



**SCIENTIFIC EXPEDITION GROUP  
Annual General Meeting, 26<sup>th</sup> August 2005  
Chairman's Report**

Another year has passed since the last AGM but it seems like only yesterday. SEG has carried out two Minnowarra surveys, continued and expanded the GRaSP Project and is planning a return to Munyaroo later in the year.

**Committee**

In my second year as Chairman I have been ably assisted by the Vice-Chairman, John Hayes, the Secretary, John Love and the Treasurer, Graeme Oats. Chris Wright has taken over managing the GRaSP Project again. Trent Porter has been tireless using his organisational skills. Despite their recent bereavement, Linda-Marie and Matthew McDowell have continued editing SEGments. Several members of the committee including Trent Porter, Judy Mack and John Love presented a session on SEG at an Australian Geographic day in the Barossa Valley several months ago. Last weekend those members of the committee plus John Hayes and Richard Willing manned a booth at The South Australian Museum giving valuable publicity to SEG. Recently the committee has been strengthened by the addition of Bruce Gotch. I thank all of the committee for their tireless work.

I have given notice to the committee that I do not wish to remain as Chairman for a long period so we are on the lookout for new blood on the committee. It is not an onerous task and in my opinion there is a lot of enjoyment working on the committee on our various projects. I encourage all of you to consider serving on the committee.

\*\*\*\*\***SEG 2005 Calendar**\*\*\*\*\*

**September/ October**

Sept 29 to Oct 3 Minnowarra Spring Survey

October 13-17 GRaSP Spring Trip

**November/ December**

Nov 27 to Dec 7 Moonabie Expedition

November 28 SEGments articles due

Mid December SEGments Vol. 21 No. 3

SEGments is the authorised journal of the  
SCIENTIFIC EXPEDITION GROUP INC.  
PO Box 501, Unley SA 5061

**GRaSP**

Six trips have been conducted to the Gammon Ranges with rainfall, stream flow, vegetation, aquatic biology, feral animal and yellow footed rock wallaby surveys carried out. The three pluviometers Chris Wright reinstated in the Leigh Creek basin are to be made to be able to be contacted by telephone as is the pluviometer on Arcoona Bluff. We are also looking at upgrading the data loggers throughout the Ranges. Chris Wright will give a full report later in this meeting (page 2 of this issue of SEGments).

**Minnowarra**

Richard Willing has continued the Minnowarra project and has is managing to obtain a lot of local support and interest. Richard applied for and obtained a National Heritage Grant which will allow the project to expand into studying invertebrates in conjunction with the South Australian Museum. Richard will give his full report soon (page 6 of this issue of SEGments).

**SEGments**

Linda-Marie and Matthew McDowell have continued editing SEGments but as I found in the years that I edited it there is always a shortage of material. Please continue to supply them with interesting articles and photographs. As many people are now receiving SEGments by email we can put in colour photographs. If you have an email address at which you can receive SEGments please give it to us when you renew your subscription so that we can save the cost of postage.

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## **Website**

As many of you will know we have had an email address and website up and running for several years. I am, for the want of an alternative term, the webmaster. I need to be stirred up to keep the site up to date and relevant so I ask that if you want something else in the site or see material that is out of date please tell me. In the near future there will be a major revision of the GRaSP pages with addition of all the forms and letters used by the expeditions to make it more useful to those planning expeditions. All those documents will be immediately accessible to group leaders.

## **Munyaroo**

In consultation with the South Australian Museum it was decided that early summer was the scientifically most interesting time to go to Munyaroo Conservation Park for a return expedition. The expedition will take place from late November until early December. More details of the plans will be put out soon but as usual we are on the lookout for additional leaders and expeditioners. Subject to receiving suitable sponsorship we hope to be able to provide a discount for students attending the expedition.

After 21 years the organization is strong and dynamic with enthusiastic supporters. I have confidence for the future.

*Alun Thomas  
Chairman, SEG*

## **GRaSP Gammon Ranges Scientific Project Annual Report for 2005**

The Gammon Ranges project is going well and there has been plenty of activity during the past 12 months.

### **Trips have been as follows:**

#### **October 04**

Expeditioners included Graham Blair, Chris Wright and John Love, Ray Hickman, Mick Gogler, Richard Austin and Mike Peace. The program of rainfall and flow data logging was pretty full on and there was very little spare time at any stage. Our attempts to involve NRG, the coal mining company at Leigh Creek, in the Pluviometer project were unsuccessful, but fortunately we have found other backers.

#### **January 05**

The hot weather trip was carried out by Linton Johnston (Party Leader), Stephen (Soursob Bob), Karl Gohra, Kent Wilson. There were two thunderstorms during the trip, but no flow in the creek.

#### **February 05**

Chris Wright and Graham Blair did a special trip to check radio paths, and do some checks on pluviometers. We did a circuit of the Emu and Windy Creek pluviometers with Dion Robins, the RO Plant manager at Leigh Creek and arranged for Eddy Nichols of Maynard's Well to assist us with the upgrade of the Pluviometer, which is located in Crab-hole country and was getting damaged.

#### **April 05**

David and Christopher Kemp, Peter Love and Bruce Gotch did the main walking and scientific data recovery. Christine Arnold led the Wallaby party which included John Love, Trent Porter, Raylene and Perry Klinger.

#### **June 05**

Graham Blair drove up to North Moolooloo with Michael and Christopher Gogler to service the Windy and Emu Creek pluviometers. When they arrived at Arcoona Creek they discovered that that water level recorder was not working. Despite Graham's attempts to repair it, they had no success and retreated hurriedly to avoid a heavy rainfall band that threatened to stop them getting home.

#### **July 05**

Chris Wright, John and Peter Love, Matt Voller, and Phil and Janet Davill led two groups on a crossover walk. One group started at Arcoona Creek and did the data logger work. The other group drove round past Nepabunna and followed the old vehicle track that was used to drive up to Mt McKinlay for the Observatory project in the 1960s. They stopped driving when the going got too rough and climbed McKinlay from the south. The two groups met near Octopus Hill and completed their respective walks and drove out. This is one of the more difficult walks I have done due to the large amount of scrub that we had to push our way through, and the lack of water on the top of McKinlay and on the Plateau, despite the recent rain. We arranged a water drop at the top of Mt McKinlay, and made a special trip to collect water from Junction Waterhole.

Congratulations to all participants. There were 6 who had never done this sort of

walking before, 3 of them from France; and to John Love who completed the whole crossover without audible complaint.

The planning and organising of the 6 trips has required quite a bit of effort, but all trips were successfully completed and apart from the usual array of cuts and bruises, no serious mishaps occurred. We need to remember on all future trips that we have to observe all occupational health and safety procedures and avoid taking risks.

#### **Fuel Costs**

Fuel costs are becoming significant for these trips. The price per non-driver is \$70, but in the future this contribution will not be enough to cover fuel costs. We will either have to charge more, or find a source of funds to subsidise the cost.

#### **Pluviometer Project**

The upgrade of the data loggers is well advanced. The CDMA-Mobile phone link to the raingauge at Arcoona Bluff has settled down and has not missed a beat. Three more units will be built during September for installation in the Emu and Windy Creek Catchments. Graham Blair is planning an upgrade of the Arcoona sites and is hoping that the new Campbell loggers can be configured to bounce all the data back to Leigh Creek. The details are still being worked out, but this update may take place during 2006. Funds have been secured for this from SEG, Feral Plant and Animal Control Commission, Arid Areas Catchment Board and DWLBC for which we are most grateful. We expect that the Cherryville loggers that have been used since about 1991 will be retired from service during 2006.

#### **Cameras and laptops**

Thanks to Graeme Oats' efforts, a small equipment grant of \$1,500. was provided by the Commonwealth Dept of Family and Community Services. The money was used to buy 2 digital cameras for doing the vegetation survey work. Ray Hickman and Graham Blair organised the purchase. There was enough money left for SEG to purchase a Pocket Computer, subject to approval by FACS, which will be used instead of the Laptop computers to recover logger data. This should avoid the awful problems we have had over the years with carrying heavy laptops, protecting them and carrying spare batteries. Last year a Laptop was damaged during a trip, and SEG paid for its replacement.

#### **Rebuilding the Maynard's Well Pluviometer**

SEG is most grateful to the Nichols family for their support and help in rebuilding the Pluviometer at Maynard's Well. Eddie Nichols removed the equipment, installed a new mounting stand for the Pluviometer and poured a concrete slab around the Telstra pit. The result is first class. The pluvio will be upgraded later this year with the new CDMA-mobile phone.

*Thanks to all who have provided so much support during the year, particularly John and Peter Love, Graham Blair, Mick Gogler, Trent Porter and a host of others.*

#### **Yellow Footed Rock Wallabies**

We saw our first wallabies during the 1996 Gammon Ranges expedition, and they were only fleeting glimpses. Since then, with regular monitoring trips, we have often seen wallabies, usually in the far distance, moving fast, or in the very early morning or late evening. So it was a real thrill when Chris Wright, Graham Blair and Ann Cantrell found a family of wallabies one morning in February, half way down Evasive Creek and were close enough to take photos of them. Christine Arnold has led the more extensive surveys, and says that the main colony is one the north side of Arcoona Bluff, while our regular survey route is on the south side. It has been really heartening to see these beautiful animals.

#### **Plans for the future**

Where do we go from here? Graham Blair and Chris Wright have been thinking carefully about the forward program. We are aware that the full scientific program has become quite formidable and to cover the Emu and Windy Creek pluvios in the survey adds an extra day to the trip. We are planning to simplify the data recovery process as much as possible by:

- Using the newer and smaller HS data loggers
- Carrying a Pocket PC instead of a Laptop.
- Using mobile phone communications so that we can check that the equipment is working correctly, and to supply Bob Henzell with daily rainfall data.
- Dividing up the work program to try to limit the amount that has to be done on each trip.

*Chris Wright  
GRaSP Coordinator*

### **An Expeditioner's Perspective from the July GRaSP trip** *Comments from Carly Trozer*

"It was exhilarating to do something that I have never done before in a place that I have never been to before. The walk was challenging but very enjoyable. I felt a great sense of achievement when we reached the top of a mountain and looked back to see how far we'd come. The scenery was amazing and as cliché as it sounds it made me much more aware of how beautiful Australia really is.

My favourite parts of the trip were North Tusk Hill ....the view from the top was spectacular, Vandenburg Camp..... I loved walking over the creek bed to reach the camp and then sleeping under the stars, the Wallaby Walk.... I loved trying to spot the Rock Wallabies and coming down the other side through the creek bed was great. I think one thing I really noticed whilst on the trip was the change in environment.... From red, dusty earth to mossy creek beds.. it was excellent. I think knowing that not very many people visit the area made the trip even more special. It was certainly an experience I would not forget".

### **GRaSP – A General Description**

*(Continued from June issue of SEGments)*

Information provided by John Love and Chris Wright from details written for the SEG website

### **Botanical Monitoring**

The vegetation found in the western part of the Gammon Ranges National Park varies depending on its location. Arcoona Creek is predominantly lined with *Eucalyptus camaldulensis* (river red gum) and *Melaleuca glomerata*, while on the slopes of North Tusk Hill, *Triodia irritans* (spinifex) is interspersed with low shrubs. On the Plateau three distinct plant communities exist: a dense heath consisting mostly of *Calytrix tetragona*, *Callitris columellaris* (native pine), *Allocasuarina muelleriana* and *Acacia aneura* (mulga); an open mallee consisting of *Eucalyptus flindersii* and the low shrub *Goodenia vernicosa* with relatively large clear areas of stony soil; and a very dense impenetrable vegetation composed mainly of *Melaleuca uncinata*. The vegetation on the western slope of North Tusk Hill was burnt at some time between 1985 and 1988 and is slowly regenerating. This has provided an

opportunity to monitor the succession of plants that colonise this area.

Vegetation photo points with associated quadrats were installed in each of the identified plant communities on the Plateau and on the slopes of North Tusk Hill in 1988 and 1989. Their purpose is to assess long term changes in vegetation such as density, species composition, condition or growth. These changes are assessed in two ways – by regular photographs from fixed points and by less frequent scoring of the individual plants at each site. Between 1988 and 1999, the photo points were photographed on most of the quarterly trips, whereas the quadrats were scored 5 times. Photographic monitoring is now limited to the autumn and spring trips.

This method of monitoring has shown that overall there has been little change in all of the photo points over ten years, demonstrating the slow growth/change in vegetation in this environment. Some of the changes that have been observed are as follows:

- development of track in photo point 70B
- *Melaleuca uncinata* becoming less dense
- burnt area regenerating, over storey height increasing
- some response in relation to rainfall



Botanical monitoring photograph

In 1999, Department for Environment and Heritage set up a monitoring program for the Gammon Ranges National Park, to monitor land condition using the same methods that are used to assess land condition on pastoral lease properties. Two of the original GRASP photo points (66B and 71B) have been adopted as part of the above program. Their structure has been modified so that they are consistent with the pastoral monitoring methods, and SEG will continue to monitor them as part of the GRASP program.

### **Aquatic Biology**

Little is known of the biology of these ephemeral streams. It is known that the pools and running water left after rainfall are rapidly colonised by macro-invertebrates (small invertebrate animals living in streams and sediments, including insect larvae such as mosquitoes and midges). Presumably these animals either live deep in the sediments during dry periods or recolonise from outside the immediate area.

Macro-invertebrates are a major food source of many animals. They also process large amounts of organic matter and are an important component of nutrient cycling within aquatic ecosystems. Many have adapted to living in running waters (e.g. flattened bodies). Others may live in a stream environment but escape high flows by sheltering in low flow areas (e.g. behind rocks or vegetation).



Identifying aquatic invertebrates

The study of macro-invertebrates is important for a number of reasons. The most important in the context of the Gammon Ranges Scientific Project is because of their potential as biological monitors of changes in their habitat (i.e. changes in water quality). Some species are very sensitive to changes such as increases in salinity, turbidity or nutrients. The presence or absence of a particular species or the abundance of one species can give an indication of changes that have occurred since the last samples were collected. A study has been initiated to identify the species involved.

Water salinity is also monitored by using electrical conductivity meters. Two locations on Arcoona Creek are sampled; Wild Ass Waterhole (near the junction of Wild Ass and Arcoona Creeks) and Sambot Waterhole (further upstream). Often the sampling sites will be dry or will contain insufficient water to enable meaningful samples to be collected.

### **Stream Flow Monitoring**

Since 1991 SEG has operated a stream flow monitoring program on Arcoona Creek. The instrument consists of the data logging equipment, a solar panel to charge the batteries, two tubes that lead down to the creek with the control cables and the sensors, mounted against a rock. The recording instruments are housed well above the height of any flood. The measuring instruments and cables are tucked in against the rocks, protected from the main surge of the current.

The gauging station measures the level of the water in the creek at 5 minute intervals. Most of the time there is no flow in the creek in this semi-arid climate. However when heavy rains have fallen, the instrument records the rise of the water level as it fills the creek, and then records the falling water level as the flood passes down the creek. Engineering calculations are used to convert the level of the water surface to a rate of flow in cubic metres per second (tonnes per second) from which the total volume of water and the peak rate of flow of the flood is calculated. It is then possible, for instance, to compare the volume of water that fell as rain, with the amount of water that flowed down the creek as runoff. This can give an indication of how much water recharges the groundwater supply, how much goes to support the trees and other vegetation and how much is lost to evaporation.

In order to minimise the risk that data is lost during the occasions when the creek flows (we have on several occasions failed to record floods due to equipment malfunction), there are actually two data loggers, each keeping a separate record of the flow. On each three-monthly trip we recover the data from the Hydrological Services logger. The data from the larger 'Cherryville' logger is recovered once a year.

In addition to water flow, we also record the salinity of the water. This gives an indication of water quality, and is used by scientists to measure the salt balance within the catchment. This is done using a probe which measures the conductivity of the water.

### **Feral Animal Counts**

Goats, rabbits, donkeys and foxes are known to inhabit the project area. Sightings of these animals, or recent scats, are recorded in all phases of the project.

### **Human Impact Studies**

Despite the intention of SEG that all its expeditions operate on minimum impact principles, our presence will always have some impact on the environment. This is the case for any human activity anywhere on the planet. Unfortunately, very little quantitative work has been done on investigating the impact bushwalkers have on the environment. Although it has been assumed that there is little or no impact, regular visitors to popular locations will testify to the changes wrought by increasing visitor loads.

As this project involves regular expeditions in the same locality, an ideal opportunity exists to gather quantitative data on the impact caused by bushwalking groups in an arid environment. Photopoints have been set up on the top of North Tusk Hill, at the Plateau pluviometer site and at Vandenberg Camp site (near the foot of North Tusk Hill) to record photographically the impact at these three locations. Data collected will be stored until a suitable research project can be initiated to carry out analysis.

### **Camp fires**

As part of the effort to reduce human impact, SEG decided not to light camp fires during the regular field trips. Dead timber, twigs, and leaf litter are vital to the survival of small animals and insects at the low end of the food chain. It was noted in other parts of the Flinders Ranges, such as Arkaroola, which are regularly visited by campers, that all dead timber within several kilometres radius is carried off and burnt. The lack of a camp fire to sit beside and talk after dinner comes as a shock to many people. However, SEG feels that the extra effort to minimise the effect on the environment is worth while.

*The December 2005 issue of SEGments will include the final extract from the description of the Gammon Ranges Scientific Project (GRaSP) information on the SEG website.*

### **A Short History of the Minnowarra Project** *Written by Richard Willing*

“Minnowarra” is the family farm of the Willing family situated on Fleurieu Peninsula about one hour’s drive south of Adelaide. It is characterised by undulating hills about 400 m above sea level, perched swamps, proximity to Springmount Conservation Park and 117 ha of high quality native vegetation over which a Heritage Agreement has been registered so that it remains bush. Over a number of years the bush has been fenced off to exclude sheep and cattle. While the

beneficial effect this has on regeneration of vegetation has been well documented, little is known about the fauna inhabiting the scrub. The Minnowarra Biodiversity Project aims to monitor long-term changes in the fauna and flora in the scrub.

Surveys take place twice a year, in autumn and spring, each lasting for five days. At each of eight sites there are six permanent pit-fall traps, opened for four days. Close by are set 15 Elliott traps, with a cage trap at each end of the line, which are baited with a mixture of peanut paste and rolled oats. The pit traps capture mostly small mammals, skinks, spiders and frogs, the Elliotts mainly small mammals, and the cages infrequent larger animals and birds. Each are recorded, weighed, marked and released, some for recapture later. Two bird observers record what they see and hear at each site for 20 minutes twice during the survey. A “belt survey” method records the commonest species of plants along a 20 or 30 metre section of the scrub near each site.

The project was awarded an Envirofund grant this year, which has enabled some invertebrate monitoring by SA Museum. Spiders, ants, native bees, moths, bugs, beetles and butterflies are now being studied. Bats have also been trapped at night with a borrowed harp trap.

The first survey at Easter 2001 included a party of Thai students who were visiting Australia. They were advised to hire good warm sleeping bags, but took the option of buying cheap and nasty ones. Fortunately the weather was fine for the survey, but the poor students nearly froze at night. We made an effort to show them some rural sights like sheep, cattle, kangaroos and a dairy cows being milked while they were here.

The winter of 2002 was particularly wet. Ground-water levels were so high that many of the buckets of the pit traps were half full of water. The whole project had to be delayed for a month until things dried out, which meant that all the volunteers except one were unable to attend. The last survey, in autumn 2005 was the opposite. The season was so dry that numbers of animal captures were much lower than usual.

It is much too early to try to read any trends into the data collected so far, as there is considerable seasonal variation. The survey needs to run for years yet. Each survey leads to the trapping of 100 to 200 small mammals,

more in a good season than bad. The main mammals trapped are bush rats, swamp rats and antechinus, in differing proportions at various sites. Infrequent captures have been pygmy possums, echidna, sleepy lizard and a grey shrike-thrush (in a cage trap).

The most notable feature of antechinus captures is the variation in sexes between spring and autumn. The male has an irresistible mating urge, so strong that he dies before his first birthday after a mating frenzy. The females, on the other hand live for 2 to 3 years while bearing multiple young. In autumn there are more or less equal numbers of males and females, while in spring the antechinus trapped are mostly female, either pregnant or with young in the pouch.

The project relies heavily on volunteers for to keep it going. During the set-up phase this has largely been SEG members, particularly committee and their relatives and friends. On some recent surveys the Green Corps has helped to set up traps. For the rest of the surveys there has been much community interest with the last autumn survey bringing more than 60 volunteers who contributed more than 600 voluntary hours. This has led to a drain on camping resources, so that in April a working bee repaired traps and built a long-drop dunny (to the temporary detriment of communications at the farm). Trent has knocked up a portable BBQ to help the catering situation as well as repairing the gas stove. A good sign is that there are many young people involved some with parents or grandparents in attendance. It looks well for the future, and is another way in which SEG can fulfil its aims and help educate the community in environmental awareness.

Spreading the word in the local community is vital to the ongoing support of the project. As well as articles in the local press this involves speaking to various groups. Recently the author spoke to a regional meeting of the CWA. The women attending were highly intrigued by the sex life of the antechinus, the details of which were no doubt discussed over many dinner tables that night. It is all in the good name of science!

**Expedition Moonabie Range 2005**  
November 27 to December 7

The SEG 2005 annual expedition will be to Moonabie, which forms part of the Munyaroo Conservation Park and is located on the coast

between Whyalla and Cowell on Spencer Gulf in the north of South Australia.

The first week will involve the study of a range of subjects and collection of scientific data under the guidance of the expedition's scientists. Survey areas to be covered in this phase include:

- Mammals
- Birds
- Reptiles
- Invertebrates
- Vegetation

The second week may involve an Adventure Phase where small groups led by experienced leaders, undertake a bushwalk through the area.

Facilities will be limited to bush camping with the expedition staying at a base camp close to the edge of the escarpment within open mallee woodland which will provide a magnificent view across the Park to the coast. Expeditioners will be required to provide personal camping gear e.g. tent, sleeping bag, waterproofs, boots, etc.

Interested expeditioners should apply now to join the Expedition Moonabie Range 2005. Only 25 applicants will be accepted so get in early. Further information can be obtained by contacting Trent Porter Phone (a/h) 8278 9078 or e-mail trentasaurus@bigpond.com.

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**Reminder- SEG Subscriptions are due**

**Please make payments payable to SEG and post details to the address provided on the back page along with your completed subscription form.**

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**Kids Corner**

The hidden words are taken from the articles in this issue. The words are hidden in all directions. Can you find them all?

**Word List**

- |            |            |
|------------|------------|
| Callitris  | goats      |
| Monitoring | park       |
| Rabbits    | donkeys    |
| Wallabies  | foxes      |
| Salinity   | museum     |
| Adventure  | leaders    |
| Aquatic    | vegetation |

V	E	G	E	T	A	T	I	O	N	D	K	V	Z	P
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# SCIENTIFIC EXPEDITION GROUP - Membership

The Scientific Expedition Group came into being at a public meeting on 21st August 1984.

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.

Members receive regular information on SEG activities and expeditions

*Patron: Her Excellency, the Honourable Marjorie Jackson-Nelson, AC, CVO, MBE, Governor of South Australia*

### SEG COMMITTEE Office Bearers

President           Dr Richard Willing  
 Chairman         Alun Thomas  
 Vice-Chairman   John Hayes  
 Hon. Secretary   John Love  
 Hon. Treasurer   Graeme Oats

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**SEG WEBSITE** [www.communitywebs.org/scientificexpeditiongroup](http://www.communitywebs.org/scientificexpeditiongroup)

**SEG EMAIL ADDRESS** [segcomms@telstra.com](mailto:segcomms@telstra.com)

**SUBSCRIPTIONS** (Including GST)

Working adult member -----	\$16.50
Pensioner student or unemployed -----	\$11.00
Family membership -----	\$22.00
Organisation membership -----	\$22.00

## APPLICATION FOR MEMBERSHIP AND MEMBERSHIP RENEWAL

Name . . . . .

Address . . . . .

. . . . .

Telephone (H) . . . . . (W) . . . . .

E-mail . . . . .

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

. . . . .  
. . . . .

Applications should be addressed to :

The Hon. Secretary  
 Scientific Expedition Group Inc.  
 P.O. Box 501  
 Unley S.A. 5061