

SEGments

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Scientific Expedition Group Inc.

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Cover photograph:

Beautiful Gluepot scenery
Photo: Alun Thomas

The Scientific Expedition Group is a not-for profit organisation which began in 1984. SEG undertakes several expeditions each year to record scientific information on wildlife and the environment in many parts of South Australia.

A major expedition to conduct a biodiversity survey occurs each year over two weeks. Scientific experts lead volunteers in surveying mammals, reptiles, invertebrates, vegetation, birds and physical geography. The data collected on each survey are archived with the relevant State scientific institutions to ensure they are available to anyone interested in our State's environment.

In addition to the major expedition, a number of trips for the Vulkathunha-Gammon Ranges Scientific Project are organised annually. A long term study of rainfall on the ranges and of water flow in arid-zone creeks is undertaken. All data are supplied to the Department of Environment Water and Natural Resources and to the Bureau of Meteorology and are available for analysis.

SEG conducts four-day biodiversity surveys at eight different sites each autumn and spring in the Heritage Area of scrub on "Minnawarra" farm near Myponga. Data collected are entered into the Biological Data Base of SA. SEG also conducts annual mallee-fowl monitoring over a weekend in the Murraylands.

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EDITORIAL

The third quarter of the year is a busy time for the Scientific Expedition Group. There is the annual major expedition which is usually done in spring, the spring Minnowarra Survey, the annual malleefowl survey and the Annual General Meeting.

The major expedition to Witchelina is in a very short time and we have over forty leaders and expeditioners descending upon the southern part of Witchelina Reserve to try to tease out its biodiversity. I was fortunate to go on the reconnoitering trip a month or so ago and I can say that the countryside is magnificent after good rains over winter and there is every likelihood of good catches and observations. We set off on Sunday 20th September.

Most projects begin with a simple idea, and Dr. David Peacock, Primary Industries and Regions SA, has told us in his article about one such "idea" that has led to the reintroduction of the Western Quoll into the Flinders Ranges.

The spring Minnowarra Survey will be held on Wednesday 30th September until Sunday 4th October 2015. Again there has been good rainfall over winter so good observations are expected. A notice is included later in this issue.

The annual malleefowl survey will be in November and again rains over winter auger well for the potential to see active mounds. The survey involves some pleasant walking in mallee sandhill country and I encourage members to try it if you haven't done it, it is a very pleasant walk.

The Annual General Meeting will be held on October 9th 2015 at a different venue than usual, the Cumberland Park Community Centre, 388 Goodwood Rd, Cumberland Park. We have a very interesting speaker, Dr Peter Shaughnessy who is an Honorary Research Associate at the South Australian Museum. Peter has for many years worked on seals and in recent years had a particular interest in New Zealand fur seals, now referred to as long nosed fur seals. There is currently some controversy about the population size of these seals and Peter will tease out some of the issues. A notice for the AGM is included later in this issue.

In this issue we have an article about Gluepot Reserve near Wakerie. Gluepot has been described as "one of the conservation miracles of the 21st century". This is due to the hard work of Duncan McKenzie and his team of volunteers. All South Australians should be proud that we have such a great facility in our state.

I visited the Mawson Replica Hut in Hobart earlier this year and I compare it with the original hut at Cape Dennison in Antarctica. I think that the only thing missing are the smells that would have permeated the hut with 18 men living in it for nearly two years.

I look forward to seeing as many of you as possible at the various activities between now and Christmas.

Alun Thomas

GLUEPOT RESERVE – A RESERVE WITH A DIFFERENCE

Duncan Mackenzie



Not long ago George Negus, one of Australia's most highly rated journalists, described Gluepot as "one of the conservation miracles of the 21st century".

BirdLife Australia Gluepot Reserve is Australia's largest community managed and operated conservation reserve. Situated 64 km from the River Murray in South Australia's Riverland, the reserve is managed and operated **entirely** by volunteers. Some 54,000 ha in size, it is home to 18 nationally threatened species of birds, 53 species of reptiles and 12 species of bats, some of which are nationally threatened. **There are few areas of the world that support such a concentration of threatened species.**

The Reserve is part of the largest block of intact mallee left in Australia and so the viability of threatened bird populations and other flora and fauna is high. Prior to the November 2006 fire (that burnt 8,000 hectares of the Reserve's 54,000ha) the last major fire on Gluepot was over half a century ago in December 1950. Importantly, some whole areas were not burnt at all during these widespread fires. A diversity of fire impacts, together with a diversity of understoreys within the mallee and other woodland communities, gives rise to a wide variety of niches for birds and other animals. Many of the trees within the mallee and Casuarina woodland are hundreds of years old with numerous hollows. Such old-growth habitat is essential for many species including threatened species.

Gluepot Reserve is a large internationally significant area for biodiversity conservation. Populations of threatened species in

the Reserve have been maintained or increased in number. A good understanding of the species and their management needs has been obtained and continues to be refined through high quality research. High quality monitoring directs management decisions with minimal adverse impacts on the natural values of the Reserve. Feral predators, introduced herbivores and weeds are controlled to low levels. Appropriate fire regimes maintain the conservation assets of the Reserve. Human use of the Reserve is carefully managed to minimise adverse impacts. A successful and financially independent conservation program continues that is a model for other groups who manage conservation reserves. There is an appreciation and awareness of the special conservation values and character of the Reserve by the international community, Australian federal, state and local governments, scientists and the Australian public, ensuring the protection of the Reserve remains of utmost importance. It should be noted that Gluepot is carbon neutral.

By successfully combining the elements of biodiversity conservation and enhancement through land management, scientific research and monitoring, environmental education and sustainable ecotourism, Gluepot Reserve has taken conservation management into a new era. The Reserve is providing an international model to show that sustainable use of the landscape is both feasible and desirable. A highly successful program of this size and complexity is unique in Australian land management.



Australian Ringneck

"Effectively manage a large, internationally significant protected area for biodiversity conservation as an addition to Australia's National Reserve System and to develop a successful, financially independent program that will be a model for other community groups with small operating budgets (approximately \$80,000)".

Other objectives include: increasing public awareness of measures to conserve biodiversity through on-site education programs and by involving volunteers in all aspects of the Reserve's programs; development and implementation of high quality management, monitoring and business plans; to implement and monitor management actions aimed at improving the quality of native vegetation and enhancing populations of threatened species; and initiate and support high quality research based on problems associated with the mallee environment and in particular, threatened species.

Gluepot is protected in perpetuity as a conservation reserve by the signing of a SA Heritage Agreement and is the largest area of land in South Australia under Heritage Agreement. Gluepot is also part of the National Reserve System, is on the Register of the National Estate and is further protected under the Commonwealth EPBC Act as '*critical habitat*' – the first area of land on mainland Australia to have achieved this protection.

A skilled 17 person volunteer Management Committee, with a strong background in business management, conservation, land management, fire management, wildlife survey, research and monitoring, weed, feral and pest animal control, computing, GIS, database management, archaeology, history, education, ecotourism and community involvement, is responsible for all management issues. The Reserve is manned on a continuous basis by Volunteer Rangers and Assistant Rangers.

Volunteers are the life-blood of the Reserve and come from all states of Australia and overseas. Since the Reserve was purchased in July 1997 and to the end of 2014, volunteers had donated 403,605 hours and 2,416,263 km of mileage that equates to an overall donation of time and mileage of \$11,863 million. Over the past 17 years, the average for donated hours has been about 28,000 hours per annum – during 2012, volunteers donated 37,474 hours. The Reserve is the recipient of 40 national and international awards in the fields of science, conservation, environment, ecotourism, health and the built environment – including six Landcare awards.

Volunteer Ranger positions on Gluepot have historically been booked out 3 years in advance, and are currently booked partway through 2018. The Reserve's Assistant Ranger Training Program offers young graduates and under-graduates the opportunity to obtain training in many facets of conservation and park management, scientific research and monitoring methodology and a wide range of other skills not readily available in any other training programs - there is no charge made by the Reserve for this service. During 2015, seven French and one Dutch second year university students spent their internships at the Reserve. Students stay for up to nine months and many undertake special projects on the Reserve as part of their university course. The Reserve provides a supervisor/mentor for these projects.

The Reserve's overall management philosophy is to

The Reserve has been extremely successful in developing Gluepot as a '*Quality Centre for Scientific Research*' and to-date, 17 Australian and overseas universities and research institutions conduct ongoing research projects on the Reserve. Up to 2015, 17 PhD projects had been undertaken on Gluepot. The Reserve recently 'hosted' a \$1.4 million research project that looked at fire mosaics in relation to biodiversity. This project was supervised by La Trobe and Deakin Universities and seven PhD projects were involved. Overseas research institutes and universities also undertake research projects on Gluepot. In 2014, six scientists from the University of New Mexico (USA) spent three months at Gluepot (as part of an international research project) studying the '*Physiology of heat tolerance in arid zone birds*'. Another PhD student from the University of Wisconsin (USA) commenced a DNA study of the Black-eared Miner and a PhD student from the ANU commenced her project looking at '*Aspects of bird responses to fire regimes in the mallee*'

Visitors to Gluepot are encouraged (where practical) to assist with the Reserve's research and monitoring projects.

Gluepot has the greatest number of permanent biodiversity sites (200) of any Australian land area. These sites are monitored by Reserve personnel, for vegetation, birds, mammals and reptiles - 50 of the sites are photo-point sites and seven 1km x 2km Malleefowl research and survey grids have also been established. With 75 bird Atlas sites, Gluepot has the highest concentration Atlassed sites in Australia and these are monitored on an ongoing basis (a minimum of four



Black Honeyeater



Striated Grasswren

times a year) by Reserve volunteers and visitors. Bird banding is conducted a week per month in selected areas to establish populations of cryptic ground dwelling species of birds for long-term research. The Reserve's Bird Banding Manager provides a bird banding service to students undertaking bird research projects.

The Reserve has established Australia's first permanent bat recording station (seven solar powered ANABAT systems are deployed across varying habitats on Gluepot) in addition to a number of long-term bat research projects (12 species of bats occur on Gluepot, two of which are on the endangered list).

Gluepot, through its Environmental Education Centre, has for ten years, run two and three day courses on a wide variety of conservation and environmental subjects - 13 courses are offered during 2015.

Total grazing pressure is recognised as one of the key threats to native plants and animals. Since the removal of sheep from Gluepot in 1996 there has been a reduction in total grazing pressure with many species regenerating, providing Gluepot with the best vegetation condition of any mallee in Australia. An active Feral & Pest Animal Management Program has ensured that goat numbers have been kept to a minimum. Additionally, Gluepot has just completed building 50 km of new electrified fencing on its north and west boundaries, thus ensuring minimal intrusion of feral goats into Gluepot. The Reserve also pioneered the use of GPS satellite tracking goat collars (used for research purposes and to track mobs of goats) in the 1 million hectare Riverland Biosphere.

For thousands of years there was no permanent water on Gluepot Reserve, and the plants and animals had evolved to cope with this sometimes harsh environment. 80 years ago, a major development phase began and most of Gluepot's 18 dams were dug just before World War II. The provision of permanent water meant that some parts of the property were overgrazed and the soil was damaged during droughts, particularly those areas within 2 km of these artificial water points. However, a CSIRO study showed that the impacts of grazing can be recorded 8 km or more from dams. During 1999 -2001, Gluepot Reserve supported a PhD study on the impact of dams on the Reserve's vegetation and avifauna. At the same time a comprehensive on-going flora and fauna-monitoring program was devised and implemented.

Overgrazing was not just by sheep, but feral goats and elevated numbers of kangaroos contributed too.

Of the 18 dams on the Reserve, 16 have been 'decommissioned' (bulldozed flat) and the two dams at the Homestead have been retained and fenced off (1.4 km long and 2 m high) to control herbivore access. Following dam closures and the subsequent re-vegetation of the sites, goat numbers are now relatively insignificant and kangaroo numbers have fallen to 'natural' pre-dam levels. It is worthy of note that Gluepot has led the way in the closure of artificial watering points and a number of other conservation reserves around Australia are now following suit eg. Scotia and Tarawi (NSW), Calperum and Taylorville (SA) etc.

Other feral animal control programmes include fox baiting – the Reserve baits six times per year and in addition uses special cage traps and Ecotrap to catch foxes. It is expected that in the next two months, Gluepot will have permission from the Commonwealth government to use M44 Fox Bait Ejector Systems. The ejectors use 1080 capsules and will be used in addition to the meat bait program. The Reserve is also very active in reducing cat numbers via cage traps and Ecotrap and baiting for the occasional rabbits.

The Reserve has developed superb infrastructure, including 14 marked walking trails situated in strategic areas of the Reserve; a world class Visitor Information Centre; four magnificent camping grounds set in prime birding areas; research quarters including a new 5 bedroom accommodation



Golden Orb Weaving Spider *Nephila* sp.

block; converted half of the shearing shed into an Environmental Education Centre; built a large steel 19m long storage shed; installed the Riverland's largest self-contained solar power system; installed five elevated bird watering troughs overlooked by large bird hides and a 6X9 metre library/science centre building was completed in 2015.

The many thousands of visitors that come to the Reserve each year are mainly birdwatchers, conservationists and environmentalists. The Reserve has been an industry leader in the accreditation process and was one of the first tourism attractions in SA to achieve Advanced Eco Certification and National Tourism Accreditation. In late 2009 it was announced that Gluepot had received the highest level of accreditation – Leader 5 Star – in the Climate Action Certification Program released by Sustainable Tourism Australia – the first organisation in Australia to achieve this (Gluepot is **carbon neutral**). Members of the Reserve's Management Committee are or have been, represented on the boards of Eco Tourism Australia (Past Chair); SA Tourism Industry Council (Past Chair); Riverland Biosphere Reserve (Past Chair); Scientific Expedition Group (Management Committee) BirdLife Australia (Board member) Friends of Parks SA (President), etc.

Gluepot has always seen 'challenges' as a means to increase the resilience and viability of the Reserve - being able to ensure the long-term financial stability of Gluepot has been the largest challenge.

The Reserve must raise \$80,000 per annum to cover the Operating Budget that includes at least \$23,000 per year set

aside for a Capital Replacement Fund. We have always ended each year with a surplus.

To ensure the financial position of Gluepot - in perpetuity - Gluepot set about raising \$1 million for the Gluepot Reserve Foundation. This amount was achieved nine months ago and we now intend to raise a further \$500,000 as a 'hedge' against further GFC's. The funding for future Operating Budgets is now ensured in perpetuity.

For all capital works and research projects Gluepot must apply to governments, foundations etc. for grants, along with most other organizations in Australia. Since 1998, the Reserve has been the recipient of \$858,000 in grants.

By looking at challenges as 'opportunities,' Gluepot has been a national leader in a number of core environmental management issues: eg. Fire Management, Land and Environmental Management, Feral and Pest Animal Control, Weed Management etc. Gluepot is a 'model' that both national and international conservation organizations are following. Many of the research projects undertaken at Gluepot Reserve will help solve the problems of land degradation and loss of biodiversity. They will assist in providing the opportunity for this generation to sustain itself and to make sure that there are resources left for the generations to come. Importantly, they will increase awareness of the environmental issues surrounding this highly endangered area of Australia's wilderness.

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Malleefowl Mound with Chick Just Emerged



Mawson's Hut at Cape Denison. The main hut is on the right and the Transit hut is on the left. The mast at the centre rear is on Anemometer Hill. Adelie penguins in the foreground.

Mawson's Hut Replica in Hobart

Alun Thomas

When interest was re-awakened in the 1980's about Mawson's Hut at Commonwealth Bay in Antarctica there was a lot of discussion on what should be done with it. If the current and future generations of Australians were to be enthused about Antarctica and science then the hut could be a very useful focal point. Where it was, however, made it inaccessible to most people.

It was known that the hut was deteriorating structurally and at any time the katabatic winds might send it in pieces into the Southern Ocean, never to be seen again. Proposals ranged



The Replica Hut in Hobart

from repatriating it to Australia, building a dome over it or leaving it to its fate.

I was fortunate to take part in Project Blizzard, a private expedition, in 1985 to see the hut in situ and to consider how to repair it. The main things I got out of Project Blizzard were:

- The hut is integral with its surroundings and certainly should not be repatriated.
- A dome, while possibly saving the hut, would seriously detract from the general ambience of the area.
- The "hut" is not a single hut but a collection of four huts and a memorial cross, and removing one part would detract from the historic site as a whole.
- If repatriation was chosen there was a significant danger that the hut would be destroyed during demolition due to blizzards.

The Project Blizzard team repaired one tie beam within the hut but wind erosion on the outside surfaces of the hut had left the wood dangerously thin in parts.

Not long afterwards the Mawson's Huts Foundation was set up with the aim of making the main hut at Commonwealth Bay safe and secure again. This group has done a magnificent job re-roofing the two portions of the main hut, making it generally secure and conserving artifacts within the hut. Tourist boats could then visit and inspect the hut both inside and out relatively safely.

Unfortunately then, along came nature, and parked iceberg B9B in Commonwealth Bay. The compacted pack ice around the iceberg has prevented tourist boats and the Mawson's Huts



Hyde Park Corner in the original hut showing the bunk used by Belgrave Ninnis.



Hyde Park Corner in the replica hut. It was so named because it was the part of the hut where expedition members sat around and debated and talked



Douglas Mawson's Room



Mawson's Room in the Replica Hut



Kitchen and darkroom



Kitchen with darkroom at rear left

Foundation from reaching the hut in the last four years, and there is no sign that the iceberg will drift away any time soon.

To maintain interest in Antarctica and Antarctic science, the Mawson's Huts Foundation has now constructed a replica of the main hut in Hobart and the replica hut is now open as a major tourist attraction next to Constitution Dock, the site for the departure of the Australasian Antarctic Expedition (AAE) in 1911. The hut is set up as a museum of the AAE.

I had the opportunity to visit the replica hut recently on a holiday in Tasmania.

What impressed me first was the size or more particularly the lack of size of the hut. It is built as a full size replica and it makes one realize first hand how cramped eighteen people living in the hut for a long time would have been. Interestingly, to me, the original hut did not seem so small because it stood out in its surroundings.

The original main hut was the concatenation of two huts which were originally intended for two separate bases. When only one base was set up the huts were joined and one hut was used for accommodation and the second as a workshop and laboratory. The workshop part in the replica is used as the museum reception and sales area but the main hut is laid out faithfully to the original except where a necessary door is placed to allow efficient foot traffic through the museum. It is interesting to note that the original accommodation hut had only one door and that was next to the kitchen, so if there had been a fire, exit from the hut would have been quite difficult.

Around the main hut and part of the workshop was an enclosed verandah which was used for storage and for the dogs. In the replica the enclosed verandah area is used very well to display a history of the AAE expedition and the personnel at the three bases (Macquarie Island, Main Base and the Western Base). By the time a visitor enters the replica of

the main hut the basic history is clear.

Artifacts within the replica are well chosen to represent the hut as it was when the expedition left in 1914. The main room of the hut is lined with bunks on three walls with a kitchen and dark room on the fourth wall. As in the original the initials of the occupants of the bunks are painted on the front of each bunk.

The inside of the replica hut is clean and the timber is bright, and although when the original was built it was probably fresh and bright it would not have taken long for the timber to turn grey with a coal fired stove continuously burning and most of the men smoking. Perhaps in this sense it is not quite realistic.

The accompanying photos compare the outside and inside of the hut and the replica. In 1985, when I visited, about two thirds of the hut was full of ice and snow but the Mawson's Huts Foundation team have cleared most of the snow and some of the inside photos were taken by my brother when he visited the hut in 2007.

The only disappointment to me was that the workshop area of the hut is not set out as the original workshop but is set up as a sales area. It would have been preferable to provide a separate building for the sales area and faithfully lay out the workshop as they have done in the main room. Such a setup would have helped with an understanding of the range of scientific research done on the AAE.

In all, I think that the Mawson's Huts Foundation have done a very good job of providing an accessible point of reference for those interested in Antarctica, and it is hoped that it will encourage young people of the importance of science.



Cross Piece of Memorial Cross Fallen into Rocks below Cross



Replica Plaque on Memorial Cross.
The original is in Australia



Memorial Cross at Cape Denison to Mertz and Ninnis

First View of Witchelina

Alun Thomas

I had the good fortune to visit Witchelina Reserve recently as part of the pre-expedition reconnoitre to set up the survey sites and plan the campsite for the upcoming expedition.

Put simply, Witchelina is a magnificent site with a range of topographies or as they are called landsystems.

The northern areas are quite rocky and hilly while the southern areas are characterized by open plain country and dune systems. It is in this latter areas that the current survey will be held. In later years it is planned to go into the northern regions. In the southern area there is a small outstation called Pug Hill Hut and the coming expedition will be based at that hut. The hut will provide basic facilities.

Pug Hill Hut is on a plain with a backdrop of the Willouran Range and Termination Hill. Around the hut is a claypan area, and so if it rains it is likely to become quite sticky.

There had been rain within the previous month of our visit and the countryside looked beautiful with grasses and wildflowers in profusion but a number of tracks in the plain area were fairly muddy. In the dune country the swales were firm and the dunes easy to cross where necessary.

For the expedition about half of the survey sites will be in the dune and swale country and half in the plains country.

Fortunately most of the sites are adjacent to tracks so that access will be straightforward but some of the tracks need to be taken very carefully particularly where they pass over rocky outcrops.

The photographs show the beauty of the countryside.



Dune and swale country



Pug Hill Hut with a backdrop of the Willouran Range and Termination Hill

Quolls versus rabbits in the Flinders Ranges

Dr David Peacock

Looking back it is funny how a simple office corridor conversation could effectively change Flinders Ranges ecology, but I guess most big projects begin with a simple idea. In 2007 Dr Bob Henzell (retired), who SEG members might know from his 30+ years studying mulga, goats and rabbits at Arcoona Creek in the Vulkathunha-Gammon Ranges National Park, and I briefly conversed about his data showing very few rabbits having a devastating impact on mulga (*Acacia aneura*) recruitment. Bob had found rabbits as few as one in a square kilometre effectively stopping mulga recruitment and had suggested the need for a bio-control. That evening I discussed this with my wife Kathryn, wondering how a disease could spread at such low rabbit density, and the idea that came to me was “maybe one with its own legs” maybe we should reintroduce the western quoll (*Dasyurus geoffroii*), the region’s largest mammalian carnivore after the prohibited dingo (*Canis lupus dingo*).

There began a quoll journey (or healthy obsession!) that continues to this present day. But I knew having the idea and bringing it to reality was going to require a lot of questions needing to be answered, and then a lot of funds being sourced. One of the first questions was going to be:

“Did the western quoll previously inhabit the Flinders Ranges?”

In answering this question I used all the sources of quoll distribution data that I could locate. These included museum records, of which South Australia has very few; historical accounts, which apart from ‘The Story of the Flinders Ranges Mammals’ are also very rare from the semi-arid and arid zone; and sub-fossil specimens, which thanks primarily to the efforts of Graham Medlin and his volunteers we do have some additional great data to fill in some gaps. This is an area where volunteers such as SEG members have contributed, using their time and personal resources to provide the labour to explore areas such as Arkaroola and the Vulkathunha-Gammon Ranges National Park. It was a *Dasyurus geoffroii* jaw located during SEG’s 2011 Arkaroola expedition by Garry Trethewey and Loene Doube that helped build the argument that the species was previously present in the region.



The crevice where the bones were found on a SEG trip

Proposing the reintroduction of the western quoll as an additional rabbit predator raised a second obvious question:

“Did/do the quolls, including the western quoll, predate rabbits?”

Although there is a little modern quoll diet data where rabbit is recorded, hundreds of hours reviewing over 12,000 historical quoll accounts found many reports of quolls killing



SEG Arkaroola bone specimens, which include a quoll jaw.
Photo by Garry Trethewey

and eating rabbits. A number of these reported quolls as the primary reason for the failure of their, or others, efforts to release and establish rabbits in many different parts of Australia. In fact it appears the success of Thomas Austin to release and establish rabbits and hares at Barwon Park in Victoria in 1859, Australia’s main rabbit introduction, was directly related to his employ of gamekeepers to kill the rabbit predators – primarily ‘native cats’ (quolls) and ‘eaglehawks’ (wedge-tailed eagles). For example, the *Geelong Advertiser* on 7th March 1873, p. 2 reports “Mr Miles, the [Barwon Park] gamekeeper, between 1866 and 1871 inclusive [killed], viz:—1866, 1040; 1867, 952; 1868, 793 ; 1869, 645; 1870, 486; and in 1871, 368, making a total of 4284 hawks shot in six years by one man. As for native cats, Mr Miles never kept any account of them; they may, however, be moderately estimated at 8000.” The accounts we located of quolls killing and eating rabbits formed the basis of our recently published paper Peacock, D. E., and Abbott, I. (2013). “*The role of quoll (Dasyurus) predation in the outcome of pre-1900 introductions of rabbits (Oryctolagus cuniculus) to the mainland and islands*



Adult rabbit carcass found near 'Biggs' den; July 2014.

of Australia." Australian Journal of Zoology 61, 206–280.

Having answered some of these primary questions, it was partly thanks to the support of colleagues who also believed in the idea that FAME (Foundation for Australia's Most Endangered Species) came on board to source the necessary funds, and DEWNR (the Department of Environment, Water and Natural Resources) and the Adnyamathanha community agreed for a trial release into the 20yr fox-baited Flinders Ranges National Park, where I lived and worked in 1995-96.

The first 37 quolls were brought over from south-west Western Australia with the invaluable support of the Western Australian Department of Parks and Wildlife and released on 1st April 2014, with another four individuals coming from the Desert Wildlife Park in Alice Springs, and another 37 from south-west WA released in April this year. The project has been very capably managed by Dr Katherine Moseby, one of Australia's most experienced reintroduction biologists, ably supported and assisted by our DEWNR colleagues and numerous interns and graduate students. With our 2014 and the new 2015 females, we now have our 2014 female babies having their own babies in 2015, and apart from the predation impact of feral cats, almost exclusively large males (see K.E. Moseby, D.E. Peacock and J.L. Read (2015). "Catastrophic cat predation: A call for predator profiling in wildlife protection programs." Biological Conservation **191**, 331–340) the project is progressing very well. In another major achievement, 79 brush-tailed possums (*Trichosurus vulpecula*) have also been recently translocated into the park from AWC's Yookamurra Wildlife Sanctuary.

As a scientist trying his best to "make a difference" I will take this opportunity to thank the SEG volunteers for the time, money and efforts invested in finding an old western quoll jaw bone and for assisting us in many other ways to together try and restore our amazing country.

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2015 Kangaroo Island Planting Festival

The 2015 Kangaroo Island Planting Festival was held on Friday 3rd and Saturday 4th July and the event was another enormous success. Despite the pretty tricky digging conditions we managed to plant 14,600 plants in two days, which was an awesome effort by all involved.

The final planting statistics for this year's festival are as follows:

<u>Event</u>	<u>Seedlings</u>	<u>People</u>
Friday 3 rd	6,790	58
Saturday 4 th	7,810	54
TOTALS	14,600	112

Once again the Kangaroo Island Planting Festival has shown that it really is possible to make a significant and positive difference to our environment simply by bringing together enthusiastic and hard-working people in a targeted and organised way.

2015
Planting
Festival
Kangaroo Island

MINNAWARRA SPRING BIODIVERSITY SURVEY

Wednesday 30 September to Sunday 4 October 2015

Come for half a day, one day or several days.

Minnawarra is situated on the southern Fleurieu Peninsula

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Vulkathunha-Gammon Ranges Data Recovery Trip – Fri 24th to Tues 27th April 2015

Leaders Report – Compiled by Garry Trethewey and Helen Johnson

Introduction

This trip was conducted by three separate parties which met at various times and places and occasionally swapped members. The Leaders were Chris Wright, Graham Blair, Michelle Trethewey and Phil and Janet Davill.

On the expedition were Chris Wright, Graham Blair, Phil and Janet Davill, John Love, Milton Lever, Helen Johnson, Doug McMurray, Gerard Van Leeuwe, a Dutch student studying at the University of Adelaide, Garry and Michelle Trethewey and Lindsay and Nadine Brown, Rangers at Balcanoona. There were thirteen SEG people in all.

The V-GRaSP Project monitors rainfall at sites in the Gammon Ranges in the Arcoona Creek and the Mt McKinlay Creek Catchment Areas and in the station country east of Leigh Creek. Tasks for a Data Recovery Trip include: servicing the nine rain- gauges (interchangeably called pluviometers/ pluvios) and the stream flow monitoring gauge: photographic botanical monitoring; water level monitoring; human impact monitoring; and counting feral and native animal. Figure 1 shows the location of each pluvio site.

Throughout the 26 years of the VGRaSP project, data logger technology has improved significantly. During the early years, field visits were necessary at least 4 times a year to download,

data from the loggers otherwise the data logger memory would fill and stop recording. Trips frequency was effectively driven by data logger memory capacity. In the early 2000's a newer generation of data loggers were deployed with improved memory capacity, however battery capacity required at least six monthly visits to reduce the risk of losing data due to flat batteries. On odd occasions, non-routine field trips costing \$100's were undertaken to replace batteries costing merely a few dollars.

Resulting from the 2014 data logger upgrade, battery life no longer presents a problem and data logger memory capacity can extend to accommodate much more than a year of rainfall data. Of even greater benefit, 8 out of the 10 sites are now telemetered so that rainfall and river conditions can be observed within hours of a rainfall event. DEWNR poll the data loggers every three hours and publish the data on the SA WaterConnect web site.

Timing and frequency of field trips can now be more flexible. Freed from the constraints of batteries and logger memory capacity, the highest priority can now be placed on checking and maintaining calibration of gauges and thereby the accuracy of the data. A calibration check need only occur once a year and takes a little more than an hour to complete. After the routine task of cleaning dust from the rain catcher and

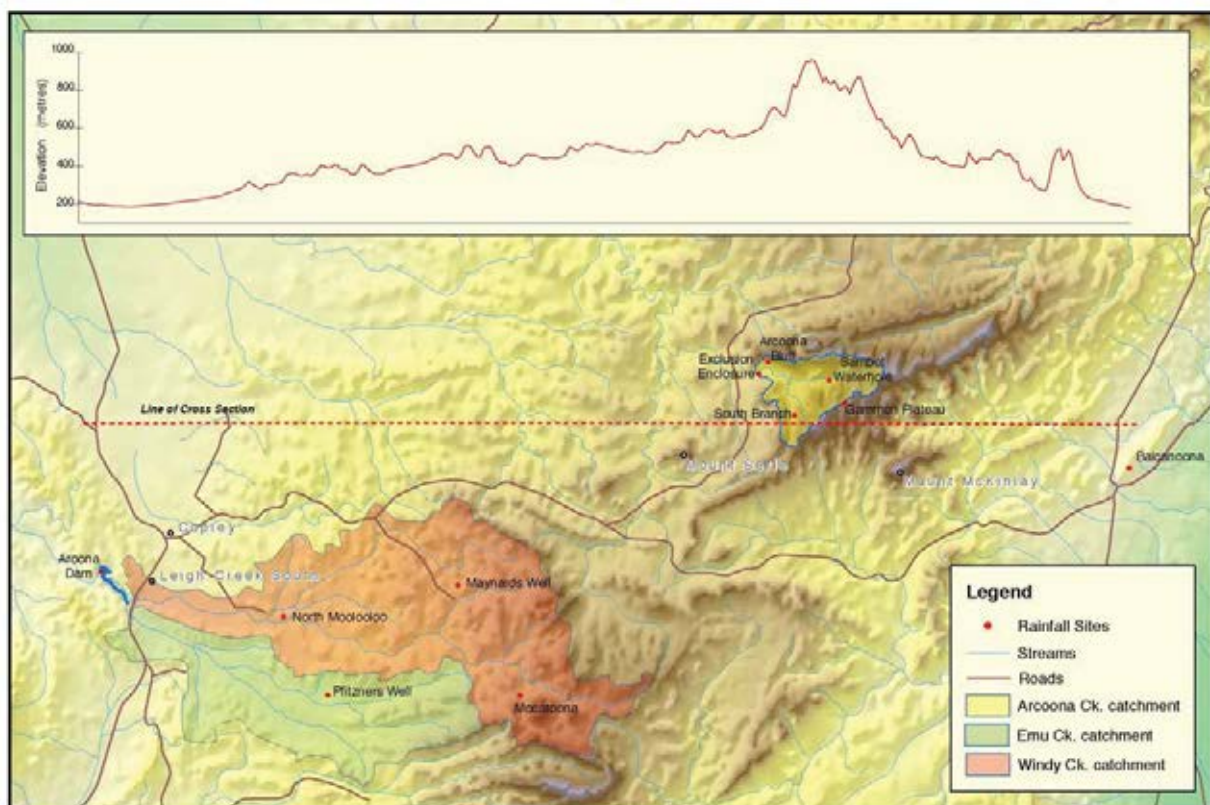


Figure 1. Locations are, left to right, Arcoona Dam, Leigh Creek South, Copley, Mount Serle, Mount McKinlay, Balcanoona. Pluviometer sites are, left to right, North Moolooloo, Pfitzner's Well, Maynard's Well, Mocatoona, Exclosure, Arcoona Bluff, South Branch, Sambot Waterhole, Gammon Plateau. Not shown is the stream depth gauge, 300 metres north east of Exlosures Pluvio.

checking the condition of the gauge, the calibration proceeds with a precise volume of water, generally representing 60 mm of rainfall, being run through the gauge at a controlled rate. A check is then made to ensure the volume recorded by the data logger is within 5% of the calibration volume, and if not the gauge is deemed “out of calibration”. Although the gauge can be re-calibrated on site, this can be a somewhat time consuming task. More typically, the “out of calibration” gauge is noted and replaced with a recently serviced gauge on the next visit.

Description of the expedition

The parties left various Adelaide suburbs at 0600 and arrived at Leigh Creek around 1330, and then after lunch drove on to North Moolooloo arriving at about 1415.

After arrival at North Moolooloo, Graham with Helen, the Tretheweys with Milton, and the Davills went to service the Pfitzners Well Pluvio. The wind was blowing hard and it was very cold.

On Friday evening, 24th April, there was a celebration of 26.5 years of the Vulkathunha Gammon Ranges Project at North Moolooloo in the newly rebuilt shearers quarters, complete with new shower/loo block (Ex-Marathon mines) and a covered area over the yard. Thirteen people stayed overnight at the shearers quarters.

The celebration was intended as a gathering of property owners and families to explain the V-Grasp Project which they had supported for many years. In the event, only Ian Ferguson from North Moolooloo and his extended family were available on the night.

Present were Ian, his daughter Holly and three children (one a friend from Adelaide who used to live in Leigh Creek), Heather (Ian’s daughter) and her husband Tim, and one or two other family members plus thirteen SEG people.

A barbecue of lamb chops and marinated ribs was provided by Ian Ferguson, and SEG brought food from Adelaide (special thanks to Trent Porter who supplied an Esky, jam-packed with goodies, as well as the Power Point projector). Michelle and Janet provided dessert and pre-dinner nibbles. Luke Nichols from Angepena Station brought in a load of firewood on the big loader, and the fire was most welcome as it was a bitterly cold and very windy evening. Luke was unable to stay for the celebration.

After a super dinner, we sat around the dining room table and looked at a series of Power Point presentations by Graham Blair, John Love, David Kemp and the Davills. We also looked at Ian Ferguson’s pictures of recent flood in Windy Creek that swept down past the house and through the sheds – the width of the flood and the debris that it carried were most impressive. Chris Wright explained how the V-Grasp project was set up, and where the main places of interest were. Graham’s pictures showed the development of the new logger boxes; how they were constructed; and the complicated electronic components that went into them. John Love told us how the heat shields were designed and how they work. They keep the electronic equipment at ambient temperature and prevent the gear from being cooked in the direct sun.

There was much talk about the Gammons, and memories of

places and people. Generally we were gathered in groups, in the kitchen, in the dining room and around the fire. Nadine and Chris spent a long while working out a plan for the vegetation monitoring project.

One of Holly’s daughters showed a book of family history, including several old maps showing what looked like different iterations of Moolooloo and North Moolooloo, with changing property boundaries over time.

The next morning, Saturday and ANZAC Day, things started slowly, and many plans were made for the next few days activities. A group went off to look at the Aboriginal artefacts in Red Gorge, and Graham and John serviced the Pluviometer at North Moolooloo and installed a new heat shield.

It was a cold and windy morning. The Tretheweys, Helen and Milton set out for Red Gorge. However, because they didn’t look at the map, they got lost (luckily among beautiful scenery) and then returned to North Moolooloo pluvio to ask directions. They found Graham and John had disturbed a small Curl Snake (*Suta suta*) that lived under the pit cover. This snake only just makes it on to the venomous list, and so with leather gloves, long woolly sleeves, and kitchen tongs it was



The Curl Snake (*Suta suta*) found at North Moolooloo Pluviometer site

fished out of the pit, annoyed for photos, and released under a bush. The most difficult bit of the operation was the strong wind blowing dust into the eyes of the photographer/snake handler, a situation perhaps only appreciated by those with contact lenses.

Later the Tretheweys and Milton found Red Gorge and looked at Rock Etchings of great but unknown age. Lots of questions remain unanswered here with Dr Google only suggesting more. As it was still windy and cold, this group proceeded to Henzell’s Camp and made their way up to Vandenberg at a leisurely pace to overnight there (full packs for 2 days walk). Because of recent rain lots of water was expected, but there wasn’t much found on the walk although it was adequate.

Meanwhile the second group including Graham, Doug, Helen, Lindsay, Nadine and Gerard took the short-cut route from Painters Baseline across the range to a south branch of the Arcoona Creek to service the South Branch Pluvio. This was completed without any complications, and the weather was gradually fining up. Views from the ranges on the east side of the Arcoona South Pound were impressive. Lindsay and



Coming down from North Tusk, looking northward over Arcoona Creek toward Arcoona Ridge, Gammon Hill and the headwaters of Mainwater creek



Chris' and Michelle's Groups relaxing at Vandenburg Camp



Graham Blair checking the route to take across a beautiful river bed on Angepena Station

Nadine then returned to Balcanoona, leaving the others to spend the night at Henzell's Camp. Chris and John serviced the Exclosure Pluvio at Henzell's Camp that evening.

On Sunday morning, from Vandenberg, Michelle, Garry and Milton went up the hill to do the photopoints without incident. Now that the stereo camera set-up has failed, it was decided to continue with mono photos. (Mono photos will be used in future unless something far more convenient and usable than the stereo pair turns up. A couple of years ago a dedicated single unit stereo camera was available. It made processing easy and reliable. We waited for prices to drop, but instead they stopped making them). On return to Vandenberg camp, Michele, Garry and Milton found that Chris, Phil and Janet, John and Gerard had arrived from Henzell's Camp, had set up camp and had checked the SAMBOT Pluvio, planning to check the rest the next day. There was a congenial gathering that night at upper Vandenberg, including Egyptian dukka, olive oil and sourdough bread, and some fortifying port.

On Saturday, the second group comprising Graham, Helen and Doug remained in the vicinity of Henzell's Camp. They revisited the Exclosure Pluvio for some extra work, and then set out to service the Arcoona Bluff Pluvio as well as the Stream Gauge in Arcoona Creek. The Arcoona Bluff was climbed directly up the ridge line to provide Helen a "scenic" route to the Pluvio. The descent however was via Evasive Creek where it was hoped Yellow Foot Rock Wallabies would be sighted, however none were seen. This trip took about five

hours to complete.

Last October, 2014, Garry and Michelle found a patch of unusual looking Eremophilas, with yellow-green flowers. They noticed them first because they looked moist and juicy, as might be expected in a well-watered fern house, and didn't match the general "look'n'feel" for the area. Now they've been identified as *E. undulata* (Wavy-leaved Eremophila). More common in WA, the Atlas of Living Australia puts a few in the Gammons. Garry and Michelle found over 2 dozen in about 2 hectares. They don't look like the pictures on the web, having straight leaves, and are perhaps a local sub-type. Pictures are available on request. (garrytre@bigpond.com)

On Monday, Chris, Gerard, Janet and Phil climbed North Tusk Hill (John Love stayed in camp) in mild weather, and crossed over to the Plateau without incident. They recovered data from the Plateau Pluvio, did a few minor maintenance jobs at the site, and took photos of all the equipment. The group stayed at Vandenberg camp on Monday night, walking out on Tuesday and returning to Adelaide.

On Monday morning the Tretheweys and Milton left Vandenberg to meet Graham, Helen, and Doug at Henzell's Camp and go through Angepena to the Mocatoona Pluvio, and then out to Maynards Well (a very pretty drive according to Garry, although it was a bit of a trial for Graham's Subaru, which however did well with an ex-rally car driver at the wheel).

The Angepena drive must be among the best drives through the Northern Flinders. Although the drive is more challenging than the usual route to Mocatoona via Maynards Well, the Angepena route traverses varied landscapes ranging from open plains, winding river channels cutting through dramatic cliff lines, *Calitris* wooded slopes and higher elevations covered with low vegetation. The time spent servicing the Mocatoona Pluvio served as a late lunch stop, with the group continuing to Maynards Well for the night, where all enjoyed a hot shower and a congenial dinner sharing the remaining food. On Tuesday morning the Tretheweys left early to visit Edeowie Gorge in the Flinders Ranges for more hiking and climbing. Doug left to meander home, and Graham, Milton and Helen set out for the Maynards Well Pluviometer. After the Pluvio was serviced Graham, Helen and Milton then made the journey back to Adelaide, arriving around 6pm.

Tracking Equipment

An item of particular interest on the trip was the use of SPOT, borrowed from Bobbie Rice, which tracked our progress day by day, and posted the track on the internet. The image below is typical of the record of progress. SPOT does a GPS reading every 10 minutes, and records on Google Earth the location. This makes it a very valuable safety feature during these trips. The instrument can be worn on the upper arm, and is not awkward to carry. SPOT uses a set of Lithium batteries that need to be replaced each trip. It has an emergency call button that alerts a selected list of people if the group needs help. It uses standard GPS technology which could mean that on occasion SPOT may fail to communicate with the nearest satellites.

Feral and Native animals

Nearly a dozen dead goats were seen around The Seeps, but not counted by the group as the Sporting Shooters will have

done so. Half a dozen goats were seen near the Plateau Pluvio. Very few native animals were seen. Two euros were seen 300m south of North Tusk. Only the Evasive Creek part of the Wallaby Walk was done and no Yellow Foot Rock Wallabies were seen.

Pluviometers

Following the upgrade of all logger installations during 2014, the visit to each site provided an opportunity to make final adjustments that standardise configuration of all sites. No issues were detected with the new equipment apart from the SAMBOT logger where incorrect fitting of the enclosure door during installation had allowed water intrusion resulting in a period of missing data for one logger. The added telemetry allows data to be published to the Web for all sites except Mocatoona and Sambot.

Surface water

Woodcutter's Well was not checked, but assumed to be overflowing. The Seeps had the usual small amount, but not flowing and not tasted. Wild Ass waterhole was about half height, slightly brown but drinkable. Visibility 60cm. Grandfield Waterhole was about half height, slightly brown but drinkable. Visibility 60cm. SAMBOT waterhole was about 1/3 height, greenish. Visibility 10cm.

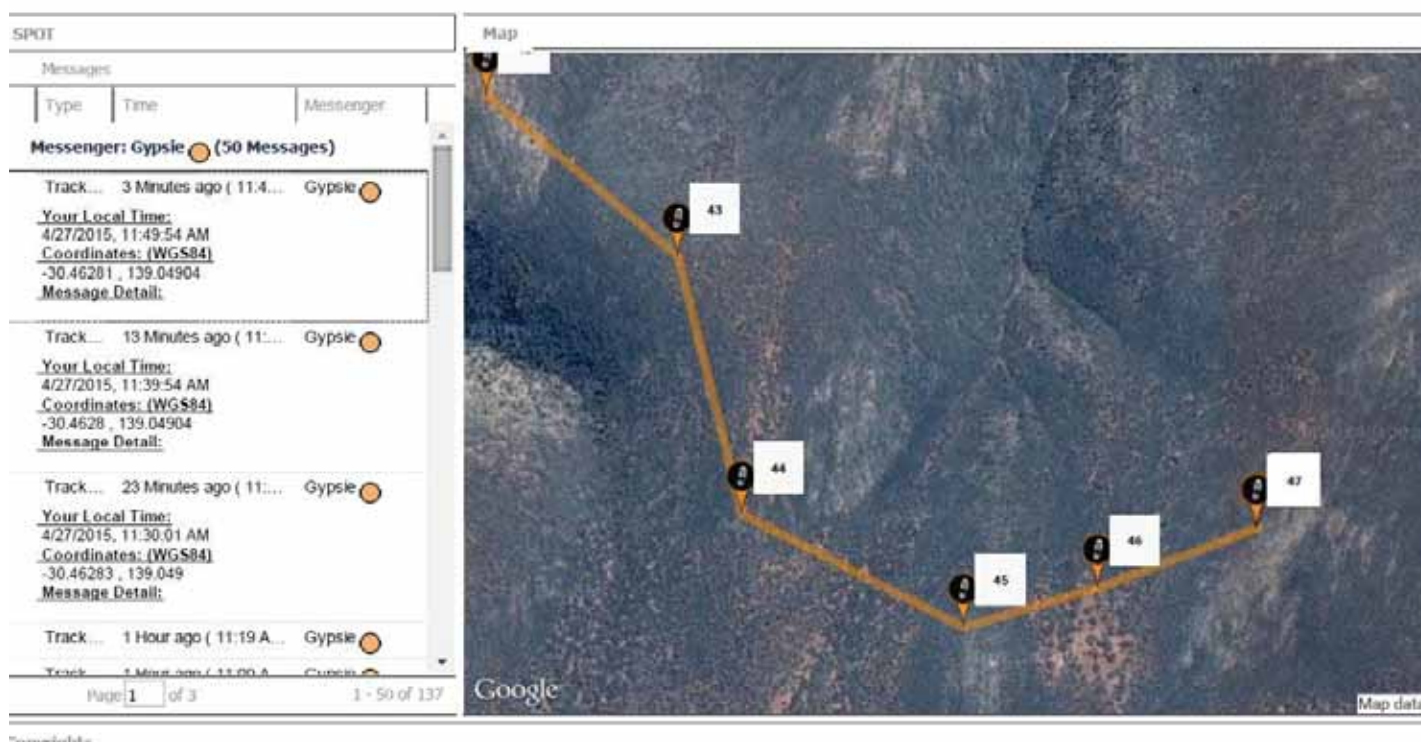
Data can be found on the web at:

<https://www.waterconnect.sa.gov.au/Systems/RTWD/SitePages/Home.aspx>

Photos by Milton Lever

garrytre@bigpond.com

kdolphin@internode.on.net



A typical print-out from the SPOT tracking equipment

SCIENTIFIC EXPEDITION GROUP INC.
APPLICATION FOR MEMBERSHIP AND MEMBERSHIP
RENEWAL for 2015

Membership is open to any persons, family or organisation interested in the following aims:

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- * 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:

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ELECTRONIC PAYMENT

If you have access to the internet, payment can be made using SEG's bank account at Bank of South Australia, details as follows:

Acc Name – Scientific Expedition Group Inc.

BSB - 105-086

Acc No. 330629440

Please use your last name if possible to identify your payment **AND** also advise us by email that you have made a payment to our bank account.

Email address – gdoats@bigpond.net.au

PLEASE NOTIFY ANY CHANGE OF POSTAL ADDRESS

Or send a cheque made out to Scientific Expedition Group Inc. with a photocopy of this page to:

The Secretary

Scientific Expedition Group Inc.

P.O. Box 501

SEG Malleefowl Monitoring 31st October and 1st November 2015



The annual malleefowl monitoring project forms part of the South Australian and National Malleefowl monitoring programme. SEG members and volunteers will survey the Bakara Conservation Park survey grid on Saturday 31st October and Henry Short's adjacent Heritage Agreement survey grid on Sunday the 1st November. The survey will consist of several groups of 2 to 4 persons walking for several kilometres between mapped malleefowl mounds to determine whether the mounds are being used for breeding this season. This will involve moderate walking each day through open mallee and over sandy rises although hot weather may add to the difficulty. Approximately 96 nests will be checked and documented. SEG members and volunteers can assist on one or both days. To read the latest survey report visit the Malleefowl Project on the Scientific Expedition Group's website. ([South Australian Malleefowl Survey Final Report 2014-15](#))

If you are interested in assisting with this survey with please contact Stuart Pillman for details.

Email: aspillman@netspace.net.au

Home: 8390 1789

Mobile: 0468 490 855

SEG ANNUAL GENERAL MEETING

The Scientific Expedition Group Inc. Annual General Meeting and Talk will be held as follows:

Date: Friday 9th October 2015

Time: 7:30 pm

**Place: Cumberland Park Community Centre,
388 Goodwood Rd, Cumberland Park.**

After a short business meeting our talk will be "South Australian Seals" and the speaker will be Dr Peter Shaughnessy who is an Honorary Research Associate at the South Australian Museum. Peter has for many years done research on seals and in recent years has had a particular interest in New Zealand fur seals, now referred to as long nosed fur seals. There is currently some controversy about the population size of these seals and Peter will tease out some of the issues.