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SEGMENTS

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SCIENTIFIC EXPEDITION GROUP

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EDITORIAL

Following the SEGTHINK Seminar in September the Committee has met twice to consider the recommendations and proposals and has come up with a series of interim decisions for the future directions of the Group which are subject to further discussion and comment.

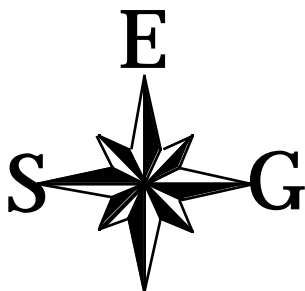
The articles on pages 2 and 3 of this SEGments set out the present conclusions. As always we would welcome feedback and comments.

In what must be record time Chris Wright and Wendy Telfer have produced the Report of Expedition Warraweena '99. Over this and the next few issues of SEGments we will present some of the scientific results from the report. In this quarter's issue we have a general description of the topography and vegetation of Warraweena and a description of the work done by the mammal group.

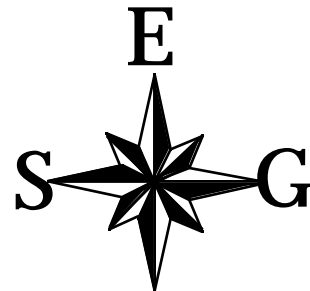
If you wish to see more of the report or purchase a copy please contact one of the Committee.

On the cover of this issue we have a photograph of a magnificent red gum and native pine creekbed in Warraweena.

Alun Thomas



"SEGMENTS" is the authorised journal of the
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PO Box 501, Unley, SA 5061



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Sir Eric Neal, AC, CVO.
Governor of South Australia

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Ecological Projects Co-Ordinator Duncan MacKenzie

THE FUTURE OF THE SCIENTIFIC EXPEDITION GROUP??

A planning meeting was held at 14 Gurney Rd on 31 Jan 2000 as a follow-on from the SEGthink seminar held in September 1999. Here are the main points on future directions of SEG.

Recruiting

Recruiting is at the core of whatever problems SEG is having. If we had an abundance of people wanting to go on expeditions we would probably not be doing this soul searching. GRASP is going well. The Fleurieu project went well while the money lasted. The annual expeditions have achieved SEG's aims of combining useful scientific work and education with personal development through adventure. There seems to be no problem getting scientific leaders. But it is becoming increasingly difficult to recruit members for the annual expedition.

Who are our clients? What do they want?

Perhaps we should go to teachers of park management and related subjects in Uni SA and other tertiary and secondary institutions and ask them how, when and where SEG can help. Graduates of such courses are more likely to get jobs if they have done voluntary field work. But should we abandon attempts to attract a wide variety of people?

Science or adventure?

One or two weeks of field work without any follow-up is of limited scientific value. Should we place more emphasis on science? It is not necessary to have separate scientific and adventure phases. As Warren Bonython put it, an expedition can be planned so that you have to do the adventure in order to do the science. This is what happens on GRASP trips. While gathering useful data is one of the things SEG aims to do, education and personal development are of prime importance among SEG's objectives.

Variations

We need to consider the possibility of changing the traditional annual expedition.

One idea mooted was to follow up this year's expedition to Gluepot with two or three shorter visits next year.

Another idea was to go to one place three times in one year, another place three times in the next year, and a third place three times in the third year, and then repeat the cycle.

Another idea was to concentrate on one place for five years. (We have been concentrating on Arcoona Creek and the Gammon plateau for ten years.)

There is plenty of work that could be done at Gluepot and at Richard Willing's farm near Myponga.

What do we do for our members?

Should we upgrade the appearance of SEGments and increase its content?

Should we seek sponsorship to do this? It was agreed to postpone these questions until more fundamental decisions have been made.

Sponsorship in general

It is essential to decide what the product is going to be and then prepare a good case, thoroughly costed and offering some benefit to the sponsor.

Paid assistance

We cannot employ anyone on a regular basis but could pay people with particular expertise for specified services, such as publicity or help in seeking sponsors.

Long-term plan

It is intended that further discussions will produce a long-term plan for SEG.

More ideas are welcome from anyone who is interested.

The committee had further discussions at its meeting on 14 th February 2000 concentrating mainly on the nature of future expeditions.

The conclusions are as follows.

SEG's distinctive identity and objectives, as set out in the constitution, are worth maintaining. This could be done by running a number of shorter expeditions, similar to the Gammon Ranges Scientific Project, each year, and mounting occasional(not annual) major expeditions to more remote places. To simplify

logistics, finances and recruiting, the number of participants in major expeditions would be limited.

The Gammon Ranges Scientific Project would continue.

The study of biodiversity in undeveloped road reserves in the southern Fleurieu Peninsula has come to a standstill. A project of similar scope but of simpler logistics could serve as a sequel. This is another biodiversity project on a recently fenced off heritage block on Richard Willing's property, Minnowarra, near Myponga.

Description of Warraweena

Warraweena is a property of 355 square kilometers in the northern Flinders Ranges. It was previously a pastoral lease, stocked with sheep for some 130 years. It has recently been destocked (1996) because unsustainable grazing pressures led to it becoming non-viable as a pastoral concern. The property is now leased by Wetlands and Wildlife, a non-profit environmental company that manages substantial wetland areas in the South East of South Australia. The property is managed as a private conservation park or wildlife sanctuary, with recreation and tourism being the other land uses. Warraweena encompasses some of the highest parts of the Flinders Ranges including Mount Hack, one of the few peaks to exceed 1000m in height. The property is predominantly hill country. In the north and along the eastern boundary there are rugged quartzite ranges. In this eastern section and in much of the southern parts of the property the vegetation is dominated by native pine (*Callitris glaucophylla*) open woodland. To the south and west is a strip of country with calcareous plains and rises with predominantly ephemeral cover with native pine and prickly wattle overstorey. The central and southern parts of the lease are comprised of low siltstone hills and rises dominated by shrubs and ephemeral species. The central-western area, encompassing Yellow Well Paddock and towards Mt Stuart, is characterised by open grasslands of lemon-scented and wallaby grasses with (originally) a sparse overstorey of drooping sheoak and with eucalypts and

pine in the creeklines. There are also some regions of open shrubland (*Acacia victoriae*, *Eremophila duttonii*, *Alectryon oleifolius*) over chenopod low shrubland. The south western corner has areas of *Atriplex vesicaria*, *Maireana astrotricha*, *Sclerolaena* spp. or *Zygophyllum aurantiacum* low shrubland. Also within this region are areas of *Acacia* spp., *Eremophila* spp., *Senna* spp., *Dodonea microzyga* and *Ptilotus obovatus* shrubland with an open overstorey of *Casuarina pauper* and *Callitris glaucophylla*.

There are several ephemeral creeks through the area, the largest being Sliding Rock Creek, Sandy Camp Creek and Warrioota Creek. There are also some 27 permanent springs on Warraweena that support sedge communities.

The vegetation has been described by the Pastoral Management Program and the Flinders Ranges Management Review. While there is substantial record of the vegetation, there is almost nothing recorded about the fauna present. There is also much work to be done in the monitoring of plant communities including threatened species, examining regeneration and erosion.

The data gathered in this SEG expedition will be used in a report on the biodiversity of Warraweena and will be used in the formulation of recommendations on biodiversity for the property's management plan. The plan for the property will focus on working towards biodiversity protection and enhancement.

Mammals at Warraweena

by Graham Medlin and Wendy Telfer

Introduction

Very little is recorded about the fauna of Warraweena. Species such as red kangaroos, western-grey kangaroos and euros all commonly inhabit the region. Several yellow-footed rock wallaby colonies are also known to exist on the property, although much of their range has been taken over by goats. Other small native mammals such as Dasyurids and native rodents are not recorded but may well exist on the property. Introduced mammals species are plentiful, with goats being present in high numbers throughout the northern Flinders Ranges. Their browsing prevents growth of plants and regeneration, and thus they are a significant management problem. Ground shooting of goats occurs on the property, however now that destocking has occurred, they will continue to move on to Warraweena from neighbouring properties due to the greater amount of feed available. Rabbits have also been present in high numbers and have caused substantial damage to the vegetation and soils. The release of the calicivirus in 1995 has decreased numbers dramatically. Dead rabbits still continue to be found affected by the virus but a few live rabbits are now beginning to be seen on the property again (autumn 1999, pers comm G. Willis). Cats and foxes are also seen and can be major predators of native fauna.

The aim of this project was to survey the mammal species inhabiting Warraweena. We also sought to teach expeditioners various surveying techniques and to give them big muscles!

Methods

Following the methodology of the Biological Survey of South Australia (a major program of the Department of Environment), we set up pitfall lines and traps in eight

habitat types on Warraweena. At each site two 50m drift fence pitfall lines were positioned about 200m apart. This was hard work - at many of the sites we hit baked clay or rock and both perseverance and muscle were required (and pep talking from Bob and Graham was invaluable). Along each line, six pitfalls were dug (each 40cm deep and 15cm in diameter). We managed to dig the 96 holes over the course of the first week. The traps at sites 1-4 were opened for four nights in the first week and sites 5-8 were opened for four nights in the second week. 15 Elliot traps, primed with peanut butter and oat bait, were placed in an arc 10

metres from each pitfall line and 10 metres apart. A cage trap to catch larger mammals was placed at each end of the pitfall lines. As with the pitfalls, traps were opened for four days and nights. All traps were checked daily in the morning and late afternoon or evening for animals. The first male and female of each species caught were anaesthetised and liver samples taken in liquid nitrogen. The identifications of these specimens (referred to as voucher specimens) are verified by the South Australian Museum and the liver samples will be used in the future for DNA and electro-



A Fat tailed Dunnart which was caught in a pitfall trap

phoresis studies. When traps were checked in the evening some spotlighting was undertaken. This involved scanning the site with a high beam torch for any animals - the reflection of their eyes in the light make them easily visible. Observations of large mammals (such as kangaroos and feral animals) or their traces (scats, footprints, bones) were also recorded at each site and opportunistically when travelling around the property. An Anabat bat detector was used to survey the bat fauna present near base camp at Warraweena. The detector records the echolocation calls of bats, which differ between species. These calls are analysed and identified by Terry Reardon of the South Australian Museum.

Results

All traps and pitfall lines were successfully set up and left open for four days and nights. This represented a total of 1472 trap nights. Ants were a problem at sites 4 and 5 but this problem was overcome by use of insect repellent. At site 7 two Elliott traps were shifted and closed and signs of fox presence were obvious.

Thirteen fat-tailed dunnarts (*Sminthopsis crassicaudata*) and four stripe-faced dunnarts (*Sminthopsis macroura*) were caught in the pitfall traps. The majority of dunnarts were found at the *Sclerolaena* and *Atriplex* chenopod shrubland sites. These sites are characterised by cracking gilgai soils, the cracks of which provide ideal homes for invertebrates. Both of these dunnart species feed nocturnally on invertebrates on the ground surface. The abundance of these invertebrates is affected by rainfall and the subsequent herbaceous vegetation available. Thus dunnart numbers also tend to correlate with rainfall. The dunnarts also live in the soil cracks and in the more covered areas close to these cracking soil plains.

The only other mammal species caught was one house mouse (*Mus domesticus*) at the *Eucalyptus* site. We were surprised that we did not catch any other rodents or *Dasyurids*. Bolam's mouse, Forrest's mouse, Giles planigale and the narrow-nosed planigale are all known to be surviving in the northern Flinders Ranges. Their presence and population densities are also dependent on the success of sum-

mer and winter rainfall and the subsequent herbaceous vegetation. Some of these species may be caught in the survey work that is occurring in spring.

A male and female of both dunnart species were anaesthetised, their livers removed and placed in liquid nitrogen, and their bodies kept in formalin. The house mouse was also taken in formalin. These samples were given to the museum on return to Adelaide for validation of our species identification and for their collections and for future study of DNA and electrophoresis.

Many red kangaroos and euros were sighted around the property. Note that the red kangaroos were present at the open chenopod sites in the flat open parts of Warraweena whereas the euros were sighted throughout the property. Interestingly no western-grey kangaroos were recorded although they are known to frequent the area. Yellow-footed rock wallabies were observed on a rocky ridge close to the base camp. Little was seen during the spotlighting except the odd kangaroo.

Many introduced species were observed including goats, rabbits, foxes, sheep, horses and cattle. Droppings observed showed the presence of both native and introduced fauna. Some sub-fossil material was found by Graham Medlin in a cave east of Mt Stuart. He identified the bones to be Brush-tailed possum (*Trichosurus vulpecula*). A fur ball likely to have been regurgitated by a wedge-tailed eagle was also found which may be a source of information about fauna present in the region.

The white-striped freetail bat was heard on several occasions throughout the expedition. The Anabat recorded primarily over one night and although the quality of the signals was not good, three species were able to be identified. The species were: the Little Mastiff bat (*Mormopterus planiceps*), Gould's wattled bat (*Chalinolobus gouldii*) and the Lesser Long eared bat (*Nyctophilus*

PROGRAMMES OF KINDRED SOCIETIES

FIELD NATURALISTS SOCIETY OF SOUTH AUSTRALIA PROGRAM OF MEETINGS

VENUE	SEMINAR ROOM OF THE ROYAL SOCIETY PLANE TREE COURTYARD OFF KINTORE AVENUE
TIME	7:45pm, second Wednesday
April 12th	Three Trips to Queensland by Darrell Kraehenbuehl. (Illustrated by Darrell's slides of plants)
May 10th	Pesticide Use in the Mount Lofty Ranges. Speaker : Andrew Nicholls.
June 14th	Behaviour and Ecology of Dolphins. Speaker : Mike Bossley
July 12th	Fungi, illustrated talk by Pam Catcheside
August 9th	Annual General Meeting
September 13 th	Venus Bay Sinkhole; a 4500 year old history revealed. Speaker : Graham Medlin.

ROYAL GEOGRAPHICAL SOCIETY OF SOUTH AUSTRALIA 2000 PROGRAM

VENUE	ROYAL SOCIETY OF SOUTH AUSTRALIA ROOMS GROUND FLOOR NATURAL SCIENCES BUILDING SA MUSEUM ENTRY VIA PLANE TREE COURT, REAR OF STATE LIBRARY
TIME	5:30 pm. Unless otherwise indicated
Wednesday 12th April	6 pm Lewis Prizes and new members night Society's Rooms, State Library Building
Thursday 20 th April	7:30 Annual General Meeting Kimberley to Cape York - in search of indigenous rock art. Professor Fay Gale
Thursday 18 th May	The Murray Darling Basin - managing for sustainability. Mr. Don Blackmore
Thursday 15 th June	7:30 pm The Australian Constitution. Hon John Bannon
Thursday 20 th July	Walking south Australia's Horseshoe Lakes Mr Warren Bonython
Thursday 17 th August	7:30 pm Brock Lecture - William Field, Colonel Light's Assistant. Dr Geoff Nicholas
Thursday 21st September	Mineral exploration in South Australia - a look to the future. Dr Neville Alley
Thursday 19 th October	7:30 pm At the cutting edge - geographical research in progress
Thursday 16 th November	What future for Adelaide's Parklands?

GLUEPOT 2000

PRELIMINARY NOTICE CALLING FOR EXPRESSIONS OF INTEREST

SEG will be conducting its major expedition in the year 2000, on Birds Australia Gluepot Reserve. The reserve is located 64 km north of Waikerie and is the "jewel in the crown" of Australia's National Reserve System. The property measures 544 sq. km - (52,000 ha), and is the largest block of intact mallee left in Australia.

The Reserve is resident to six globally threatened species of birds, including the Malleefowl, Red-lored Whistler, Regent Parrot, Scarlet-chested Parrot and Grasswren, and over a third of the known remaining 100 colonies of the critically endangered Black-eared Miner. Additionally, a further 17 species of birds, threatened in one or more of the three Murray mallee states also occur on Gluepot. There are few areas of the world that support such a concentration of threatened species.

The area is also rich in reptiles and invertebrates, and research undertaken during the expedition will cover birds, mammals, reptiles, invertebrates and flora. Full biodiversity surveys will be undertaken in a number of areas on the Reserve and special projects will include an examination of the gypsum lakes and their associated rare plants; bird banding of select species; work on trapping and recording the bat species on Gluepot etc.

~~Date of expedition 25 November to December 9th 2000~~

If you are interested in participating in this unique expedition, please complete and mail the tear-off slip below, or contact:

Duncan MacKenzie
Expedition Leader - Gluepot 2000
4 Edinburgh Avenue. STONYFELL SA 5066
Phone: 8332 1204 Fax: 8264 5527 E-mail: dmackenzie@iname.com



SEG Year 2000 Expedition to Gluepot Reserve - 25 November - 9 December 2000

I am interested in attending this expedition and receiving particulars when they are available:

NAME:

ADDRESS:

.....

.....

SEG ONGOING PROGRAMME

The Scientific Expedition Group (SEG) welcomes enquiries from all members and friends who are interested in participating in one or more of our projects or expeditions. Please contact the leader or convener of the project or expedition that interests you for more information.

We welcome enquiries from anyone from 16 - 60 years (or more) who would like to participate in our scientific, environmental and educational projects.

CURRENT RECURRING PROJECTS

Gammon Ranges Scientific Project (GRaSP) is now in its eleventh year. The project involves a four or five day trip to the Gammon Ranges about four or five times a year. A data collection project involving flora and fauna and rainfall gauging which also involves bush camping and trekking. Contact Chris Wright 8278 8818

GAMMON RANGES SCIENTIFIC PROJECT

Expeditions are being planned in February, April, July and October 2000.
For any of these contact Chris Wright 8278 8818

FUTURE EXPEDITIONS

Y2K - GLUEPOT STATION - this property recently acquired by Birds Australia will be the venue for our 2000 expedition. It is situated north of Wakerie and adjacent to the Bookmark Biosphere Region. It will be on 25 November to December 9th 2000. . Enquiries from potential leaders and expeditioners are welcome. Please see the article on the opposite page and contact Duncan Mackenzie on 8332 1204 for any further information.

KIDS CORNER

This word find puzzle has been made with words from the Warraweena Expedition Report. The words are placed in all directions. See if you can find them all.

M	R	B	W	M	W	E	P	H	E	M	E	R	A	L
V	A	N	E	E	W	A	R	R	A	W	A	X	G	E
C	Q	K	V	B	Y	V	T	Q	K	M	N	P	A	U
Z	U	A	P	U	R	N	B	C	E	F	I	I	C	R
R	A	N	F	S	N	E	A	P	N	W	R	T	H	O
L	N	G	Q	I	O	H	C	S	O	A	A	F	E	S
K	D	A	G	R	I	Y	A	T	T	N	U	A	N	K
G	O	R	S	T	T	B	L	U	S	A	S	L	O	I
O	N	O	H	I	I	A	C	A	T	T	A	L	P	N
K	G	O	E	L	D	L	A	R	L	L	C	O	O	K
C	C	Q	O	L	E	L	R	T	I	E	U	L	D	E
E	P	Y	A	A	P	A	E	V	S	B	F	O	M	G
G	E	W	K	C	X	W	O	D	U	N	N	A	R	T
A	F	B	P	S	E	I	U	D	R	I	F	T	X	U
N	G	T	K	X	O	Q	S	R	I	N	D	O	Q	J

BELTANA	HACK
CALCAREOUS	KANGAROO
CALLITRIS	PITFALL
CASUARINA	QUANDONG
CHENOPOD	SHEOAK
DRIFT	SILTSTONE
DUNNART	SKINK
EPHEMERAL	STUART
EURO	WALLABY
EXPEDITION	WARRAWEENA
GECKO	

SCIENTIFIC EXPEDITION GROUP

The Scientific Expedition Group came into being at a public meeting on 21st August 1984. Membership is open to any persons, family or organisation interested in the following aims:

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

Members will receive regular information on S. E. G. activities and expeditions

APPLICATION FOR MEMBERSHIP AND MEMBERSHIP RENEWAL

Please tick where applicable.

Working adult member	-----	<input type="checkbox"/>	\$15.00
Pensioner student or unemployed	-----	<input type="checkbox"/>	\$10.00
Family membership	-----	<input type="checkbox"/>	\$20.00
Organisation membership	-----	<input type="checkbox"/>	\$20.00

Membership name.
(Family name) (Given names)

Address
(No / Street name)

.....
(Suburb / Town) (Post Code)

Telephone (H) (W)

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

.....
.....
.....
.....

Applications should be addressed to : The Hon. Secretary
Scientific Expedition Group Inc.
P.O. Box 501
Unley S.A. 5061