

SEGments



Journal of the Scientific Expedition Group

Volume 30 Number 1 June 2014

Scientific Expedition Group Inc.

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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.

ISSN 0816 -6463

SEGments is the authorised journal publication of the Scientific Expedition Group INC., PO. Box 501, Unley SA 5061. It is published four times a year to promote articles about biodiversity, scientific exploration and ecological research.

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Apologies to Dr Wayne Boardman for the incorrect spelling of his name in the article "Wombat Health in the Murraylands" in the March 2014 edition of SEGments.

Cover : Gidgee Skink (*Egernia stokesii*)
Photograph by Graham Wilkins taken at
Hiltaba Station in April 2014

In the contest between action and apathy in regards to the environment and politics, apathy seems to be winning.

Charles Darwin suggested that evolution happened due to the natural selection of the best adapted species to change. Evolution has a natural forward tendency but some humans want to reverse this direction by turning back the clock to the way things were.

At the beginning of agricultural development, people began domestication of plants and animals which lead to breeding selection. Now in the 21st century, the human population is seriously engaged in artificial selection of species. This raises the question about the change to the process of evolution that we have caused.

Another ecological concept being debated recently is “rewilding”. Rewilding is an attempt to restore a biome by replanting a group of species that once lived there.

The most famous example is the reintroduction of wolves into Yellowstone National Park. The introduction of this top predator into the ecological network has been highly documented as a success, due to the overpopulation of elk being reduced by the wolves. As a result, stream vegetation has had a chance to regrow and flooding has been reduced. Now we have a more healthy and rebalanced ecosystem in Yellowstone Park.

Are there any parallel concepts that could work here in Australia? At present the feral cats and foxes occupy the top predator roles in the majority of ecological biomes. Should we introduce the dingo into new areas?

A recent study was done in an arid area of central Australia. Dickman *et al.* (2009) recently assessed the risk of fox and cat predation to extant threatened species and concluded that reintroducing dingoes into the area would have positive effects for most of the threatened vertebrates there, aiding their recovery through trophic cascade effects. However, they did not formally assess the risk of dingo predation to the same threatened species.

Allen and Fleming (2011) suggest that

prior to the re-establishment of dingoes, that dingo predation risks to all vertebrates (threatened or otherwise) be assessed using more sensitive and descriptive techniques, and they strongly urge caution against the use of positive management of dingoes under current ecological conditions.

“ *A landmark study to be released next week says that feral cats are the major cause of Australia’s mammal decline,*” (Australian, May30, 2014). This country has a very high marsupial extinction rate that requires action.

So back to the environment and politics. For the first time since the creation of a science portfolio in 1931, Australia does not have a science minister. The Prime Minister Mr. Tony Abott considers that climate change is not important and has stopped investigating alternative energy sources by removing its funding.

At the April meeting of state and federal environment ministers, it was agreed to give priority to reviewing environmental regulation. No positive announcements were made, so we still wait and see the ministers’ next step to protect the environment. Many previous attempts to restore the environment by the introduction of species have failed in Australia , so the “rewilding” concept would need more research .

Evolution by natural selection continues. This has occurred historically with every extinction event on the planet. Maybe we should call the overpopulation of humans on this planet just another possible extinction event?

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The Australian May 30th 2014 p. 3.

Guest Editorial: Andrew Barr
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Vale Bunty Bonython



Cynthia “Bunty” Bonython, widow of our Foundation President, Warren, and friend of SEG, died peacefully on 8th June 2014, aged 93 years, after a short illness. A talented artist and horse-woman in her young days, she lived her life in Romalo House, initially owned by her parents, and sold to Warren and Bunty after their marriage. After this she devoted herself to caring for the family while Warren was busy with his business and exploring activities. They were married for 71 years until his death two years ago, and he always tried to speak to her by phone or radio every day, wherever he was in the world. She was a devoted mother, and the family fondly remember holidays at Moana, and her role as counsellor to her children. With her good eye and artistic skills she gathered a quality collection of antiques, rugs and paintings during her life. A person of great faith, she missed Warren tremendously, and now is reunited with him in death. May she rest in peace.

Richard Willing, President SEG

Scientific Expedition Group Annual General Meeting Friday 15th August 2014 7:30 pm



**Topic: “*Citizen Science:
Bringing Science into Your
own Back Yard*”**

Professor Chris Daniels

Director Barbara Hardy Institute, UniSA

Presiding Member Adelaide and Mt Lofty Ranges NRM
Board

At the Unley Town Hall

Enter off Oxford street
Car park at rear of building

Reptile and Amphibian Notes - Nangwarry Native Forest Region

Peter Matejcic

During 5th - 18th October 2014 the Scientific Expedition Group (SEG) will undertake a biological survey in the Nangwarry Native Forest Reserve located south of Penola.

One of the first undertakings with any biological survey is to gather past species records, background and locality information. This information will assist in targeting important species and determining survey techniques. Whilst visits to the South Australian Museum (SAM) curators, emails to experts in the field, hardcopy references with maps and taxonomic keys, reports on biological surveys, and environmental impact statements have been the traditional providers of fauna information, two recent online tools are now helpful. The Census of South Australian Vertebrates (CSAV2011) produced by the South Australian Museum (SAM) and the Department for Environment, Water and Natural Resources (DEWNR) provides definitive maps and lists of native and naturalised fauna. The Atlas of Living Australia (ALA) provides access to individual species records as well as insights into known species distributions in South Australia. A detailed description of these systems will be published in a future edition of SEGments.



Figure 1: Location of SEG Expedition 2014

To obtain reasonable records for the Nangwarry region, a search region 25km (north/south) by 35km (east/west) was chosen. Eighteen reptile species were downloaded from the ALA. Distribution maps with the CSAV2011 provided 13 reptile species giving a total of 31 species. Table 1 includes the reptile records. For the same Nangwarry region ALA data for 11 amphibian species is provided in table 2.

Table 1: Reptile species for the Nangwarry Region

Common Name (<i>Scientific Name</i>)
Common Long-necked Tortoise (<i>Chelodina longicollis</i>)
Jacky Lizard (<i>Amphibolurus muricatus</i>)
Mallee Tree-dragon (<i>Amphibolurus norrisi</i>)
Eastern Bearded Dragon (<i>Pogona barbata</i>)
Marbled Gecko (<i>Christinus marmoratus</i>)
Eastern Stone Gecko (<i>Diplodactylus vittatus</i>)
Lined Worm-lizard (<i>Aprasia striolata</i>)
Striped Snake-lizard (<i>Delma impar</i>)
Common Scaly-foot (<i>Pygopus lepidopodus</i>)
Eastern Three-lined Skink (<i>Bassiana duperreyi</i>)
Eastern Striped Skink (<i>Ctenotus robustus</i>)
Southern Water-skink (<i>Eulamprus tympanum</i>)
Lowlands Earless Skink (<i>Hemiergis peronii</i>)

Delicate Skink (<i>Lampropholis delicata</i>)
Garden Skink (<i>Lampropholis guichenoti</i>)
Bougainville's Skink (<i>Lerista bougainvillii</i>)
White's Skink (<i>Liopholis whitii</i>)
Swamp Skink (<i>Lissolepis coventryi</i>)
Dwarf Skink (<i>Menetia greyii</i>)
Shrubland Morethia Skink or Mallee Snake-eye (<i>Morethia obscura</i>)
Southern Grass Skink (<i>Pseudemoia entrecasteauxii</i>)
Glossy Grass Skink (<i>Pseudemoia rawlinsoni</i>)
Sleepy Lizard (<i>Tiliqua rugosa</i>)
Blotched Bluetongue (<i>Tiliqua nigrolutea</i>)
Heath Goanna (<i>Varanus rosenbergi</i>)
Lace Monitor (<i>Varanus varius</i>)
Lowland Copperhead (<i>Austrelaps superbis</i>)
White-lipped Snake (<i>Drysdalia coronoides</i>)
Eastern Tiger Snake (<i>Notechis scutatus</i>)
Little Whip Snake (<i>Parasuta flagellum</i>)
Eastern Brown Snake (<i>Pseudonaja textilis</i>)

Table 2: Frog species for the Nangwarry Region

Common Name (<i>Scientific Name</i>)
Common Froglet (<i>Crinia signifera</i>)
Southern Smooth Froglet (<i>Geocrinia laevis</i>)
Banjo Frog (<i>Limnodynastes dumerilii</i>)
Striped Marsh Frog (<i>Limnodynastes peroni</i>)
Spotted Grass Frog (<i>Limnodynastes tasmaniensis</i>)
Brown Tree Frog (<i>Litoria ewingi</i>)
Southern Bell Frog (<i>Litoria raniformis</i>)
Burrowing Frog, or Painted Frog (<i>Neobatrachus pictus</i>)
Sudell's Frog (<i>Neobatrachus sudelli</i>)
Bibron's Toadlet (<i>Pseudophryne bibronii</i>)
Marbled Toadlet, or Southern Toadlet (<i>Pseudophryne semimarmorata</i>)

Skink Identification

Small brown skinks can be particularly difficult to identify during a 1 to 2 second glance. With patience and by staying still, you will find that skinks often return to a spot and can be photographed from about 2 metres. Members of the same genus can be found in the same locality, such as the Mallee Snake-eye (*Morethia obscura*) and the Adelaide Snake-eye (*Morethia adalaidensis*). Red colouration on the throat, flanks and underside for males breeding, assists identification for *Morethia* skinks. With *Morethia* species the number and shape of the supraciliary scales above the eye need close inspection and can be compared to reference keys (Cogger 2000, 2014; Wilson, Swan 2013). Knowing taxonomic terms for features, such as, midlateral, dorsolateral, supraciliary scales



Figure 2: Southern Grass Skink (*Pseudemoia entrecasteauxii*) photographed at the Coorong CP September 2010. The genus *Pseudemoia* has well-developed limbs with five fingers and toes. Lower eyelid is moveable, enclosing a large circular transparent

disc. *P. entrecasteauxii* (which is extremely variable) usually has 5 supraciliary scales above the eye and a midlateral light stripe usually broken into pale flecks (Wilson, Swan 2013) (Hutchinson 2014).

and frontonasal will assist the novice and less experienced. A hand-held 10x magnifying glass will help closer inspection of features. To assist taxonomic identification Mark Hutchinson and Ian Williams (2014) have recently published *Keys to South Australian Reptiles* which can be found on the SAM website.



Figure 3: Garden Skink (*Lampropholis guichenoti*) photographed at Para Wirra Ford September 2013. The brownish copper-coloured head and midbody dark stripe (however faint or diffuse) is usually present and aids identification from a distance. *L. guichenoti* has six supraciliary scales above the eye. The upper body appears grey with scattered lighter and darker flecks (often diffuse) usually present. There is usually no pale dorsolateral line. The closely-related *Lampropholis delicata* (not shown) has seven supraciliary scales above the eye. The top of head and

back are similarly coloured a uniform brown with no dark mid upper vertebral stripe. On the upper side there is usually a narrow, golden dorsolateral line. (Wilson, Swan 2013) (Hutchinson 2014).

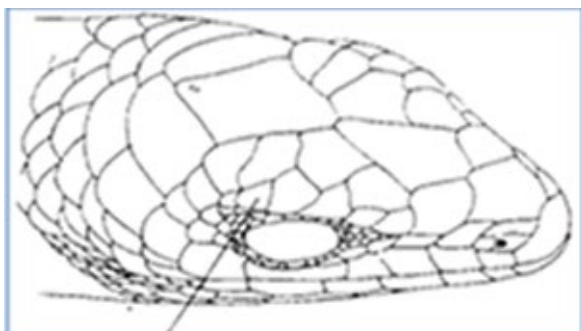


Figure 4: Eastern Three-lined Skink (*Bassiana duperreyi*) photographed at Scott Creek CP October 2007 showing the red throat colour for an adult male during breeding months. The genus *Bassiana* has a rostral-

frontonasal suture (seam) distinctly narrower than the frontonasal and arcs slightly backwards. Nasal scales are moderately-sized, nostrils facing dorso-laterally. For *B. duperreyi* a light midlateral and dorsolateral stripes and black vertebral stripe are present. (Wilson, Swan 2013) (Hutchinson 2014).



Figure 5: Shrubland Morethia Skink or Mallee Snake-eye (*Morethia obscura*) Photographed at Tennyson Dunes West Lakes August 2011. Breeding males can also have a red throat colouration.



Taxonomic diagram showing 6 supraciliary scales above the eye from Cogger (2000, 2014).

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Photographs by Peter Matejcic

Email: pmatejci@bigpond.net.au



Figure 6: Adelaide Snake-eye (*Morethia adalaidensis*)



Enlargement of same skink to show 5 supraciliaries scales above the eye

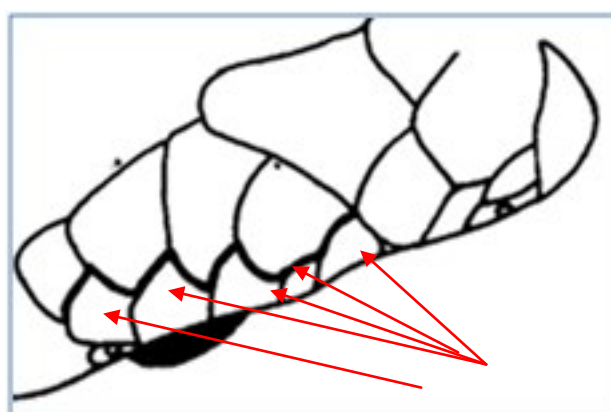


Diagram to show the 5 supraciliaries arrangement of scales for *M. adalaidensis* using a taxonomic key diagram from Wilson, Swan (2013).

Minnawarra Biodiversity Report - Autumn 2014

Janet Furler

Another successful biological survey was completed in the Minnawarra scrub over five days in April. It was busy, with a large number of mammals captured. The core of the volunteer contingent was a group of teenagers and young adults (family friends), resulting in large numbers of evening meals required – 20 on one night, and 62 in total for the four nights. The shed contingent has dwindled in the last couple of years, with a group of 5 staying for one night being the only shed users. This time it was probably just as well as the shed is fairly full of *stuff* dumped there out of another shed which blew away. It will be better by the time of the spring survey. The stayers were assisted by many other people who came to help. In all there were 44 participants, some for half a day, some for the whole time. Many thanks again to all the interested and helpful volunteers.

The weather has been dry as we had very little follow-up to the February rain. It was just as well we weren't surveying the following week – we would have been washed away. Generally it was warm, with a daytime temperature range of 16-20°, making pleasant working conditions. Nights ranged from 7-13°. Days 2 and 4 turned up a bit of rain (1-2mm), just enough to wash off the dust and spot on the paperwork.

Mammals

We caught 181 mammals. These included 17 animals recaptured from previous surveys. Counting all the repeat customers during the survey we emptied 318 traps and 9 pits. The total numbers of mammals captured were: *Antechinus (Antechinus flavipes)* 83; Bush rat (*Rattus fuscipes*) 53; Swamp rat (*Rattus lutreolus*) 27; feral *Rattus Rattus* 3; House mice (*Mus musculus*) 14. This is a larger number of ferals than usual, sometimes we have none. I presume the same conditions that are helping mice to breed up to plague proportions further north are helping ours too. Fortunately this number is not a plague. This is a large number of captures, and was signalled by a couple of visits to different sites where 13 of the 15 Elliott traps were occupied.



Figure 1; *Antechinus (Antechinus flavipes)*

Site 9 yielded 11 *Antechinus*, one Bush Rat, one *Echidna* and 2 House Mice. However, these animals managed, between them, to get caught 38 times. The maximum number of 27 individuals were caught at each of 4 sites, with trap emptying numbers ranging from 41 to 49. Given there are 7 rounds, that makes 6 – 7 trap emptying for every round of the survey. No wonder we were busy!

There were two oddities this time. An *echidna (Tachyglossus acuteatus)* wandered into a cage trap at Site 9, and then decided the exit strategy was to dig out through the bottom of the cage rather than walk out through the open door. A very light Elliott trap yielded a Brown Scrubwren (*Acanthiza puzilla*) at Site 5.

Site 3 provided an interesting result. The pitfall line is about 25m up a hill from a small creekline and usually the Elliott traps are within 5m of the line. For the last 13 years we have caught only 2 Swamp Rats at the site with this setup. Placement of two of the Elliotts within 10m of the creek allowed capture of three different, new Swamp Rats, showing a striking demarcation of territory for this species.

Reptiles and Amphibians

Our capture of frogs and lizards was low once again. Only 4 lizards were caught, all common Grass Skinks (*Lampropholis guichenoti*). Five frogs were trapped, 4 Brown Froglets (*Crinia signifera*) and one Southern Brown Tree Frog (*Litoria ewingii*).

Birds

Brian and Jo Blaylock came in the midst of the organised chaos and wisely kept to themselves, except for a cuppa. They did their usual efficient surveying, with the usual species recorded.

Changes

In 2012 we changed 4 of the 6 pitfall traps at each site from buckets (290mm x 390mm) to PVC pipe. The pipe pits are narrower and deeper (500mmx150mm) and so are more likely to catch mammals which can jump out of the buckets. It is now time to change the other two pits at each site to PVC pipe. They were left at the time to provide a comparison between the two types. As neither type catches much we may as well have them consistent and easier to close between surveys. There may be a call for volunteers to wield posthole diggers sometime in the near future.

Summary

This was a busy survey, helped by many volunteers, demonstrating increased numbers of mammals. The benefit of the microchips became evident later in the survey as we could quickly identify the individual in its bag without having to handle it. With 116 chips used, we are definitely getting well practiced at holding and inserting (but not at the same time). For those who have maths brains we didn't chip the ferals or the male Antechinus as they will most likely be dead by the next survey. It is possible that the persistence of green growth coming up to Christmas gave a boost to breeding numbers as there were quite a few juveniles of different species. The House Mice would have had time to breed following the February rains.

Email contact: thefurlers@gmail.com



Figure 2 : *Rattus fuscipes*.



Figure 3: Brown Thornbill (*Acanthiza pusilla*)

The Minnowarra Spring Survey

Saturday 27th September to

1st October 2014.

Contact: Janet Furler

0419842667

Greg Johnston

(http://www.bushblitz.org.au/pastsurveys_details.php).

This meant that the initial inventory of what species occur on Hiltaba had been done and negated the need for another traditional biological survey. Having said this, we are still finding species that had not been found on previous surveys. I still needed to set up a monitoring program, and this needed a baseline to be established. Future changes in plant and animal populations could then be compared to this baseline.

How best to achieve this? Rather than spend limited conservation dollars engaging a commercial company, I searched among the Natural History clubs of South Australia. Could any of them help me out. It quickly became clear that SEG were the group for the job. Most clubs had narrow interests and individually had few people available to help. SEG had an exemplary record of putting together expeditions to survey diverse and remote parts of South Australia. SEG was also able to draw on the hugely valuable pool of knowledge and expertise represented collectively by the other natural history clubs and professional scientists.

After a few conversations, and a trip to reconnoitre Hiltaba in September 2012, we settled on doing two expeditions during 2013. One would be in April and the other in August. These expeditions aimed to collect data that would provide the baseline against which all future monitoring could be compared.

April Expedition

Thirty people attended the April expedition (see page 9 of the June 2013 SEGMENTS) and included people aged in their teens to some in their eighties.

This expedition was designed to set-up sixteen monitoring sites to document the plants and animals on the flat country on Hiltaba (Fig 3). The vegetation on these plains is very distinct from that on the granitic hills on the reserve. The vegetation on the plains consists of widespread communities, such as Myall (*Acacia papyrocarpa*) open woodland, Sheoak (*Casuarine pauper*) woodland, and Bluebush (*Maireana sedifolia*) and bladder saltbush (*Atriplex vesicaria*) shrubland. The survey sites were arranged in pairs with eight close to historical watering points for stock, and eight further away from the watering points (Fig 4). The idea behind this arrangement is that damage to soil and vegetation by stock is concentrated at watering points, but becomes less with distance away from them. This zone of grazing damage around water points is called a piosphere. Thus we had eight pairs of heavily grazed and lightly grazed sites on eight piospheres. The lightly grazed sites far from watering points represent the least disturbed vegetation on the reserve. Thus they act as a reference (control) against which the recovery of heavily disturbed sites can be compared in the future.

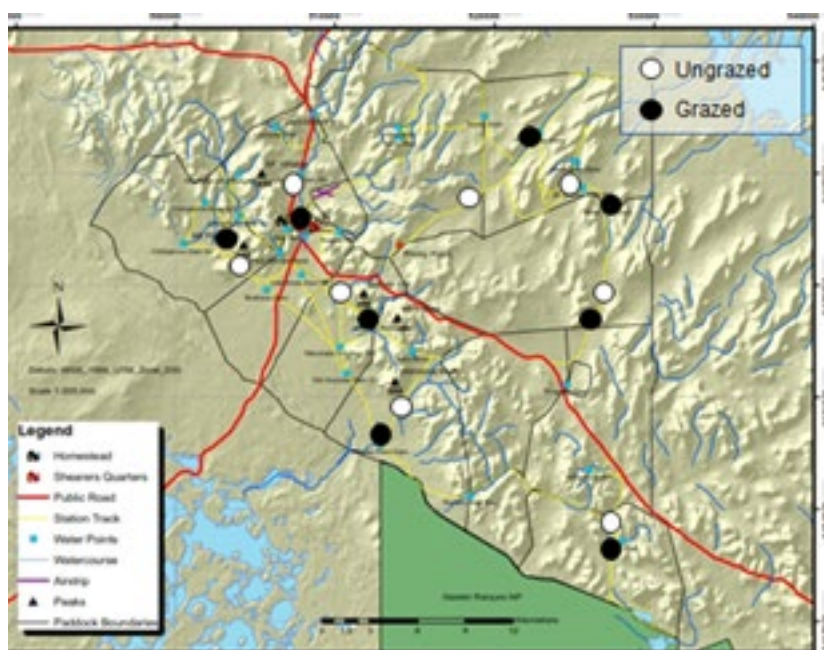


Figure 3: Survey sites for the first SEG survey in April 2013.



Figure 4a: SEG expeditioners in April 2013 installing a survey site at a heavily grazed site near a waterpoint previously used by stock.



Figure 4b: SEG expeditioners in April 2013 installing a survey site more distant from a water point where the impact of grazing was much less .

At each site we measured the abundance of mammals, birds, reptiles, invertebrates and plants. This was done following the standard Biological Survey of South Australia protocols (Heard & Channon, 1997; Owens, 2000). Results from this expedition are not yet all available for analysis. Preliminary impressions indicate that some species (eg. Samphire thornbill and bladder saltbush), which should be widespread, are absent from heavily grazed areas, whereas other weedy species (eg. Bathurst burr) occur most commonly on lightly grazed areas. The hope is that we will see the degraded areas around the water points on Hiltaba recover over time. If this happens, the eight heavily grazed sites should grow to resemble the relatively un-grazed sites far from watering points.

August Expedition

Thirty people attended the August expedition. This expedition focussed on the vegetation of the hills of Hiltaba Reserve, with two major activities. One activity was designed to better understand the overall distribution of plant species on the hills by documenting the vegetation along several transects. The second activity was designed to measure the impact that grazing mammals have had on the population viability of certain species of plants that live in hills.

Grazing & population viability

A viable population is one that is likely to survive for the foreseeable future. A population that is not viable, is in danger of becoming extinct. Some plants that have been subjected to artificially

elevated grazing are not producing enough young to replace adults as they grow old and die. This can occur because seedlings are all grazed before they can grow old enough to set seed and contribute to the next generation (Johnston, 2012). Thus local populations of some plants that are susceptible to grazing may be threatened with extinction by grazing. My particular concern was to understand the impact that the historically high numbers of goats have had on plants inhabiting the hills on Hiltaba.

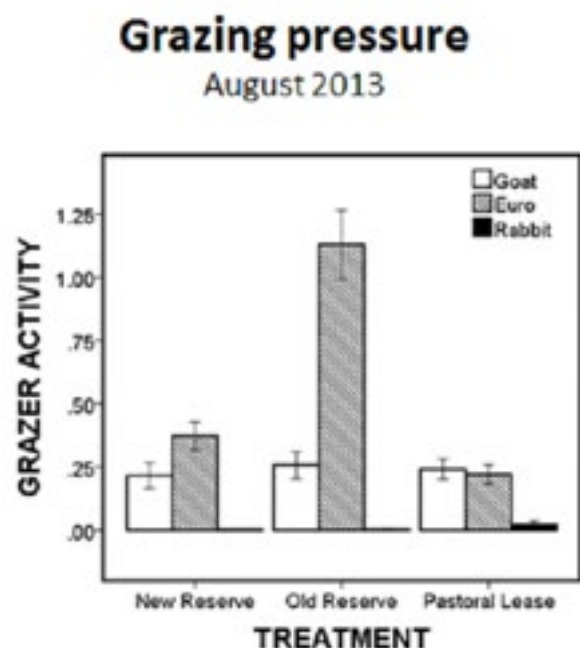


Figure 5: Grazing pressure on Hiltaba (new reserve), Gawler Ranges National Park (old reserve) and on neighbouring pastoral leases.

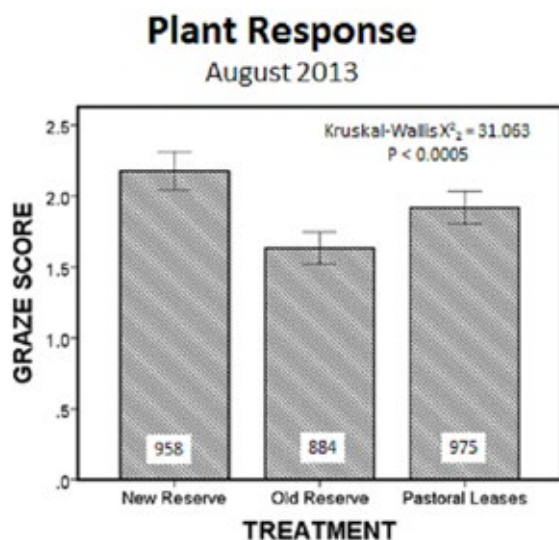


Figure 6: Plant response to grazing on Hiltaba (new reserve), Gawler Ranges National Park (old reserve) and on neighbouring pastoral leases. A higher graze score indicates higher impact of grazers.

We measured the size (~ age) of nearly 3000 plants of nine species at thirty sites subjected to three levels of grazing. The location of each plant was recorded on a GPS and each plant was labelled with an aluminium tag. This will allow us to go back and remeasure the same plants in the future. Ten sites were located in the Gawler Ranges National Park where all stock and most goats have been removed for over ten years. Ten sites were located on Hiltaba which has had all stock and most goats removed for less than twelve months. Ten sites located on neighbouring pastoral stations are grazed by sheep and goats. By comparing the plants on hills on these properties we were able to measure the impact of goat grazing on native vegetation. We paid particular attention to the effect of grazing on those plant species that are restricted to the Gawler Ranges. We also used the abundance of faecal pellets as a measure of grazer activity at each site. The methods we used were developed by McDonald & Brandle (2009).

Analysis of population viability is ongoing, but the results of grazing impact on plants and the abundance of grazers are available. Goats and euros were the most common grazers recorded (Fig 5). A feature of the data was the high abundance of euros on the National Park, compared to Hiltaba and surrounding pastoral leases. Rabbits were not particularly common. But that is not surprising, given that it is difficult to dig a burrow in the rocky hills where we did the study. Surprisingly, goats

were similarly active on Hiltaba, the National Park and neighbouring pastoral properties. Given the large numbers of goats removed from Hiltaba, the density of goats on Hiltaba must have been particularly high before the NFSA took over the property. Correspondingly, grazing damage to plants was higher on Hiltaba than it was on either the pastoral properties or the National Park (Fig 6).

Transects to record plant distribution in the hills

Hills in arid and semi-arid areas such as Hiltaba often provide cool, moist pockets where special plants and animals can survive. These pockets may be at the tops of hills, on the southern side of hills, or in gullies and gorges. Hiltaba is at the northern edge of the range of many southern species. For example the kangaroo thorn/bugger bush (*Acacia paradoxa*) generally occurs further south in cool, wet places like Adelaide and Kangaroo Island. On Hiltaba there is a small population of them in a gully, much further north than they normally occur. Previous work on the vegetation of the western Gawler Ranges (Hudspith, Robinson, & Lang, 2001) described general patterns of plant distribution in the area. The few hills sites available to that survey showed that more work needed to be done on the hills vegetation. What determines why some species of plants occur in some places and not others? Our transect studies were designed to answer this question.

Expeditioners established 173 quadrats along transects that ran over hilltops from south to north. At each quadrat the species present, their abundance, and cover were recorded. Several environmental variables that might influence the plants (slope, aspect, soil/rock cover/type, indicators of fire history, faeces of potential grazers etc) were also measured and a soil sample was collected for later analysis. This information is still being put into the computer. Ultimately it will be used to understand what factors determine the distribution of plants on the hills. The data collected during the expedition will allow us to analyse the role of topography and soil as determinants of plants distribution. When combined with other data the same information will allow us to assess the impacts of other factors, such as fire history. The fire history is being reconstructed from satellite imagery of the Reserve presently by remote sensing students from the University of South Australia. Comparison of fire history to the vegetation data collected on the expedition will give us a better understanding of the

role fire plays in successional plant communities in the Gawler Ranges. This information will also be useful for managing fires on Hiltaba.

Ancillary studies

In addition to the major activities undertaken during the SEG expeditions to Hiltaba, there were two additional ancillary studies. These were led by people with specific skills and interests.

Annette Vincent has a passion for ants. During the August expedition, Annette collected ants in micro-pitfall traps along two transects radiating away from Punkey Plain Dam. These transects provided a spatially refined view of changes in fauna across a piosphere.

Peter Forward exercised his passion for water during both expeditions. In April he found all bores on the reserve and tested the water quality in them. One result of his work was that several bores classed as unviable in the past, appeared to be viable again. In August Peter tested why this change might have occurred. He found that several bores on Hiltaba tapped small localised aquifers, which were unable to provide for sustained use demanded by pastoralism. With the help of the 2010-2011 wet period and the removal of sheep, those aquifers appear to have refilled. Peter's findings are important for two reasons. Firstly, we now know that Hiltaba Reserve has more useful sources of potable water than we thought. Secondly, the recovery of several bores bodes well for the unique fauna that lives interstitially within the local aquifers, the stygofauna. Hiltaba has its own stygofauna which has only recently been discovered (Leijs & King, 2013). This hidden fauna is currently known to contain oligochaetes, microturbellaria, rotifers, ostracods, copepods and isopods presently, and can only survive in healthy aquifers that are not over-drawn.

Student involvement

SEG aspires to increase the number of young people coming on expeditions. This was made clear during the early stages of planning the Hiltaba expeditions, but how to achieve this? Various suggestions were made, and in keeping to the word 'Scientific' in SEG's name we decided to run an experiment.

One suggestion was that the timing of expeditions was important. Perhaps students couldn't attend if the trips were not held during school/university holidays. The April expedition

was deliberately arranged to overlap with the academic mid-semester break, whereas the August trip was to take place outside of school/university breaks. I used my contacts at Universities to advertise both expeditions equally to University students. Eight students attended the April trip, whereas none attended the August expedition. Two students were from high schools and six came from two Universities. We heard from one student (who had come in April) that he'd hoped to attend in August, but wasn't able to because of course commitments during term time.

From my point of view it was great having a broader range of ages represented on the April survey. It really showed me the enthusiasm, knowledge and keenness to share among all members of SEG. The student articles in the June 2013 issue of SEGMENTS show that the students enjoyed the expedition and felt they got a lot from the experience. Two of the students from the April expedition have since graduated and are taking Honours in ecology. Comments from other members of the expedition showed that they clearly enjoyed having a wider range of ages along and were keen to encourage this in the future. Conclusion: If we want to encourage students to attend, we must run expeditions during academic breaks.

Concluding remarks

The Hiltaba expeditions have been enriched by the high calibre of scientists who lead the volunteer teams. Many of the scientists had previously worked with the now Department of Environment, Water and Natural Resources. In their professional roles they had taken part in the National Parks survey of the Gawler Ranges, and established the Pastoral Assessment photo-points in the Gawler Ranges. Meeting them gave me an incredible opportunity to learn from their hard won insights about the landscape and ecology of Hiltaba. Many have spent time with me outside of the expeditions, allowing me to further gain from their knowledge and experience. The science behind management of Hiltaba has been vastly better than I could have managed in isolation because of their patience and generosity.

Sadly some of the scientists were able to come on the Hiltaba expeditons because of recent cut-backs in the State public service, and DEWNR in particular. These scientists all made pioneering contributions, which advanced environmental management in South Australia. Sadly much of their

work has been , or is in the process of being undone. Despite this sad state of affairs, all expeditoners and the NFSA have benefitted from their involvement.

Having done a lot of field work over the years, a particular feature of the SEG expeditions to Hiltaba for me was the way in which everyone worked well together and enjoyed each other's company. Taking thirty relative strangers to a remote place and asking them to live in less than salubrious conditions for two weeks, and to work relatively hard in fine weather or foul is usually a recipe for some trouble. Not so with the incredibly well organised SEG surveys. The catering and housekeeping was ably, joyfully and agreeably arranged by Trent Porter. Scientific and logistic aspects of the expeditions were very efficiently dealt with by Stuart. Alun chaired the organising committee, oversaw all aspects of expeditions, and arranged donation of polypipe for the pit traps. Graeme acted as treasurer and dealt with formal contracts between SEG and NFSA. Pre-expedition communications, information sessions and booklets meant that everyone had a pretty good idea of what to expect. I think the only complaint I heard at one stage was that there was too much food, it was too good and everyone was putting on weight!

I've enjoyed my involvement with SEG, so much so that I've joined the SEG committee. It's been great to make new friends who value a healthy environment, clean air, are interested to learn and share the hardships and joys of scientific expeditions. I'm eagerly anticipating SEG's response to an invitation to mount expeditions to Witchelina, another NFSA reserve, over the coming years.

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Email Contact : Greg.Johnston@nfsa.org.au

Scientific Expedition Group

Nominations are called for the 2014-2015 Executive Committee

The present Committee members will retire and are eligible for re-election.

Nominations forms can be obtained from the SEG Secretary Sarah Telfer

Mob: 0427313344 or Sarahtelfer@internode.on.net

They must be signed by the proposer and the nominee and sent to

The Secretary, PO Box 501, Unley 5061, by 18 July 2014.

SEG 30 Year Celebration BBQ

**24 August 2014
in
Belair National park
at the Pines oval 2
at 12 noon**

***Rsvp to SEG by Aug 15th
Sarahtelfer@internode.on.net***



Vulkathunha-Gammon Ranges Project



After 26 Years of operation of the Vulkathunha-Gammon Ranges Project, SEG is holding a special event to celebrate. It will be on the Gammon Plateau, at the Pluviometer site, on Sunday 5th October, at about 11 am. We are not sure what it will consist of, but probably a variation of the opening ceremony that took place in late-September 1988. The plan is for the main group to assemble at Arcoona Creek car park on Friday afternoon, 3rd October. We will camp there that night and possibly display some photos/Power Point and reminisce.

On Saturday 4th October we plan to backpack into Vandenberg camp, near SAMBOT waterhole. Water will be supplied, the group will need appropriate clothes, camping gear –sleeping bag and thermarest- food for 3 days. Overnight camp at Vandenberg. On Sunday 5th October, we will climb North Tusk Hill – for breakfast if there is enough enthusiasm. Then continue to the Plateau ready for the 11am ceremony. Monday 6th October, walk out to the car park and go back to Adelaide by stages, expecting to arrive in Adelaide at 6pm. We expect that Maggies Restaurant at Orroroo will be open.

(There is a possibility of a helicopter ride – Richard Willing is organising this.) We hope to be able to provide champagne and snacks to go with the speeches. Sunday afternoon return to Vandenberg.

All people who have been involved over the years are most cordially invited (a reminder that the rocks are no softer nor are the hills lower than they were in 1988). Please let Chris Wright know if you are interested, he will supply details. 0414 789 220 ; 08 8278 8818 cpwright@senet.com.au ; or snail mail to 8 Gratton St, BELAIR SA 5052



SCIENTIFIC EXPEDITION GROUP

EXPEDITION NANGWARRY 2014

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 of 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 5th October 2014 and return to Adelaide on Saturday 18th October 2014.

Accommodation:- On this survey we will be camping in a beautiful sylvan glade within the forest about 8km from Penola where there are a 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 \$650.

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

Student concessions may be available depending on sponsorship.

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



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
 Corporatemembership - - - - - \$35.00

Name.

Address

.....

Telephone (H) (W)

E-mail

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

.....

Send a cheque (Scientific Expedition Group Inc.)

with a Photocopy of this page to

The Secretary

Scientific Expedition Group Inc.

P.O. Box 501

Unley S.A. 5061.

Some Associated Organisations



<http://www.naturefoundation.org.au/>

SA Herpetology Group Inc.

The SAHG is a group of people dedicated to the study and conservation of reptiles and amphibians through regular meetings, field trips, educational displays, talks and involvement with government and non-government conservation groups.

<http://www.swiftpages.com/sahg/index.html>

Wetlands & Wildlife

Wetlands & Wildlife is a conservation company that was founded by Mr Tom Brinkworth to hold land of significant conservation value for the benefits of future generations. It is hoped that it will prove a viable model for conservation in the private sector to complement the National Park systems.

<http://www.wetlandsandwildlife.org.au/>



<http://www.gluepot.org/>