.

We met at dawn at Hackney – and joined the SEGGO chaps

Of hardy expeditioners all keen,

To put their skills to practice over campfire, pick and traps, In working with our scientific team.

We parted at Ceduna in our groups of roughly ten, To YA-ME, CA-KO, KD-IF went the rest.

But I am off to HU-MU with young Harald, Dave and Ben,

Our chef is cord-de-blue – Kev he's the best.

Excitement it is building as we sing along with Slim,

And Graeme points out sights along the road.

We see Koonalda Homestead and the Cave so deep within, And gather firewood to top our load.

The Treeless Plain confronts us as we head up north to Hughes,

It's awesomeness is stunning and surreal.

While Phillipa is filming, we all stand around and muse. Then Mel says – Oh! We've got to change a wheel. We have Tony, who in '84 did mammals and reported; There's Clive and Julia here to count the birds; The veg is loved by Ben and Mel and daily it is

sorted; And every night our Leader says wise words.

At sunrise Harald tells us that the wide blue arc out there

Which lights up the horizon in the west,

Is the shadow of the Earth, and we all turn around and stare–

My God! – We're on a sphere that's not at rest!

The dingos' howls are thrilling; though at first I think it's chilling

As the packs begin to chorus in the night.

They lead our cars along the road; as guides they are quite willing,

And after dark they pad around our site.

quite hot. We work long hours – but manage to survive On rations and a weekly shower, but has Harald really GOT To tell us "It is thirty eight point five"! So it's off to Cook and then north-west on Len Beadell's old track. We leave the plain and move into the dunes. Our camp's much more than heaven-sent, and we have time to yack, Round campfires while the sheoaks' murmur tunes. Now Trent had explained that Muckera would be a great relief. And he is right – there's not a mouse to see; Except of course the Hopping kind, which renews our first belief That we are in the greatest place to be. When all this ends – I will have my dreams about the Nullarbor. A place where Harald Ehmann loves to be. We found so much - the HU-MU team, and learned yet even more:

We are not too sad to leave 'The Dip' at Hughes as it's

And then - we met our YA-ME friends for tea!

Contact Email: KDolphin@internode.on.net



Figure 5: The author on Treeless Plain at Hughes

### Jill Tugwell



Figure 6: KDIF group prearing to leave Koonalda for Ifould, from R to L bottom row, Justin Jay, Brian Blaylock, Lorraine Jansen, John Morley, Jill Tugwell, Brian Swann, Margie Barnett, Kevin Wainwright, Dave Armstrong, Top of truck: Leah Kyriacou, Jodie O'Connor.

#### Things to be Learned

Always be nice and praise up the cook, the meals could be worse.

*Never check if the handle of the Billy is hot with your bare hand.* 

Never bend over in front of a person with a camera.

*Never sit on a black toilet seat that is out in the midday sun.* 

*Never argue with a man that wants to put a tent up on his own.* 

If the back of 6 wheeler is full of dust, don't stand on downwind side when both wings are opened.

Always check if the wings are shut down before moving on to next site.

Never get in the way of a man with a shovel.

Always get in car & shut door before the driver drives off.

Always pay attention, the driver doesn't always know where they are going, even if it is a nice day for a drive, and the story is riveting.

Always check what's in a chair before sitting in it. Vacuum cleaners are not just for cleaning carpets.

Always find out where the toilet is before dark.

Never swat fly's with a knife in your hand.

Don't just say oh! When you see a snake or lizard unless you have notified others of what this means so they can pounce on it, before is disappears in the sclerolaena bush. Never put you hand in a pit fall until you are sure the only thing lurking in there is a cute little gecko. Some people ARE always right. Instructions can sometimes be interpreted in many ways Cute is not always cuddly The creatures that surround us are amazing, but not to be trusted.

Always take time to be still, listen and learn. Sit back and enjoy the view, it is so worth it. To protect the Author, names have not been mentioned, but you know who you are!

I would like to sincerely thank all the members of the KDIF team for all the help and support I received, both mentally and physically,

I am very proud to have been able to be a part of this survey; I have learned new skills, a few new words, hopefully made new friends, also the knowledge I have gained may make me more useful on future surveys. I sincerely hope you all enjoyed your experience of being a part of a worthwhile expedition. Thank you all again and I really hope to see you again sometime soon.

Contact email: jill.t.61@hotmail.com

### Max Barr



#### Figure 7: Sunset at Merdayerah

I found myself north-west bound to join the YAME clan at our first site, Yalata. I arrived a couple days behind everyone, due to other commitments in Adelaide, which required the 1000km or so distance from Adelaide to be covered quickly. The drive was tremendously scenic and on arrival I was greeted by the team leader, Cath Kemper, with blue-cheese and crackers and pleasantries.

I missed the first day when others were installing the pitlines and a good show from a lightning storm the night before, that could be seen far off in the distance from the camp. The first night we ate, discussed the plan for the next day and called it a night. I woke to the early morning start of my first day to see that a layer of sea-fog had rolled in overnight. The sunrise added an extra enchantment as we drove the 45km to our eastern sites. On arrival in the scrub, the low lying fog condensed on the vegetation as the day warmed with the result of a rain-like experience on the scrub. I devastatingly realised I had left my camera at camp. I thought wishfully that maybe the fog/rain conditions would repeat every morning, but alas, I was wrong.

Checking traps and actively searching the sites for signs of life were duties that fell into part of a familiar routine. Bird-o Super-team, Graham and Graham, set the pace as we actively searched for signs of mammal and reptile life. The eastern sites of the Yalata camp were an interesting mix of Mallee woodland. So much so, in fact, that the study of the understorey created an opportunity for study for a regional botanist all the way from Berri. The expertise of John MacDonald helped regional ecologist, Ellen Ryan-Colton, to learn about the species which were missing from the understorey of the Mallee in the Riverland. The Riverland Mallee has long been degraded by overgrazing, both by feral and commercial animals.

It was beautiful Mallee country that provided the team with captures of pygmy possums, reptiles and sightings of slender-billed thornbills. The travelling distances between sites, both on and off-road, produced chance sightings of bustards and camels for the father/son combo, Austin and Geoff Cook. Cath collected specimens of bats around an old water tank and between some large Eucalypts on the edge of the Mallee. We had some visitors of the herpelogical kind along the way too - snakes meandering into camp, legless lizards interrupting dinner and in one case, a baby brown snake that was hand-caught early in the morning through mistaken identity by the snake wrangler Mr. John Love.

The days at Yalata camp were some of the most varied I have ever experienced whilst camping. Each day I experienced different condition in the weather, the flora, the fauna and condition of flies. March flies were everpresent and came in plague-like proportions for at least two days. When the March flies stopped (because we hit a few days of high 30's low 40s... in the shade, might I add), then the little blowflies took their place. The only thing slowing down their constant buzzing was the days when the wind was strong enough to keep them moving.

The western sites of the Yalata camp were coastal sites. The sites stretched along a beach track that accessed a few camp sites. The local owners have erected signs and maps painted with what appeared to be house paint on the bonnets of old cars. This presented a very curious contrast in an otherwise open grassland outback scene.

Sandy undulating open grasslands morphed into red sandy swales as we headed seaward. As the soil changed to a more sandy limestone, the change in vegetation was remarkable. Unfortunately since I had forgotten my camera a second time, you'll have to take my word that the dunes right at the beach, and the ferocity of the coastline were remarkable. The Western sites produced different types of captures such as *Psuedoemys* sp. (native rodent) and a few rare lizards.

Before we knew it, it was time to move on. Sites were packed up systematically and the camp even more enthusiastically, as we made a team decision to make it to Nullarbor earlier than the expected meeting time to score first dibs on the showers. The heat, the dust and the March fly bites were getting to everyone. I wasn't feeling too bad but the rest of the YAME team had an extra shower-less day on me. I even made it another whole week before getting a dip in the ocean... it was well worth the wait!

The change-over went well at the Nullarbor Roadhouse as we exchanged stories with SEG and DENR members from other camps, refuelled the cars and treated ourselves to the spoils of civilisation. All cleaned up and re-fuelled we said goodbye to Graham Carpenter and the Cooks and welcomed Lyn Pedler to the team. The convoy departed west towards the Merdayerrah sand patch along the Eyre Highway in the midst of the treeless plain.

We turned just before the border of Western Australia and a little way down the historic Old Eyre Highway we established our campsite; and what a campsite it was! I thought Yalata was good, but Merdayerah was gold. We set up camp and retired after some dinner, and I think this is as good a place as any to give a great thankyou to Ray and Trent who produced the best camp menu I have ever tasted. I forget the order of the meals that we enjoyed, but it was all fantastic.

Easter Sunday was a day of hard work setting up the sites. It wasn't too hot, which was nice, and there weren't any March flies (that I noticed), and the ground became generally less consolidated as we moved along in the day. We prepared all the lines just before we lost the last ounce of sunlight for the day and the Easter bunny or bilby left us little gifts to keep the team going. I think everyone slept well that night and the next morning we were greeted with a nought reading on the thermostat. That's right! A low of zero degrees Celsius overnight.

North to south was the bearing of the sites this time, and the contrast between Site One and Six was marvellous. North and inland there was a lake of *Austrodanthonia* (wallaby grass), which was the botanists easiest task to



Figure 8: Spinfex in seed at Yalata

survey. This was a welcome break from the very detailed survey method that was implemented on this survey. Everyday en route to site six we had to pass a sinkhole, a cave which held an underwater lake of significance that accommodated a bacterium under study. The cave divers were quite happy to exchange expedition details and information with us and even retrieve specimens from the cave. These included owl pellets, bird and bat remains, and even a dead snake.

The north sites produced a *Notomys mitchelli* (hopping mouse), *Ctenophorus pictus* (painted dragon), more sightings (six in fact) of *Ardeotis australis* (Australian Bustard) and an alleged dingo, who either really liked or disliked John Love's methylated spirits filled ant-collecting micro-pits as it dug up and masticated nearly every one.

In the south, the highlight of vegetation change was from a Mallee type woodland into thick forests of Melaleuca growing on top of the sandy flats. I don't recall too many details of animal captures on this second camp, mainly because I had a good run working with the botanists. Running ahead of schedule meant that one afternoon we had a few hours off. An opportunity presented itself that was too good to pass up; to go and retrieve a southern right whale's baleen that had washed ashore on a beach at Eucla.

We headed into the border town of Eucla to find the whale's baleen and vertebrae. It was collected by local residents

Tony and Raza who lived in a palace on top of a cliff top. A local's tour of Eucla was offered and away we went on the back of a open-trayed V-8 beach buggy. The local guided tour consisted of the old trading post and stockyards plus a drive along the beach. Exploration of the beach was fruitful with Cath finding a whale fibula. The was also chance sightings of some Emus and very charismatic Major Mitchell's parrots that were all perched in a massive old she-oak planted next to the trading post.

For myself, this was the icing on the cake on this Team YAME expedition. My last night on the Nullarbor under the starlit skies. The last morning to wake up to Trent's booming voice and breakfast jokes. We packed up the sites systematically with not too many captures. Tried to hunt down some Nullarbor magpies and currawongs but to no avail. And that was it, my time on team YAME had come to an end. A detoured scenic route down the Eyre Peninsula required me to leave half a day before the rest of the gang so I packed up, said the appropriate goodbyes, cried a little and headed east... Adelaide bound.

Wow! What an adventure. The main thought that kept popping into my mind as I was driving back. The crew was fantastic; we had a lot of laughs, shared some grand experiences and I even learnt a few things! So, members of YAME... Thanks for having me and I'll see you soon in some scrub near you.

**Contact email:** maxbarris@gmail.com **Photography:** Max Barr



### Notes from the Nullarbor Duncan Mackenzie



Figure 10: The Nullarbor Catacoombs/Koonalda Team: Back Row L to R: Duncan MacKenzie (S), Anita Smyth (D), Rob Brandle (D), Kirrily Blaylock (D), Caroline Bishop (S), Joel Allan (D), Kate Graham (D), Marilyn Wilkins (S), Annette Vincent (S), Janet Furler (S), Jaryd Holmes (S) Front Row L to R: Philippa Schmucker(D), Christina Pahl (D), Ric Williams (S)

The Catacoombs/Koonalda Team was composed of six SEG and six DENR members. This was an 'unusual' composition for a SEG expedition, and it proved to be extremely successful. The scientific work was basically led by DENR members and SEG provided assistance at trap sites each day and looked after camp organization, including cooking duties.

The botanists spent the most time out in the field, and SEG was able to provide two members each day to assist in the work. In no time at all, the joint SEG/DENR effort 'blended' into one cohesive and happy team with few lines of separation.

The first camp was set up in the Catacoombs area, famous for its cave systems. The landscape was generally treeless but we did manage to find a small belt of trees in which to erect our first camp. All personnel assisted with camp setup and once the cooking/eating tent and science tent were erected, proceeded to get their personal tents erected. During the evening meal a rainstorm accompanied by wind descended on camp and 12 people stood around the tent holding the roof and walls down to prevent it blowing away. Fortunately, this was the only rain experienced by the team. Prior to arrival at Nullarbor, we were told that virtually all our cooking would be done in camp ovens in pit fires. Accordingly, we commenced digging a pit and only managed to dig down about a 'hands span' before giving up after removing a huge pile of rocks from the ground where were the sandy conditions we had been promised. After that grueling digging session, all but one meal was prepared in the comfort of the tent on gas stoves.

The first order of business was to commence setting up the survey sites and everyone pitched in to help. After setting up the second site, team members specialized in certain elements of the installation process and we became a 'well oiled machine'- from then on, site set-up was a 'piece of cake' and took a minimum amount of time. One thing that did not go according to plan, was the use of a new industrial vacuum cleaner that was to be used to suck the sand out of the pitline buckets- the buckets had been recommissioned since the original 1984 surveys were undertaken by DENR. However, some moisture had obviously entered the buckets and many required the use of a crow bar to break up the 'cement hard' sand.

Mammals, reptiles, birds, vegetation and ants were surveyed. The Catacooombs team recorded a total of 18 bird species and the two most common birds were the Nullarbor Quailthrush (34) and the Rufous Fieldwren (33). Mammals were a disappointment and only two native species were recorded – Sandy Inland Mouse and the Southern Hairy nosed Wombat. There were, however, 36 house mice trapped. Reptiles proved to be more interesting with 14 species being recorded, the Nullarbor Earless Dragon being the most common.



Figure 11: Rob Brandle setting up the ANABAT system to record bat calls at Koonalda Water tank.

At the end of week 1, and following a brief stop at the Nullarbor Road House (for a welcome shower) we moved on to the Koonalda site which was located in mallee scrub very near the famous Dog Fence. It was great to be amongst trees again and the difference in the vegetation was immediately apparent by the number of bird species seen (49). The honeyeaters were the most common and active birds around camp. Mammals were still 'scarce on the ground' but house mice were still active (42). Reptiles were not as well represented at the Koonalda sites and a total of 12 species were recorded.

The sandy soil at our campsite did allow us to build a pit campfire and on the one night it was in operation, our DENR leader, Rob Brandle, prepared scrumptious camp oven pizzas. Fairly constant wind prevented further use of pit fires at this camp. A welcome respite from pitline work was a visit to the old Koonalda shearing sheds and their outbuildings. These were located near to some of our sites and afforded us the opportunity to set-up bats traps over an underground water tank – no bats were trapped.

The Catacooms/Koonalda team were a happy bunch, and who wouldn't be with the great menus that Trent prepared. One of the things about a SEG expedition is that no one will ever go hungry, and even out in the Nullarbor 'wilderness' there were no gripes about the quality and quantity of good food.

The Nullarbor was an interesting trip made even more so by the combination of SEG and DENR personnel – a great combination that shared all the duties in both field and camp, making it a very pleasant and memorable two weeks.



Figure 12: Bird-o Bea Rogers discussing sites with Rob Brandle at Koonalda Shearing Sheds



Figure 13: The dusty track along the Dog Fence near the Koonalda Camp.

**Contact email:** mackenzie@picknowl.com.au **Photography:** Duncan Mackenzie

## Professor Corey Bradshaw



**Professor Corey Bradshaw on the steps of the Barr-Smith Library** Photograph by: K. Elmes, University of Adelaide

### Biography

Professor Corey Bradshaw co-directs the University of Adelaide's 'Environment Institute's-Climate and Ecology Centre´ and the School of Earth and Environmental Sciences' Global Change Ecology Group with Professor Barry Brook. Professor Bradshaw is the Director of Ecological Modelling. He is also associated with the South Australian Research and Development Institute (SARDI).

Professor Bradshaw has a broad range of research interests including population dynamics, extinction theory, sustainable harvest, climate change impacts on biodiversity, invasive species, and works on a variety of taxa (species groups) from the Antarctic to the tropics. Professor Bradshaw holds dual Canadian and Australian citizenship.

### **SEG:** *How did your upbringing in Canada affect who you are today?*

**C.B**: I grew up in a small town in the Rocky Mountains of British Columbia and I was sixteen the first time I saw a city. My father was a trapper and we hunted all our own food, and so I grew up eating bear, caribou, and moose. I

### An interview by Helen Johnson

was surrounded by dead things, but I spent a lot of time in the bush as a result. Yes it was very consumptive, but one of the oddities of life, in Canada anyway, is that the trappers have been responsible for the prevention of deforestation over large areas. The trappers are strong anti-deforestation campaigners because they want to continue trapping. Some people disagree with that, but the trappers have played a very useful role in that way.

> "trying to kill an intelligent animal requires you to understand a lot about its ecology"

I would probably not ever go back into that line of work, but I was exposed to 'ecology in action' as a result; understanding animals' responses to climate extremes, to each other and to humans taught me to appreciate the complexities of ecology. Ironically, trying to kill an intelligent animal requires you to understand a lot about its ecology. After that, I realised that I had some aptitude in academia, and I decided I would take that experience and turn it into an endeavour that required less *mortality*.

### **SEG:** What area of conservation ecology interests you the most?

**C.B:** There are few ecological and conservation issues that I don't find interesting, but personally I enjoy researching the relationship between species, their environment, how that cascades into what we call 'ecosystem services', and how our transformations of ecosystems affects those services.

A great example of an ecosystem service is carbon sequestration by forests. What combination of species within systems gives the best carbon sequestration potential, and then how does that cascade into maintaining biodiversity? Forests take up a third of all the terrestrial atmospheric carbon in the planet, and so as we cut down forests, we lose that capacity.

" insect pollinators .... provide us with food by pollinating our crops"

Another ecosystem service that I find fascinating is pollination. As we erode landscapes, for example by vegetation clearance, we erode the diversity of insect pollinators that ultimately provide us with food by pollinating our crops. What is the relationship between agricultural production yield and the configuration of the landscape in terms of its native species composition?

Then there are other components, for example when you are going to restore a landscape to regenerate or preserve some ecosystem services, how do you do it so that the landscape is resilient under a changing climate?

All of these big scientific questions, about how to restore/ conserve processes while maintaining some sort of longterm resilience, are to me the most important aspects of conservation ecology right now.

### SEG: Are you able to work in those areas?

**C.B:** I'm already working in the carbon space. We have quite a number of projects and proposals for projects looking at how carbon is affected by landscape and forest configuration, and I still haven't really gone into the pollination area. I am a farmer myself with a very small farm. I have bees and I am interested in how they affect my crop yields. And so I am looking from the bottom up as well as from the top down.

"As you cut down forests you increase the risk of catastrophic floods"

Another thing I have dabbled in is flood mitigation; understanding how forests affect flood frequencies and flood magnitudes. There was always a bit of a legend that forests mitigated flood frequencies, but there is pretty strong evidence now, and we have found global scale evidence, that forests do indeed mitigate floods. As you cut down forests you increase the risk of catastrophic floods, with all the things that come with that: deaths, property damage and displacements.

### SEG: Is that because the trees themselves slow down the flow of water?

**C.B**: It's very complex from a hydrological process, but trees affect soil composition, run-off, evapo-transpiration and they also affect the formation of water channels. All these things combined mean you get much more variance in water supply when you reduce forest cover. There are actually still hot debates in the hydrological literature about how it works, but it certainly does work at broad spatial scales.

### SEG: Is global warming a major threat to biodiversity?

**C.B:** Yes it already is. I'll give you a really personal example and this relates to citizen science. The Virtual Herbarium of Australia has one of the world's largest collections of macroalgae (seaweeds) and as it turns out, Australia has one of the world's highest diversities and endemicities of macroalgae species ('endemicity' means found only from here). Most species follow a latitudinal gradient in diversity, such that the closer you get to the tropics, the higher the number. For seaweeds it is actually the opposite, and there are higher numbers of species in the temperate zones.

Most people don't think about seaweeds, but they are essentially the forests of the sea and they provide shelter and structure for invertebrates, which are in turn food for fish. So seaweeds really are the infrastructure of the coastal seas. Without seaweeds it would be just like cutting down a forest, with the consequent complete loss of an ecosystem. We are now seeing (through the collections in the Virtual Herbarium) whole community shifts down the east and west coasts of Australia as the waters warm. In the last fifty years waters have warmed by almost one degree on the east coast alone and the seaweeds are tracking those temperature changes.

> "We are looking at possibly wholesale extinctions of macroalgae communities across our southern coasts within the next fifty to one hundred years"

Seaweeds need a certain depth of water in which to grow, and they need certain kinds of hydrological regimes and oceanographic currents, and so they can't be pushed out into the middle of the ocean. Essentially, seaweeds can only track so far south before they drop off the continental shelf and go extinct.

We are looking at possibly wholesale extinctions of macroalgae communities across our southern coasts within the next fifty to one hundred years, with the associated loss of entire invertebrate and fish communities. So, it is very scary stuff.

The marine ecosystem is a really classic example of global warming. Right now the oceanography off the east coast of Tasmania is pretty much the same as that which was off southern New South Wales in the 1950s. Everything is tracking south.

### **SEG:** How do you see global warming affecting terrestrial systems?

C.B: Terrestrially speaking, we have changed fire regimes

and our heat-wave dynamics. People don't understand that it is not the mean value of a parameter that counts, it is the extreme values. Take temperature for example: if the mean temperature is 25 degrees C it is not really stressful for anything, but when the temperature hits 40 degrees and it lasts for three weeks, then you see die offs; of redgums, people, birds; all sorts of things drop off when you have these extremes. If the extremes are infrequent enough, you can get diebacks and then recovery, but as the frequency of these extremes increases, there is not enough time for recovery between the extreme events and so basically you are knocking populations on the head at a faster and faster rate and with no time for a recovery, and populations can go extinct.

We are seeing right now with heatwaves that they are getting more and more frequent and lasting longer. The average temperatures might climb by only 0.5 degrees over fifty years, but you've increased the frequency of your heatwaves by ten times. This is the scary part, and we are seeing it across the world.

> " in south-east Australia, we have some of the highest rates of warming in the Southern Hemisphere, and it's getting worse."

We haven't had the kinds of increases that are being experienced in the Northern Hemisphere: in the high Arctic, in Russia, Siberia, and North America. Temperatures have risen in some areas by well over one degree. But in southeast Australia, we have some of the highest rates of warming in the Southern Hemisphere, and it's getting worse. We are also tracking at the highest emissions rates of greenhouse gases. Everywhere ecologists look we are seeing effects.

### SEG: Should we conserve as much biodiversity as possible, or should we target species to be conserved?

**C.B:** I've written a lot about prioritisation, basically smart decision making, and so I use the concept of conservation triage a lot. Triage is a wartime term where the medical teams assess the probability of survival of each wounded soldier, and then invest their time and effort into the soldiers who are most likely to survive. It's very Machiavellian.

We use the same concept in conservation. If something is so far gone that investing even millions of dollars and spending lots of time *might* save it, only might, then it is probably better to take that money and invest it in something where we can potentially save thousands of species for a little effort. For example, by buying up land to ensure that a forest is not cleared.

"Yes, some things will have to be abandoned. It's a tough call, but we have to do it"

It is a cost-benefit analysis, and it is very unemotional. People who are dedicated to conservation don't want to see anything go extinct. I don't want to see anything go extinct, but I am a pragmatist. I know things are going extinct all the time, but they are going extinct at a higher rate because of us. We can slow that rate down by investing smartly, and I don't think we are nearly at that point yet. We have to get over some of the emotional baggage associated with it. Yes, some things will have to be abandoned. It's a tough call, but we have to do it.

In the decision-making process there are a lot of ways to assess conservation value. Total numbers of populations is one layer, but we also have to weight by socio-economic values, by the infrastructure components, by keystone aspects, and by resilience (how susceptible a population is to decline).

### **SEG:** *How are mathematical principles used in the science of conservation?*

**C.B**: Cost-benefit analysis, where you have to quantify trade-offs with economic benefits, or quantify relationships to productivity is a classic application of economic mathematics.

Everything we do in science, no matter what the science is – medical research, physics, chemistry, ecology – comes down to measurements. Measurements produce numbers, and there is only one discipline that deals with numbers – mathematics.

You know people use a colloquial expression "It's not rocket science", but rocket science is pretty straightforward compared to ecology. In ecology you are dealing with thousands, sometimes millions, of species in a single system, interacting with each other; individuals within a population all responding to environmental cues (things that we can barely measure or detect; pheromones for example), and then we try to model mathematically these systems and predict how they will change under certain perturbations. When you are trying to distil millions of relationships it becomes chaos theory, which is a discipline of higher mathematics.

"Maths is at the heart of ecology. Maths is at the heart of conservation" Long-gone are the days of the naturalist roaming around recording when the bees start to visit the flowers and the birds start to sing. Data collection is an important component of ecology, but it is not sufficient. Data then have to be analysed using fairly complex mathematics to tease out the patterns. There are all sorts of considerations like measurement error; there is huge variance because not all individuals in a population do the same thing; and they are all responding to different cues. Pulling those out requires *excellent* mathematical skills. So maths is at the heart of ecology. Maths is at the heart of conservation.

If you think that you can do a university degree in ecology because you are not good in maths, you are completely wrong; it is exactly the opposite. You have to be good in maths today to do these sorts of things

### SEG: Do your other colleagues have such a strong background in mathematics?

**C.B**: I think there is a tradition of ecologists being less numerate than they should be. I will be the first to admit that our mathematical training in universities is inadequate. Even the Group of Eight universities have mostly done away with advanced mathematics in their entry-level pre-requirements for students. It is going the opposite way that it should be. We need to get much better mathematical instruction right from primary school, through high school and then much more in the undergraduate years so that post-graduates, the PhD students who are the next generation of scientists, actually have the tools that they need.

SEG : The data which the Scientific Expedition Group collects is provided to the Department of the Environment and Natural Resources, the South Australian Museum and the State Herbarium, and eventually ends up in the South Australian Biological Databases. Does data from these databases get used in your work? C.B: I haven't dabbled too much in the South Australian databases, but I do know that other colleagues in the University of Adelaide's Environment Institute are using these and getting them online and cleaning them up. I have used other datasets, and I mentioned the Virtual Herbarium which is collected by amateurs and professional together. Recently I've started using citizen science data from the Reef Watch Group. This is a group of divers organised through the Conservation Council of South Australia who do fish surveys along transects over time. A problem with the database is that it is not as standardised as it should be, and so it is a bit messy. In using databases we have to account for such things as the amount of effort that's gone into searching for different species, whether people are visiting at regular times, and to account for expertise differences because it is really difficult to be definitive about some species unless you are an expert.

With all those things together you can see why the statistical components are so essential to control for all those sources of uncertainty and start to quantify patterns.

It turns out that the more people you have looking, and the longer the time series, the more chance you have of finding patterns in data. And so yes, citizen science databases are useful. I think a lot of citizen science has been fairly ad hoc, and it hasn't necessarily been standardised well from the outset. As techniques change and people become more aware of the sampling biases, they get better.

### SEG: Thank you very much for your time today Professor Bradshaw.

#### **Interviewer's Notes:**

Professor Bradshaw has recieved many Awards, Grants and Fellowships from the Australian Research Council and other bodies.

Webpage:www.adelaide.edu.au/directory/ corey.bradshaw

Professor Bradshaw wrote an interesting article "*Can Australia Afford the Dingo Fence?*" on 18/5/12 in his Blog entitled ConservationBytes.com

### Minnawarra Survey April

### Janet Fuller

The autumn survey has been completed, with resounding success. The weather was lovely, we had many great people assisting and learning, and a huge number of little animals recorded.

### **The People**

Over the 5 days we had 36 people coming in and out, some for half a day, some for the whole time. Three Scouts from Victor Harbor camped for 2 nights. In all 449 hours were donated over the survey – a fantastic effort!

### The Weather

The survey began with warm weather and dry conditions as we waited for the rain to start the season. The first two days stayed warm and dry. Day 3 began to cool down and some rain fell. Day 4 was quite drizzly and resulted in quite a few wet and soggy people. Pack-up day was cool but not wetting, which was a bonus. This change in weather gave us quite distinct populations recorded from the wet and the dry periods, as explained further on.

### Wed 18 April 2012.

Temp 17-28, wind light N-NW, cloudy, dry

### Thu 19 April:

Temp 17-27, wind light NE-NW, clear, dry **Fri 20 April:** 

Temp 18-27, wind light NE-SE, clear and dry at first, change with scattered showers in afternoon, 11mm of rain overnight

### Sat 21 April:

Temp cool, 12-15, wind moderate W-NW, heavy cloud, high humidity, 6mm of showers continuing through the day. **Sun 22 April:** 

Temp cool, brought out a wide range of animals.

### **The Animals**

We had a good number of the usual species, with the more unusual being an Echidna who was wandering along the fence at site 2 and obliged us with good photo opportunities. We also caught a *Lerista bougainvillii*, a South-eastern Slider. This is a skink who spends its life burrowing under the leaf litter. As a result it has very small underdeveloped legs which it tucks into its body while slithering around.

In all we caught 161 mammals, 26 reptiles and 10 frogs. We recaptured 29 mammals from previous surveys, and, with repeat visits during this survey we handled 285 animals. There were 28 feral house mice and 2 feral rats. One of the rats had the creamy white belly of the recently identified



Photo by Peter Robertson © Museum Victoria

### Figure 1: Lerista bougainvillii

*Rattus tanezumi*, the other had a grey belly more like *Rattus rattus*. Both of them will be given to the SA Museum to aid the genetic study of these species.

The rain which began on Friday afternoon indicated the effect the weather can have on which animals are caught. All but one of the frogs (all *Crinea signifera*) were after the start of the rain. Of the skinks (22 Lampropholis guichenoti, one each of Eulamprus heatwohlei, Hemiergis decresiense, Pseudomoia entrecasteauxii and Lerista bouganvillii), all but three were caught before the rain. Less explainable is the appearance of the swamp rats (*Rattus lutreolus*) with the rain. They must still have been active in the dry weather, but maybe not wanting peanut paste. However, perhaps a little cold enticed the mammals into our Elliott traps over Saturday night. We found a bumper catch of 72 out of 120 traps occupied on Sunday morning!

Our birdos also did their usual quiet efficient job, wisely picking the warm and sunny day before the beginning of the wet.

Our next survey will be on the October long weekend – Saturday 29th September to Wednesday 3rd October. Love to see you there! Contact Janet 0419 842 667, thefurlers@gmail.com Richard 0408 807 517, rwilling01@gmail.com



The Scientific Expedition Group (SEG) came into being at a public meeting on 21st August 1984. Members receive regular information on SEG activities and expeditions. Membership is open to any persons, family or organisation interested in the following aims:

- \* The promotion and running of expeditions of a scientific, cultural and adventurous nature.
- \* The furthering of knowledge, understanding and appreciation of the natural environment.
- \* Promotion of the values and philosophy of wilderness.
- \* Enabling people to learn the skills required for planning and running expeditions, and to develop sound field techniques.

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Details of scientific, cultural, and adventuring or other relevant skill or interests you may be prepared to share with the group:

Send a cheque (Scientific Expedition Group Inc.) with a Photocopy of this page to The Secretary Scientific Expedition Group Inc. P.O. Box 501

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Items of Interest

# Watch this space for the next expedition

#### A Bit of a Writer?

If you have been on any SEG activity lately or have been a past member thinking about returning to the fold, perhaps you would like to write about your experience. This might have been taking part in an Expedition or one of our on going projects. <u>Andrew Barr</u>, our SEGments Editor would love to hear from you.

#### Spot any Problems

If you find a problem with our website, please contact Michelle Trethewey or Garry Trethewey and we will endeavour to fix it as soon as possible.

#### Contact

Scientific Expedition Group Inc. PO Box 501 Unley S.A. 5061 email: Scientific Expedition Group

#### About

The Scientific Expedition Group Inc. is a non profit organisation which aims to promote and run expeditions of a scientific, cultural and adventurous nature, to encourage knowledge and appreciation of the natural environment, and to develop interpersonal skills by living and working towards a common goal!

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