


SEGments

A close-up photograph of a cockatoo perched on a tree trunk. The bird has a black body and a yellow and black crest. It is looking upwards and to the right. The tree trunk is light brown and has a large, dark, hollowed-out section. The background is blurred green foliage.

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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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Cover photograph: Adult female Glossy Black Cockatoo at nest hollow entrance by Michael Barth

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EDITORIAL

SEG's 30 year celebrations provides an opportunity to look back at what we have achieved, and to plan for the future.

This month also sees me changing from the position of Chairman of the SEG Committee to the position of Administrative Officer.

In the eleven years that I have been Chairman, SEG has significantly increased its assets with the purchase of two trailers and a truck. It has also more than doubled the number of cage and Elliot traps it possesses as well as other survey and camping equipment. This means that SEG is much better equipped to carry out surveys without the need to borrow from the Museum or the Department. This is fortunate at a time when governments are slashing natural science budgets in all directions.

SEG's work in providing training in field science, while providing vital information about the environment, upon which we rely, will become more and more important as the Department of Water, Environment and Natural Resources becomes emasculated by populist governments and Federal Government grants dry up.

Similarly the work done by the V-GRaSP group in the Gammon Ranges will prove vital in the future if we are to monitor climate change.

I think that the skills that we possess will put us in good stead for the future and SEG is ready for the challenge.

If you haven't booked for Expedition Nangwarry please do so as soon as possible. We need more volunteers to make this a successful expedition. See the flyer on page 16.

The Gammon Ranges Scientific Project is celebrating 26 years of operation and the installation of their upgraded rainfall data loggers. If you want to attend the celebrations see the options on the flyer on page 16.

As part of SEG's 30 year celebrations we have produced a book, "Thirty Years of Science and Adventure". See the order form on the back cover.

Alun Thomas

Co-Editor

Restoring Habitat for Glossy Black-Cockatoos in South Australia: planting a future for an endangered species.

Michael Barth

Can you imagine eating the same thing every day for your entire life? This is precisely what the Glossy Black-Cockatoos (GBCs) of Kangaroo Island, South Australia manage to do. All three subspecies of GBC in Australia have highly specialised diets and have evolved to feed on the seeds of various species of *Allocasuarina* and *Casuarina* trees. The endangered South Australian GBC (*Calyptorhynchus lathami halmaturinus*) is the most specialised of all and relies almost solely on the seeds of *Allocasuarina verticillata* – Drooping Sheoak.



Adult female feeding on a Drooping Sheoak cone

In South Australia, GBCs once ranged from the Mount Lofty ranges near Adelaide, southwards down the Fleurieu Peninsula and across Backstairs Passage to Kangaroo Island. With large scale land clearing on mainland South Australia for agriculture and industry, GBCs disappeared along with the Drooping Sheoak woodlands upon which they relied. The last confirmed sighting on the mainland was in 1977.

South Australian GBCs became confined to Kangaroo Island where, fortunately, enough feeding and nesting habitat remained to sustain a breeding population. By the 1990s however, the population was estimated at less than 200 birds and was in decline.

GBC recovery program

In 1995 a recovery program began to address key threats to the species. The key factor driving population decline was found to be a low recruitment rate due to poor breeding suc-

cess. It turned out that nest predation of eggs and nestlings by the Common Brushtail Possum (*Trichosurus vulpecula*) was the main cause for nest failures. This threat has been greatly reduced by preventing possum access to nest trees with exclusion collars and pruning bridging tree canopies. On Kangaroo Island, about 95% of all natural hollows are found in Sugar Gums (*Eucalyptus cladocalyx*).

The recovery program has addressed other threats including competition for nest hollows by other species such as Galahs (*Cacatua roseicapilla*), Little Corellas (*Cacatua pastinator*) and feral Honeybees (*Apis mellifera*). In addition, over 90 artificial nest hollows have been erected and maintained across the island to supplement available natural hollows.

As a result of these management actions, nest success rates have nearly doubled and the population has slowly increased by about 3% annually. The latest population estimate in 2013 was 350 birds.



Sugar Gum habitat -exclusion collar on nesting tree (centre)

Habitat and feeding

As the GBC population increases, competition for remaining habitat may also increase. Only about 1% of Kangaroo Island's remnant native vegetation is considered suitable feeding habitat for GBCs and about 75% of that is close enough to known nesting areas to be useful to breeding birds during the nesting season (the maximum foraging distance from the nest site is about 12 km).

Within a quality stand of Drooping Sheoak woodland, GBCs will only feed on select trees offering the most reward for time spent foraging. This is most likely related to seed quality and quantity within individual trees. On top of this, Drooping Sheoak is dioecious (separate male and female plants) and as only female plants bear cones, only about half of all sheoaks are potential feed trees.

Non-breeding GBCs spend about 30-40% of the day feeding on around 60-80 sheoak cones. A male feeding a nesting female needs about 120 or more cones a day, and feeds for over half of the daylight hours. GBCs prefer seed from fresh russet brown cones rather than from the older cones which

have less food value. Their beaks are specially designed for tearing apart sheoak cones, which they hold and turn with their (usually) left foot. It takes about three minutes to chew all the seeds from a sheoak cone.

Other factors which may affect future food availability include climate change and wildfire. If the predicted hotter, drier weather for South Australia eventuates, there will be a negative impact on GBC feeding habitat through more frequent and intense droughts and wildfires. After a fire, it takes an estimated 10-15 years before Drooping Sheoaks become useful to GBCs as a food resource again. Furthermore, eucalypts probably take more than 100 years to form suitable nest hollows. It stands to reason that with more food and nesting habitat available across the island, GBCs will have a greater chance of surviving these new challenges.

Revegetation of habitat



Adult male holding cone in left foot

The Glossy Black Rescue Fund was established in 1993 to provide assistance to landholders wanting to revegetate areas that would increase the area of GBC habitat. Since 1994, with the assistance of numerous landholders and volunteers, over 160 ha have been revegetated and several hundred hectares protected and enhanced through fencing and supplementary plantings.

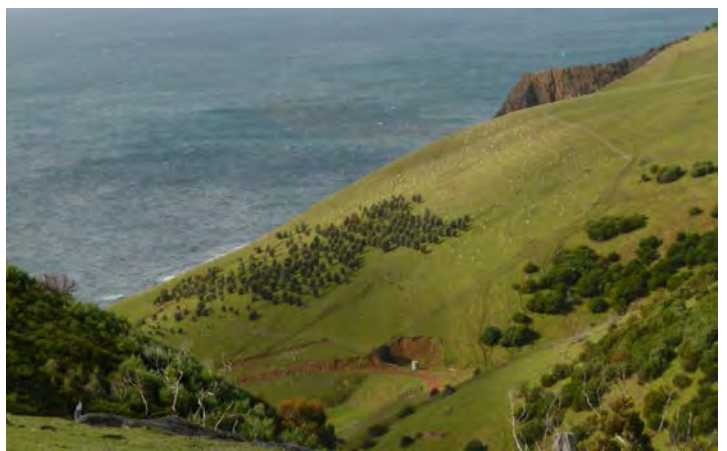
Revegetation sites are strategically chosen to address habitat fragmentation, ensuring adequate feeding habitat occurs close to known nesting areas, and are usually in areas where Drooping Sheoak previously occurred. There have also been plantings on the southern Fleurieu Peninsula in hopes it may benefit GBCs in the future should they decide to make the flight from Kangaroo Island back to the mainland. In recent years, revegetation efforts have incorporated a variety of locally native plant species along with the Drooping Sheoaks to benefit a wider range of flora and fauna species. Additional biodiverse plantings were established through the Kangaroo Island Habitat Restoration Program's annual Planting Festivals at strategic sites including the Cygnet Park Sanctuary, a nesting area where GBC feeding habitat is limited.

Seed collection and propagation

All seed from near the planting sites is collected (local provenance) and propagated by expert staff at the Kangaroo Island Native Plant Nursery. A portion of the sheoak seed is collected from known GBC feed trees. It takes about six years for planted sheoaks to produce enough seed to attract GBCs. On the forest floor shredded sheoak cones (known as chewings) are evidence that GBCs have been feeding in the area. Researchers can use the colour of the chewings to gauge how recently the birds were in the feeding area. Fresh chewings are pale cream, then turn orange after several days and brown after a month or two. GBCs will take a sheoak cone away from the feed tree into a nearby gum. This may aid in seed dispersal for the sheoak.

Plumage

Adult male GBCs have plain brown heads and bright red panels



A sheoak planting site on the north coast of Kangaroo Island



A biodiverse planting adjacent to nesting habitat and previously planted sheoaks

in their tails. Females have barred orange-red tail panels and yellow markings on their heads, especially around their necks. The pattern of yellow on the head is unique to each female and may be useful in identifying individuals. Females reach maturity by three years of age while males take 5-6 years. Immature birds have barred tails and plain brown heads.

Nesting and raising young

GBCs form strong pair bonds and paired birds are rarely more than a few metres apart, except when the female is in the nest. Between late January and May the GBCs search for a suitable nest hollow, usually in a tall Sugar Gum or a dead tree or (rarely) a South Australian Blue Gum. Females are responsible for incubation of the single egg (1 month) and feeding the nestling until it fledges (3 months). After fledging, the young



Shredded sheoak cones (chewings) on forest floor

bird will spend the next 6-8 months with its parents learning to forage for food.

Each year from late summer to early spring recovery program staff and volunteers monitor nests and, in particular, locate and protect new tree nests. Where possible nestlings are



Immature female and adult male showing tail plumage (photo Eleanor Sobey)

removed from nests to be weighed, measured and banded. Numbered bands are affixed to the left leg upside down. Researchers use high powered spotting scopes to read these bands once birds have fledged. When feeding birds hold a sheoak cone up to feed with the left foot, the band is right side up.



Preparing a nestling for weighing, measuring and banding



Numbered bands are affixed upside down to the left leg

Community volunteers

If you are coming to Kangaroo Island and interested in assisting with the recovery program, there are a number of activities that involve community volunteers. Apart from the annual Kangaroo Island Planting Festival, which is advertised in SEGments and occurs in July each year, we also have an annual GBC census (26-28 September this year), nest monitoring when the birds are breeding (February to July), and additional community tree plantings in June each year.

For more information contact Michael Barth – Wildlife Field Officer at Natural Resources Kangaroo Island:

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All photographs by Michael Barth unless otherwise indicated.

The Benefits of Citizen Science Projects in Research, Education and Community Engagement

Philip E.J. Roetman and Christopher B. Daniels

Preface

This is an extract from an article “Citizen Science: Bringing Science into your Backyard” published in the book *Creating Sustainable Communities in a Changing World*. (2011) Roetman, P.E.J & Daniels, C.B. (eds) Crawford House Publishing, Adelaide, pp 249-260. (ISBN 978-1-86333-335-1). It is reproduced with permission by the copyright owner, the Barbara Hardy Institute, University of South Australia. Any reference to this article in any publication must cite the original article. The Tables follow the Reference section.

Introduction

Citizen science is a research methodology that involves participation by citizens, who are not necessarily scientists, in scientific projects. There are now hundreds of citizen science projects being conducted worldwide. Bonney and colleagues (2009) have stated that citizen science has great potential to ask new questions and engage new citizen participants. We

concur, and contend that projects could be developed to address a wide range of issues related to the sustainability of our communities. Citizen science projects can contribute to changes in community knowledge, attitudes and behaviours, as well as the scientific understanding of their focal topic by exploiting the methodology’s inherent nexus between research, education and community engagement. There are, therefore, benefits for scientists, decision makers and the wider community. In this article we demonstrate the potential of citizen science projects in research, education and community engagement, and present findings of our own citizen science projects.

A Series of Operations

We have run a series of citizen science projects in collaboration with a local radio station, 891 ABC Adelaide, and various industry partners (Roetman & Daniels 2009, 2010, 2011; Vasey, Daniels & Roetman 2008). The goals of our program – this series of projects – have been to study wildlife, to under-



Year 1 students at pond near Mount George net sampling macroinvertebrates

stand how people interact with wildlife, to trial novel methods of community engagement, to educate people about wildlife, and to build our understanding of the citizen science methodology. Our projects have been focused on common wildlife taxa in South Australia: bluetongue lizards (in 2007), possums (in 2008), Australian magpies (in 2009), and spiders (in 2010). The projects have been called ‘Operations’, for example, ‘Operation Possum’. Each project has included an online survey instrument for data collection, open to the public for participation for up to 13 weeks during spring.

We have engaged a wide audience through traditional media (radio, print and television), new media (Facebook and YouTube), project events and competitions. Evidence of our community engagement is clear, with 7049 online questionnaires completed over the four projects. A formal education program, with materials disseminated for each project, has increased our community engagement, with participation by thousands of school students. The reach of various media outlets has increased the number of people able to learn passively from our projects. For example, talkback radio segments



held numerous times during each project have an audience of over 30,000 people (audience data from Nielsen 2009).

The research of citizen science

In order to better understand the relationship between people and wildlife we have asked project participants to collect and submit data about wildlife, and also about themselves. Some examples of the types of data we have collected concerning people, social-psychological data, are presented in Table 1.

We have collected this information so that we can better understand how and why people interact with wildlife. For example, during Operation Possum we collected data about participants’ management of possums in addition to the types of data listed in Table 1. These data were collected so that we could determine if any of the social-psychological variables would explain decisions to manage possums. For example, do people with a pro-environmental orientation, as measured by the New Ecological Paradigm scale (Dunlap et al. 2000), man-

age possums in more benign ways than people who are less concerned about ‘the environment’? Publication of the results of these analyses is forthcoming. We are also working to overlay spatial representations of our social-psychological data on to ecological maps to examine patterns of association between the human and environmental systems.

The collection of qualitative data (people’s stories about their interactions with wildlife), has enabled us to gain a detailed understanding of how project participants interact with wildlife and the importance of wildlife to them. The analysis of this data has been the basis of two book publications:

1. *The possum-tail tree: understanding possums through citizen science* (Roetman & Daniels 2009); and
2. *The fearsome flute players: Australian magpies in our lives* (Roetman & Daniels 2011).

These books are an important component of our citizen science program. They are research outputs predicated by the nexus between research, education and community engagement. Citizen science projects require a bilateral exchange of information between scientists and the volunteer community involved. Scientists commence the exchange by providing information about the project and the taxa or phenomenon of interest. Data is then submitted to scientists from the community. Once this data is analysed, the results must be presented back to the community. It is certainly fundamental to conduct an exchange of information between scientists and the community in order to conduct citizen science.

The education of citizen science

Citizen science projects can provide important science education – both in some general scientific methods and principles, and with more specific knowledge about the taxa or phenomenon being studied (Bonney et al. 2009).

It is difficult to disentangle the education and engagement benefits of citizen science because they are interrelated. In this section on education we have included information about informal and formal science education.

Informal science education for project participants is achieved through the bilateral exchange of information with scientists. In the first action of this exchange, community participants need information so that they can become involved, and so that they do become involved. It should be designed to engage the community and encourage participation. The information may also be necessary to ensure data collection is possible and that data is of a suitable standard for analysis. For example, during Operation Possum, we were concerned that participants might not know how to distinguish between common brushtail possums (*Trichosurus vulpecula*) and common ringtail possums (*Pseudocheirus peregrinus*). We therefore produced and disseminated factsheets about these species and embedded information about them within the online survey instrument. We followed similar protocols for each of our

projects. Three examples of feedback from project participants which inform us that our strategies for informal education have been successful are:

Thankyou for setting up the survey and the website information which is very helpful for me in addressing the management of the beautiful possum that has decided to make my garden its home. [Operation Possum survey respondent]

We also had learnt on 891 ABC radio that female magpies had speckled backs, which Merv has. Although we now know that Merv is actually a female we still like to call her Merv. We hope Merv introduces us to her young! [Operation Magpie survey respondent]

I have learnt a lot and now am very BRAVE!! Knowledge helps put things in perspective. Not that I was scared before, but didn't realise how important spiders are to our healthy living. [Operation Spider survey respondent]

While informal science education is, at least, an implicit aspect of all citizen science projects, we have taken an additional step and embedded formal education within our program (Paige et al. 2010). While many citizen science projects are utilised by schools, very few are designed to be part of the formal curriculum (there are some notable exceptions). It should be noted that the majority of participants in our program have been above school age, but we have been interested in engaging schools for two reasons. The first was that we wanted to engage more people of different ages, so we could compare attitudes across age-cohorts. The second was that we felt our program was ideal for formal science education, with focal taxa that children see at home and at school. Importantly, citizen science projects provide opportunities for gaining both knowledge and experience about the natural environment, two important drivers in the development of positive environmental attitudes and behaviours (see, for example, Chawla & Cushing 2007).

Participation in our formal education program has grown each year. In Table 2 we present data about how many teachers accessed our project materials and how many utilised them. During Operation Spider, over 100 teachers utilised the resources (teachers who either ran a unit of work or used the resources in other ways), equating to an estimated 2500 to 3000 students.

The increases in both access and utilisation of the materials following Operation Possum can be attributed to two factors. First, at that time we began collaborating with academics from the School of Education at UniSA and developed more sophisticated teaching materials. Second, we also began to disseminate the materials online, thereby increasing access to them.

Earlier project materials had been produced on CD-ROMs and distributed to a small network of teachers via traditional postage. For Operation Magpie, the learning outcomes for students are presented in Paige and colleagues (2010). We have a similar publication in preparation for Operation Spider. Two examples of comments from teachers about our education program are:



I did a unit of work on Operation Spider with my 3, 4, 5 class last term. It was one of the most exciting and engaging science topics I have taught. The students were totally engaged and did a lot of research and personal observations at home. It was a topic that was easily integrated throughout all curriculum areas. The resources were very helpful and easily accessed.

I ran a unit of work on spiders for a Year 7 class. They absolutely loved it and I can't believe how much I learnt as well. Thanks for the resources.

The aim of research is to increase knowledge. While conducting citizen science research projects there is great potential to informally and formally educate the community. This methodology can, therefore, inform both scientists and the wider community, made possible through a bilateral exchange of information. Our projects have been successful because this exchange has been engaging.

The community engagement of citizen science

There is a great interest in increasing community participation in scientific projects, in order to derive the research and educational benefits described in the previous sections.

Of particular interest is Lawrence's (2006) assertion that Consultative and Functional projects may stimulate 'personal change' in participants, such as change in knowledge, attitudes and behaviours. Our 'Series of Operations' would most certainly be categorised as Consultative projects; defined as

science projects *where citizens collect data for scientists or decision makers* (Lawrence (2006)). The later projects had Transformative elements: *where citizens lead project design and implementation*, since teachers helped to design the surveys (Lawrence (2006)).

Within the Operation Spider survey instrument we included an evaluation of participation in the previous three projects in our program, the 'program evaluation survey'. We based our questions on the schema presented by Friedman and colleagues (2008), and previously used by Bonney and colleagues (2009) to assess the potential project impacts of citizen science projects, including both engagement and education outcomes. The schema includes six impact categories:

1. Awareness, knowledge or understanding (of a particular scientific topic);
2. Engagement or interest (in a scientific topic);
3. Attitude (towards a scientific topic);
4. Behaviour (related to a scientific topic);
5. Skills (related to a scientific endeavour); and
6. Other (a project-specific category).

We have, however, gathered evidence that our program has had impact in all five named categories (not the 'other' category).

Our program evaluation survey received responses from 213 people who had participated in some way in at least one of our three previous projects (Operations Bluetongue, Possum and Magpie). We defined 'participation' as having submitted a survey, read online project material, read results publications or listened to project discussions on the radio. Overall, 109 of these respondents (51 per cent) confirmed that 'through participating in this citizen science program, my interest in the wildlife around my local area has increased'. More detailed data was collected regarding how involvement in each project had influenced participants and the results are presented in Table 3.

In order to substantiate these findings we collected further data about what participants had learnt and how their behaviour had changed towards target taxa. In terms of learning, for each of the three projects we asked a specific question, focused on information we had in project materials. The results are presented in Table 4.

Qualitative information was also sought from survey respondents to corroborate the quantitative data regarding learning and behaviour change. Table 5 gives examples of learning and Table 6 gives examples of behaviour change that participants have reported.

The data presented in Tables 5 and 6 indicates our Consultative citizen science projects have been transformational. Our engagement of participants has led them to become more interested in, and increased their knowledge about, local wildlife. Further, our projects have been catalysts for increasing

experience with, and changing behaviour towards, the focal taxa.

Conclusion

We have presented findings of our own research in order to demonstrate the potential of citizen science for research, education and community engagement. It is an exciting area that is expanding in many ways, with increasing numbers of participants involved in an increasing numbers of projects. The field is also expanding in terms of scope, with new data collection and analysis techniques, like coupled systems research. Researchers employing the citizen science methodology benefit through increased potential for data collection and analysis. Further, we are only beginning to understand the positive impacts that our projects can have on people, through the inherent synergies between research, education and community engagement. We look forward to running further citizen science projects, expanding on the work we have done to engage and educate new participants collecting new types of data that will help us, scientists and community, further understand the relationship between our society and the changing environments where we live.

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Table 1. Examples of social-psychological data collected from participants

Type of data	Examples
Demographic information (quantitative)	Age, gender, level of education, location of residence, home ownership and location of childhood (country/city)
Attitudes towards wildlife (quantitative)	A 5-point Likert item, 'having animals around my home is important to me'
Knowledge about wildlife (quantitative)	A 5-point Likert item 'Ringtail possums readily eat pet food'
Psychometric scales (quantitative)	The New Ecological Paradigm scale (Dunlap et al. 2000) and the Fear of Spiders Questionnaire (Szymanski & O'Donohue 1995)
Interactions with wildlife (qualitative)	Stories about experiences with wildlife

Table 2. Access and use of project materials by teachers

Description of action	Operation Bluetongue (2007)	Operation Possum (2008)	Operation Magpie (2009)	Operation Spider (2010)
Accessed materials	30	53	266	331
Used some materials	0	0	32	24
Ran a unit of work	5	18	30	83

Table 3. Response rates to questions about participant experience, learning and changes in behaviour

Project	Participants	Participants who observed more of the focal taxa than they would normally observe	Participants who learnt new things about the	Participants who gained an increased interest in	Participants who changed their behaviour towards the
Operation	176	48 (27%)	66 (38%)	59 (34%)	29 (16%)
Operation	153	25 (16%)	59 (39%)	37 (24%)	20 (13%)
Operation	173	68 (39%)	71 (41%)	72 (42%)	36 (21%)

Table 4. Response rates to specific questions about participant learning

Project	Question	Participants	Positive response to the question
Operation Bluetongue	Did you learn to identify different species of bluetongue lizards by participating in this project?	176	56 (32%)
Operation Possum	Did you learn to identify different species of possums by participating in this project?	153	48 (31%)
Operation Magpie	Did you learn to identify different sexes of magpies by participating in this project?	173	59 (34%)

Table 5. Examples of learning as a result of participation in a citizen science project

Operation Bluetongue	Operation Possum	Operation Magpie
Range of habitats of various species and how to identify those I had not seen before	I learnt the difference between the 2 main types of possums and we have both here	We have become even more involved with our local magpie family and have more closely observed their social interactions and hierarchy
That bluetongues are skinks	Just general things, habitats, types, diets, behaviour etc	That we aren't the only ones blessed with non swooping [mag]pies and that so many other folk value them too...
I didn't know there was a pygmy bluetongue	About their food and territory habits	I learnt what a female, male and juvenile magpie looked like. I always thought female magpies were juvenile magpies
Can't believe how old they get!	Varieties, roof dwelling solutions, territoriality	How they look after and feed the young as a community, not just parents
Size of territories	The difficulty of relocating them...	I learnt more about their family systems than I'd known before
Species distribution	How much people like them	Their choral singing. Their food requirements!
Reproductive habits	How territorial they are	Their range of territory

Table 6. Examples of behaviour change as a result of participation in a citizen science project

Operation Bluetongue	Operation Possum	Operation Magpie
I grew up thinking you should move them on from our living areas, but now we just leave them alone and make sure our dogs don't harass them	...Having read all the wonderful stories and comments in The Possum-Tail Tree I refer to it often with friends who do not like possums	To avoid dependency which had developed previously, I avoid feeding them as often as I did. Now I feed the male (who is semi tame with us) only when he has young (now) or when the weather is so hot and dry that he is having trouble foraging in the garden/soil too hard
Put old down pipes flat as homes and advised guests that we have bluetongues in the garden	We now have a possum box as well as bird one and safeguard the tree from neighbours cats	I am far more interested in them now that I have noticed how many of them I see when out walking.
We now look to find them and name them	More tolerant of their eating my garden	I tend to stop and watch them a lot more and think about interpreting their behaviour
Prepared the garden beds for them	Observe them without trying to disturb them	I am very mindful of feeding them the correct foods
Try to avoid running over them on road	Now we know we can't move the little!	I used to hate them. Now I tolerate them
More wood hollows and refuges from dogs	More tolerant of possums	Don't get as angry if they try and swoop
Look for them more often	More positive	More observant of them and more appreciative

CHAIRMAN'S REPORT 2014

Summary

2014 has been a busy year with new members on the Committee and the build up to the 30 year celebrations. SEG started at a meeting on 21 August 1984 and has grown considerably over the years. Tonight we are going to launch a publication "Thirty Years of Science and Adventure" which describes our path to the present.

Major Expedition

This year's major expedition is going to be to an area we haven't been to before, the South East of South Australia. We will be particularly interested in regenerations of forests and forest fauna after fire. The expedition will be done in conjunction with Forestry SA and a joint planning committee has been set up to organize and run the committee. Planning is well under way.

V-Grasp

The Vulkathuna – Gammon Ranges Scientific Project, to give it its full name, is, as I mentioned last year, working on a significant upgrade of recording equipment in the Gammons. Installation of the equipment is now underway and I understand it is due to be completed later this year.

Minnawarra Biodiversity Survey

Janet Furler has done sterling work running the spring and autumn surveys and refining the use of micro-chipping of the rats. The next Survey will be from September 27th.

Mallee Fowl Monitoring

We had a successful survey in November last year. There was a good number of volunteers but more are needed. If you want to do some pleasant walking in the Murray Mallee with science mixed in, please come along.

SEGments

Andrew Barr has retired as official editor but is still available as back-up editor. The editorial duties are now split between Helen Johnson who is a magnificent terrier searching out interesting articles and me. I am doing the layout and publication. Most SEGments go out by email which saves on printing and postage costs.

Website

Unfortunately Michelle Trethewey is no longer on the committee but she and Garry are still doing a great job managing the website. We would like to upgrade the site to have a members only area with easy access to information, documents and the like. If anyone has those skill and can offer them to the committee we would be pleased to hear from them.

Committee

The committee has met regularly to manage the business of the group. We are very grateful to Andrew Telfer for providing meeting space at his office. Graeme Oats has continued on his valuable work as treasurer. Sarah Telfer has continued on as Honourary Secretary. Stuart Pillman has been working on the truck and kindly gives it parking space. Trent Porter is our quartermaster when he is not organizing expeditions. Duncan MacKenzie with his Gluepot experience gives us wise counsel. John Love has done magnificent work chairing the committee preparing the 30 Year Book. It is a credit to his diligence that such a great book is being launched tonight. Andrew Barr has raised the quality of SEGments to a high standard which I will attempt to maintain. Chris Wright has worked hard on the GRaSP rejuvenation. As I mentioned earlier Helen Johnson has found many great authors for articles for SEGments and kept prodding them until the articles are produced. Bob Sharrad and Greg Johnston have been a great link with one of our closely affiliated groups, the Nature Foundation.

Appointment of Administration Officer

The work of the committee members becomes greater each year and it has been decided to appoint an Administration Officer to assist the committee in management of SEG operations. In particular the work of the Administration Officer will be to manage the email lists of members and supporters, manage our assets and to make bookings etc. The list of jobs no one else wants is almost endless. The Committee has kindly decided that I will be appointed as the Administration Officer so this will be the final AGM that I will be Chairman. Our new Chairman will be Bob Sharrad.

SEG is starting its next 30 years with confidence.

MINNAWARRA SPRING BIODIVERSITY SURVEY

Saturday 27th September to Wednesday 1st October 2014

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

Minnawarra is situated on the southern Fleurieu Peninsula

Help is needed to set up on Friday

For further information and registration forms, contact Janet Furler on 0419 842 667

Vulkathunha Gammon Ranges (VGRaSP) Trip June 2014

Garry and Michelle Trethewey

A small group of six people left Adelaide on Monday 16th June in three separate cars and headed north to the Gammon Ranges. The expeditioners were David and Jonathan Kemp, Garry and Michelle Trethewey, Robin Noordhoek (from Holland) and the group leader, Chris Wright.

Exquisitely timed, we all met up for breakfast at the Jamestown Bakery, then on to Leigh Creek for fuel, Copley for lunch and then to North Moolooloolo where our work began.

The aim of this trip was to upgrade pluviometers, measuring equipment, telemetry equipment, and infrastructure, then to calibrate and check function. It was to involve carrying a fair amount of new wiring, poles, batteries, calibrating equipment, bits of steel, nuts and bolts, tools plus our own backpacking gear.

Our job was to prepare the ground work for Graham Blair and Ben Plush who would be making a trip in July to install new logger boxes. This work will improve telemetry, achieve improved battery life with more reliable logger life and logger interrogation. All six people stayed together for this trip, and part of the time we were also joined by Eddy Nichols (owner of Maynards Well) and his son Fionn.

So, first we visited North Moolooloolo pluviometer, calibrated the old



Morning Tea at Wild Ass Waterhole

logger, put in a new logger, calibrated that and then after chatting for a while with Ian Ferguson, owner of North Moolooloolo, we headed on to Maynards Well via Red Gorge road through nice green scenery after a bit of rain. We stayed in the rustic shearers quarters, arriving just as it was nearing dark, getting windy and very cold. We organised the split up of equipment, met the Nichols kids and then later Eddy to make arrangements for the morning.

On Tuesday 17th, we stuffed our packs with all of the heavy gear bound for SAMBOT and Plateau pluviometers that we had shared out the night before, along with normal camping equipment. Having a water cache near Vandenberg, we didn't have to carry extra water.

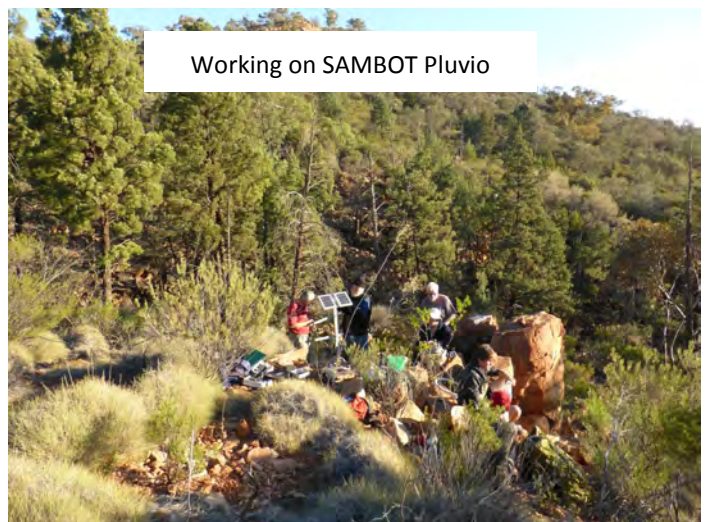
Eddy Nichols and his son Fionn joined us heading up Arcoona Creek for a couple of nights at Upper Vandenberg. They're farmers, not bushwalkers, but managed to adapt their gear well enough to suit.

On the way it was apparent that Operation Flinders was having an exercise, with various caches of water, backpacks and supplies along the road, which presaged some change of plan.

Leaving the cars at Arcoona Creek car park, in the national park, we went up the creek to Upper Vandenberg. The creek was dry except for The Seeps, Woodcutter's well, and a small amount in Wild Ass Waterhole (where we had lunch), and Grandfield, full and clean, but not running. We dropped our gear at Upper Vandenberg by about 1430hrs. We filled up our wine skins and bottles with the lovely water from Grandfield waterhole, set up our tents and then headed up to do the work at SAMBOT pluviometer.

The fit-out included installation of solar panels and cabling for rain gauges, installing a new logger and completing calibration of both the old and the new loggers. When Thomas Aquinas asked in 1270 "How many angels can dance on the head of a pin?" he was obviously talking about eight people working while clinging to a cliff, juggling and losing tools in spinifex or under rocks. Just on dark we finished and headed back to camp, already cold. As soon as we got into camp, everyone piled on heaps of extra clothes, cooked and ate dinner while it continued getting colder. Most were in bed by 1930hrs, in our sleeping bags still with all of our layers on. As is becoming a trend now, not too long after bed time, we heard the call of the Owlet-nightjar. It continued getting colder in the still air with plenty of condensation in the tent until 2300hrs when a wind suddenly sprang up and stirred up the ground layer, drying out the tents nicely.

Wednesday 18th, we left a cold camp at around 0830hrs and even though we had more weight to carry up to Plateau pluviometer, I think that we were all a bit pleased to be huffing and puffing up a hill so that we could warm up quickly. The stop at the top of North Tusk was fresh but beautiful as usual. Once at the Plateau, similar operations to the previous day were carried out which included splicing/soldering the pluviometer



Working on SAMBOT Pluvio

leads, installing new solar panels and getting the plugs ready for the new logger boxes. Lunch at the Plateau was enjoyable but very chilly.

We split into 2 parties for our return. Garry, Michelle and Fionn going down a creek a slightly longer way than we expected.

In the creek bed was a large male euro, unable to get onto its

feet, struggling frantically as we stepped over it. Garry considered cutting it's throat, but it seems the ethics committee is against that, so we left it to die in its own time. Not a good option.

Not much further Michelle noticed a bit of fur with a few bones in it. The tail and back legs of a young Yellow Footed Rock Wallaby (*Petrogale xanthopus*). We measured, photographed, and left it behind, but that night Garry lay awake wondering about some unusual aspects (no yellow, fluffy grey) and trying to remember if *P. lateralis* had a striped tail, and



Eddy, Chris and Fionn getting to the top of North Tusk

thinking of twenty or so believable sightings of *P. lateralis* over the last 50 years or so. (Tunbridge D, "The Story of the Flinders Ranges Mammals" 1991 Kangaroo Press P19 & PP64-65). Low probability but high value, so Garry and Michelle went back up the creek the next morning and got it for the museum. (It turns out it was a *P. xanthopus* after all).

At this point it should be mentioned that Fionn is 12 years old and is not a bushwalker. The creek we took was an adventure that added about 1.5 kilometres onto the trip back to camp, and the going was very steep and scrubby until quite low into the creek where the walking turned into nice big boulders for rock hopping interspersed with lovely long slabs for easy walking. Fionn kept up with us all the way without complaint. Before we returned to camp, we filled up all of our water bladders and bottles again at Grandfield and were very tired by the time we arrived back. Cup a Soup and a long sit down was the next order of the day.

Thursday 19th we got up at 0630hrs and packed up camp, Garry and Michelle leaving camp a bit earlier than the others to complete the 1.5 hour return trip to pick up the mummified yellow footed rock wallaby bits, catching up with the others back at the cars.

Once back at the cars, Eddy and Fionn drove home to North Mooloolloo. The rest of us had arranged with Operation Flinders to re-locate a few km south, near Painter's Baseline. (This was the base of a survey carried out by the said Mr Painter in 1857). Chris dropped in to Owieandana, apparently now re-named Yankaninna, to tell them of our movements, and check that we wouldn't clash with the current operation. He was told that we couldn't be at Painter's Baseline until 0900hrs next

morning and were asked to avoid the Arcoona Car Park in the National Park, so we went around to Henzell's Camp for the night. We had a lovely dinner in good company, but once again, the cold crisp night drove us to our tents by 1930hrs for another 11 hours sleep.

Friday 20th, we packed up camp, having our packs ready to start walking into South Branch from Painter's Baseline, again with additional gifts from Chris to carry in for the pluvio upgrade.

After checking again with Operation Flinders that it was safe to do so, we drove in past Painter's Baseline through Operation Flinders land to the park fence on a good road, and walked toward South Branch pluvio, a pleasant 3km of low hills from the cars, with comparatively light packs as this was a day walk, so no camping gear was required. We arrived at South Branch pluvio just before 1100hrs, cheerfully unloaded our equipment, then did another 3 hours installation, comprising: calibrating the existing logger, installing new solar panels, digging a trench, placing conduit, feeding in new wiring, sorting out the plugs to fit the new logger box and then doing a final calibration.

We left South Branch at 1400hrs and enjoyed the ups and downs along the way, observing the amazingly green vegetation, some in flower. Back at the cars at 1530hrs having successfully completing our part of the pluvio upgrade. Yay!



We drove back to Maynard's Well shearers quarters, where we all enjoyed a very hot shower, great stew made by Morgaine Nichols, and shared everyone's left over snacks, desserts and wine. Eddy's kids Siobhan, Morgaine and Fionn joined us for dinner before a good night's sleep and home the next day. A very pleasant and successful trip.

Contact: Michtreth@bigpond.com, Garrytre@bigpond.com

Editor's Note: The SEG website includes a map of the Northern Flinders Ranges showing the location of V-GRASP rainfall monitoring sites. Included with the map is the height profile for a cross-section which includes the Gammons Plateau where 4 of the sites are located. Use the link

http://www.communitywebs.org/ScientificExpeditionGroup/hydrology_data.php or search the SEG website under Projects: Vulkathunha Gammon Ranges: Hydrology Data.

SEG Malleefowl Monitoring 29 and 30 November 2014

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 29th November and Henry Short's adjacent Heritage Agreement survey grid on Sunday the 30th 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.

If you are interested please contact Stuart Pillman for details.

Email: aspillman@netspace.net.au

Home: 8390 1789

Mobile: 0468 490 855



Gammon Ranges Project Celebrates 26 Years of Operation

On Sunday 5th October 2014 we will celebrate the completion of 26 years of operation of the Vulkathunha-Gammon Ranges Scientific Project. A group of walkers will start out from the Arcoona Creek car park on the Saturday, camping that night at Vandenberg, under North Tusk Hill, and climbing up to the Plateau on Sunday morning.

The proposed program is:

Friday 3rd October – drive up to Arcoona Creek and camp.

Saturday 4th October – walk in to Vandenberg Camp

Sunday 5th October – up to the Plateau and back to Vandenberg

Monday 6th October (Labour Day in SA) – walk out (for anyone in a hurry they could drive down south that day)

Tuesday 7th October – back to Adelaide

After short speeches and celebrations have ended, guests will be shown the pluviometer and the logger and telemetry equipment, and participants will share their memories and experiences.

Walkers will need to be fully self-contained for a 3-day hike. People coming in from Owieandana can camp at the Arcoona Creek Car park (no facilities) or use accommodation at Owieandana. (Cabins, showers and cooking facilities available)

SEG is checking up on the costs of accommodation at Owieandana. There is also a fee for camping in the National Park.

SEG is investigating the possibility of using a helicopter to fly those who cannot walk up (at their own expense).

Please let Chris Wright know if you are interested, he will supply details.

0414 789 220 ; 08 8278 8818 ; chris.wright@senet.com.au or cpwright@senet.com.au ; or snail mail to 8 Gratton St, BELAIR SA 5052

EXPEDITION NANGWARRY 2014

BE QUICK SPACES WILL BE MORE LIMITED THAN USUAL!!!

You are invited to join us on this year's Expedition to Nangwarry Native Forest Reserve in the south east of South Australia. This Reserve is located between Penola and Nangwarry. This study will build on a substantial body of work undertaken in the area by a number of researchers and Forestry SA. SEG will use a variety of survey methods to record the presence of plant (including fungi), mammal, reptile, bird and insect species in several blocks of native stringybark forest which have a variety of control burn histories.

This is a great opportunity for people of all ages and expertise to observe and participate in professionally conducted field survey work alongside experienced biologists and natural historians.

You won't need any special scientific skills - just a love of exploring the bush and learning about its many inhabitants in an area not generally open to the public.

Dates:- The Expedition will depart early on the morning of Sunday 9th November 2014 and return to Adelaide on Saturday 22nd November 2014.

Accommodation:- On this survey we will be camping in a beautiful sylvan glade within the forest about 8 km from Penola where there are huge variety of campsites to choose from. Food will be prepared on site and showers will be available at the Penola caravan park.

Costs:- at present, total cost including food, transport and all activities is estimated to be \$500.

To register your interest and to book a spot, please phone Trent Porter on 8278 9078 A/H or email to trentasaurus@bigpond.com

A limited number of student concessions are available at a cheaper rate.

SEG 30 YEAR BARBECUE AND LIFE MEMBERSHIP PRESENTATION TO GINA BREEN



SCIENTIFIC EXPEDITION GROUP INC.

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.

APPLICATION FOR MEMBERSHIP AND MEMBERSHIP RENEWAL for 2015

SUBSCRIPTIONS rates

Adult member - - - - - \$30.00
Concession cards/ student - - - - - \$15.00
Family membership - - - - - \$35.00
Corporate membership - - - - - \$35.00

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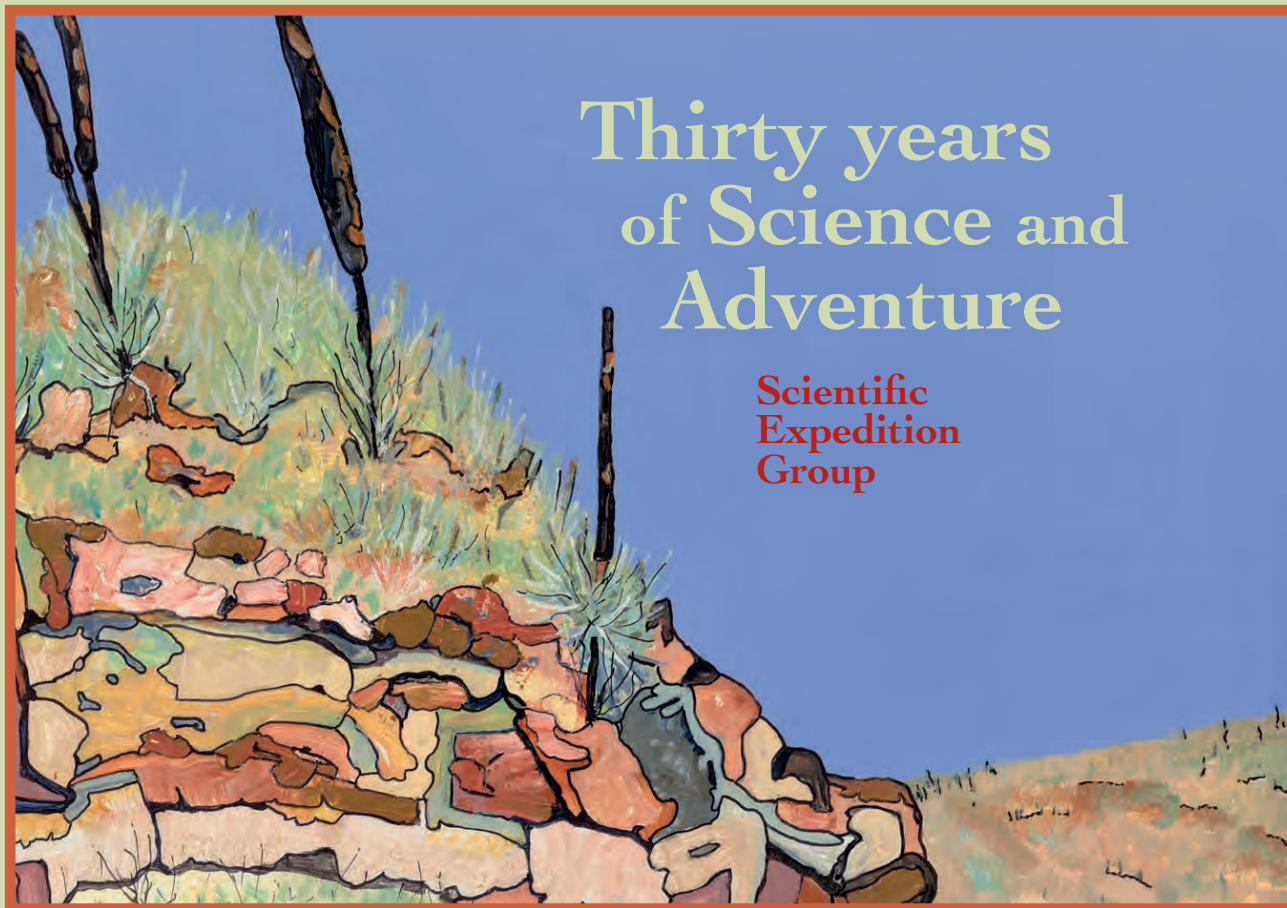
Details of scientific, cultural, and adventuring or other relevant skill or interests you may be prepared to share with the group:

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Send a cheque (Scientific Expedition Group Inc.) with a Photocopy of this page to:

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



Scientific Expedition Group is celebrating its first 30 years. This book, 48 pages in full colour, describes what SEG can do, has done and intends to go on doing.
(A good Christmas present?)

*Members: \$10.00 Non-members: \$15.00
plus \$5.00 per copy for packing and postage to anywhere in Australia.*

Cheques or money orders should be made out to **Scientific Expedition Group Inc** and posted to **Mr G.D. Oats, 20 Hillridge Drive, Belair 5052**. Direct deposit can be made to: SEG account at **Bank SA, BSB 105-086, Acc/No. 330629440**. Also order copies by emailing: **gdoats@bigpond.net.au**

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