

SEGments



Journal of the Scientific Expedition Group Inc.
Volume 32 No. 1 June 2016

Scientific Expedition Group Inc.

Volume 32 Number 1 June 2016

Patron

His Excellency the Honourable Hieu van Le AO
Governor of South Australia.

SEG Executive

President Dr. Richard L Willing
Chairman Dr. Robert Sharrad, AM
Vice Chairman Stuart Pillman
Secretary Sarah Telfer
Treasurer Graeme Oats

SEG Committee

Duncan MacKenzie, OAM
Chris Wright, OAM
Dr. Greg Johnston
Trent Porter
Andrew Barr
Helen Johnson
John Love
Jill Tugwell

Vulkathunha Gammon Ranges Scientific Project

Chris Wright

Minnawarra Biodiversity Project

Janet Furler

Mallee Fowl Project

Stuart Pillman

SEGments Editors

Helen Johnson
Alun Thomas

SEG Website

Michelle Trethewey
Garry Trethewey

SEG Administrative Officer

Alun Thomas Email: alunulna@gmail.com

SEG Treasurer: Graeme Oats

Email: gdoats@bigpond.net.au

Cover photograph: White Breasted Kingfisher
Halcyon smyrnensis at Yala National Park, Sri Lanka. Photo Alun Thomas

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

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

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

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

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.

Copyright 2016, Scientific Expedition Group Inc. Permission will be considered for non-profit photocopying of material for personal use and teaching purposes. Written permission must be obtained from the Secretary of SEG.

Contacts:

SEG Secretary: Sarah Telfer
PO. Box 501, Unley SA 5061
Email: sarahtelfer@internode.on.net

SEG email: scientificexpeditiongroup@gmail.com

SEG website [Http://www.communitywebs.org/ScientificExpeditionGroup](http://www.communitywebs.org/ScientificExpeditionGroup)



SEGments



Volume 32 Number 1 June 2016

EDITORIAL

CONTENTS

Editorial	Page 1
Fire in the Gammons Graham Blair	Page 2
TERN AusPlots - Who Are We? Christina Pahl	Page 6
SEG Annual General Meeting	Page 8
Vulkathunha-Gammon Ranges Data Recovery Trip Garry Trethewey and Chris Wright	Page 9
A Preview of Expedition Witchelina Part 2 Darren Niejalke	Page 11
Minnawarra Biodiversity Project Autumn 2016 Richard Willing	Page 13
Book Review Richard Willing	Page 14
Birds of Sri Lanka Photographs by Alun Thomas and Kathleen Cunningham	Page 15



Green bee-eater *Merops Orientalis*
Photograph Kathleen Cunningham

SEG's mission when it began in 1984 was to give young people the opportunity to spend time in wild places (4WD's not then being ubiquitous) to experience adventure, build character, and to learn about scientific field methods. Over the years the emphasis of SEG expeditions has shifted from character development and strenuous adventure to gathering and improving the quality of scientific data, and whereas in the early years there was an age limit (at one stage it was 25) now there is no limit and the average age of participants has increased.

Occasionally, discussion in committee meetings turns to how we might encourage more young people to join the **annual expedition** and to experience what the Scientific Expedition Group has to offer. Since SEG's annual general meeting is the only meeting to which all members and visitors are invited, opportunities to engage young people and tell them about SEG's activities are limited.

Two chance encounters in recent years have convinced me that young people are interested in SEG's activities when these are explained in person. A few years ago a young woman met a SEG member in an outdoor accessories shop, had a conversation and subsequently joined SEG's 2014 Nangwarry expedition. Felicity Small wrote about her Nangwarry experience (SEGments December 2014). Recently I was asked by a young university student to sign a petition to stop oil exploration in the Great Australian Bight. Our conversation turned to our common interest in the environment and she enthusiastically requested information about the forthcoming Witchelina survey after hearing about SEG.

One forum that is ideal for face-to-face encounters is the "Science Alive" expo at the Wayville Showgrounds, held as part of National Science Week and running over three days. Various similar organisations to SEG have a presence there and report that great interest is shown by young people in their displays. In times past during National Science Week, SEG had a hands-on display at the Museum. Perhaps SEG should once again have a presence at National Science Week to inform young people about the opportunities to engage with nature and science. Whether future young expeditioners continue with SEG or not, all will have had an experience to remember.

Watch this space as there may be a call for volunteers to man a display at "Science Alive".

Helen Johnson

kdolphin@internode.on.net

FIRE IN THE GAMMONS

Graham Blair

By late afternoon on the 30th of November 2015, temperatures across the Northern Flinders Ranges had reached the mid-30's with humidity in the low teens. Later in the evening, a convective storm passed over the ranges causing a drop in temperature by 10 degrees associated with a band of rain that totalled 8 mm at the Gammon Plateau rain gauge. In the hours leading up to the start of the rain, satellites capable of remote sensing began detecting fire hotspots in the south western region of the Gammon Plateau signalling the start of a fire, no doubt caused by lightning strikes associated with the approaching storm front.

Since the 1980's, an increasing number of satellites that monitor the earth's surface through remote-sensing have been deployed. Many of these are capable of detecting fire through characteristic heat signatures based on brightness and thermal radiation given off by flames. Although smoke, weather conditions and satellite technology influence accuracy, observed hotspots are generally within a kilometre of the actual fire location. Streaming the data to earth for analysis, fire hotspots can be viewed on web-sites or downloaded into Google Earth within a few hours of being recorded.

Following the initial detection of fire in the Gammons, conditions remained relatively mild for the next three days with daytime temperatures remaining in the high 20's. During this time the extent of the fire increased very little. On the 4th of December however, with the fire now in its 4th day, hotspot activity became more frequent and the fire extent began growing more rapidly. By midnight of the 4th, the hotspot area had expanded to an area of 4 square kilometres with the front having travelled 3 kilometres from its starting point.

Burning in very inaccessible terrain along the Gammon Plateau, smoke from the fire became increasingly visible, with the CFS issuing a warning on the 5th indicating smoke was visible from as far away as Leigh Creek and Arkaroola. Over the next few days, temperatures returned to the high thirties associated with low humidity and periods of increased wind creating ideal conditions for the fire to spread.

The Gammon Plateau is an elevated area of gently undulating terrain approximately a kilometre in width and ten kilometres in length and running in a north-easterly direction. Situated midway along the plateau is the Plateau rain gauge along with a cluster of vegetation photo points that were established in 1988, becoming the initial monitoring sites of the V-GRaSP project. The rain gauge has the distinction of being the

highest gauge in the State at an elevation of 920 metres. Since an instrumentation upgrade in 2014, the gauge transmits data to the internet every three hours. With the fire progressing slowly along the Plateau, by the seventh day the gauge and photo point area lay directly within its path.

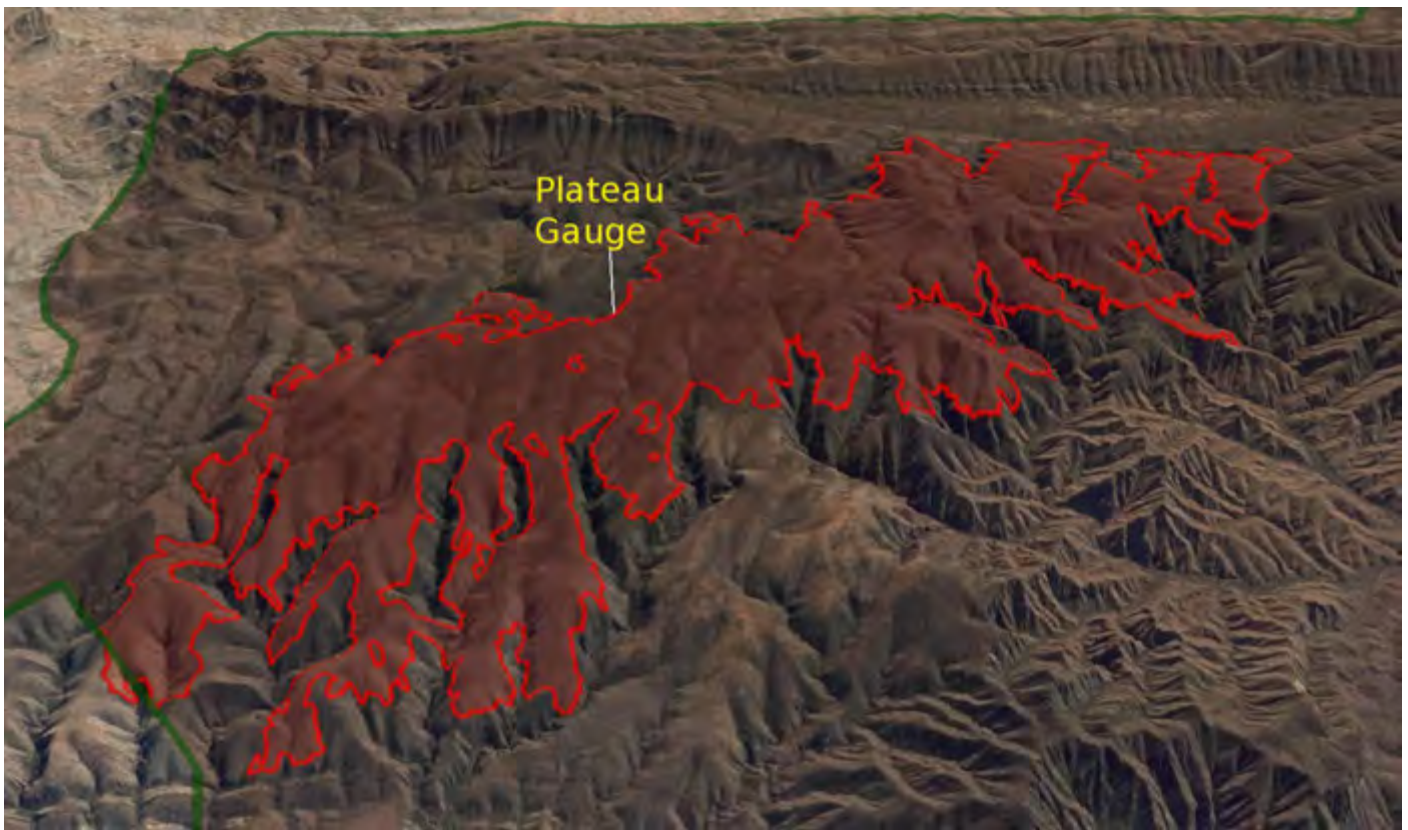
Alerted by the scale of the fire reported in the nightly news, along with the modern day ability to access an amazing array of up-to-date information about conditions on or near the Gammon Plateau from a personal computer, apprehensive hours began. The fire was burning along the Plateau with a front almost three kilometres wide, and with not much more than a kilometre remaining to reach the gauge, things looked grim. Setting the telemetry link to dial the gauge every hour seemed the best way to monitor its fate. If the dial in failed it could be assumed the gauge had become victim to the fire.

The next forty-eight hours were somewhat dramatic! Like a giant hand of providence, at just the right moment the wind direction swung to the south then east then back to the north fanning the fire in a huge arc around the Plateau gauge. Once the front passed the gauge the fire went wild, and in a matter of 24 hours had consumed an area almost twice the size to that which had been burnt in the preceding eight days. Equally dramatic, like a giant brake a series of wind changes and the natural barrier formed by Mainwater Pound arrested further progress, containing the fire within its current extent until it extinguished naturally on the 10th. The Plateau gauge had survived!

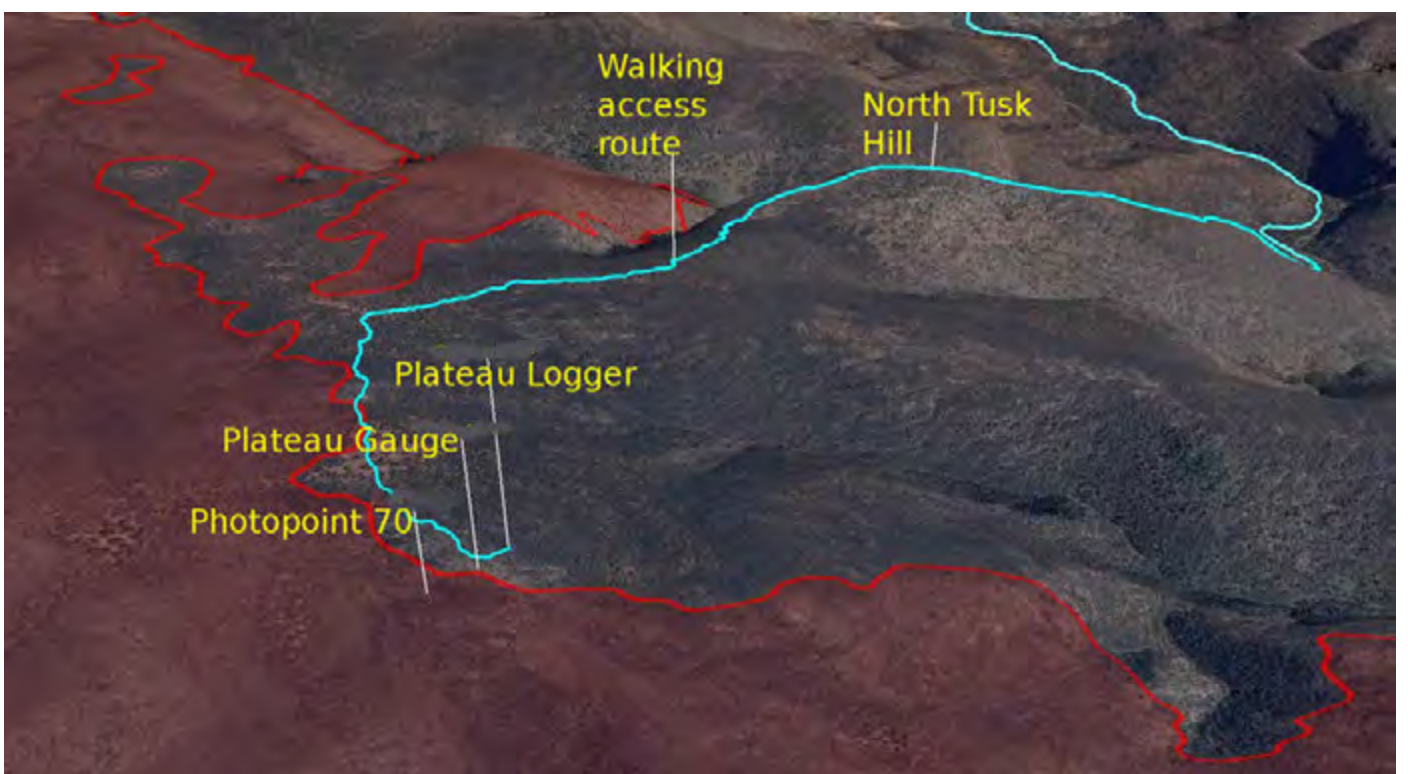
Shortly after the fire, Landsat satellite imagery of the Gammon Plateau clearly delineated the burnt area enabling the boundary to be digitised. Considering the kilometre accuracy of hotspot data, the estimated fire boundary generated from hotspot data generally aligned well with the Landsat boundary, although detail associated with fire impact around the gorges that dissect the edges of the plateau was less accurate. In all, the burnt area covered 49 square kilometres.

The recent Anzac data collection trip to the Plateau provided a first-hand opportunity to observe the actual impact of the fire and confirm the accuracy of the data collected by remote sensing. Walking the fire boundary in the vicinity of the Plateau gauge verified that the Landsat digitised boundary was a reasonable representation of the actual fire boundary. The burnt area had come within 15 metres of the rain gauge and less than 60 metres from the new data logger enclosure.

Recovery was already evident with regrowth appearing from the base of burnt eucalypts and many new shoots springing up in bare patches. Photo Point 70 was the only site impacted by



The fire boundary overlaid onto a Landsat image



Map of the fire boundary in the vicinity of the Plateau pluviometer. The red line is the fire boundary and the blue line is the route normally taken to reach the pluviometer.

the fire, with the majority of vegetation consumed. This site will provide an interesting insight into diversity, rate and vegetation density during post fire regrowth.

Being able to monitor progress of the fire in near real time demonstrates the profound technological changes that have occurred in the 28 years since the V-GRaSP project

commenced with the Gammon Plateau rain gauge installation. The first Plateau data logger had a minuscule 4 kilobytes of memory that would fill within three months making it necessary for frequent field trips to avoid loss of data. Telemetry was not feasible as the mobile phone network did not become available in Australian cities until 1989 with no



October 2015



April 2016

Photopoint 70 before and after the fire and showing regrowth after the fire

coverage in the Gammon Plateau for another 15 years. The internet was unavailable in Australia and access to data collected by remote sensing satellites took months and then was only available as expensive images printed on paper.

Today, data from the Plateau rain gauge, or fire hot spots detected by satellites or detailed weather conditions in the surrounding area can all be observed in near real time from



Burnt area of the Plateau taken from the Plateau pluviometer

the computer in the lounge room. Can anyone imagine what the next 28 years will bring!

The web sites used to monitor or predict the progress of the Gammons Plateau fire were:

Fire hotspots

A number of web sites provide access to hotspot data. The site that was used to source data during the December 2015 Gammon Plateau fire was:

<http://sentinel.ga.gov.au/>

Current and historic data can be retrieved from this site. Data can be downloaded in kml or gpx format, both being compatible with Google Earth where the data can be viewed.

Landsat imagery

Landsat imagery is available from USGS web-site free of charge. An easy way to start searching for image data is to use the LandsatLook Viewer accessed from the following link:

<http://landsatlook.usgs.gov/>

Weather forecasts

Bureau of Meteorology provide access to detailed weather forecasting for anywhere within Australia via their MetEye web-site. A forecast can be obtained by selecting a location from a map. The MetEye web-site can be reached from:

<http://www.bom.gov.au/australia/meteye/>

Near Real Time rainfall and river levels

Near real time data from the Gammon Ranges monitoring sites that are operated by SEG is collected by Dept. Environment, Water and Natural Resources and published from the WaterConnect web-site which can be accessed from the following link:

<https://www.waterconnect.sa.gov.au/Systems/RTWD/Pages/Default.aspx>

Contact: gblair@internode.on.net

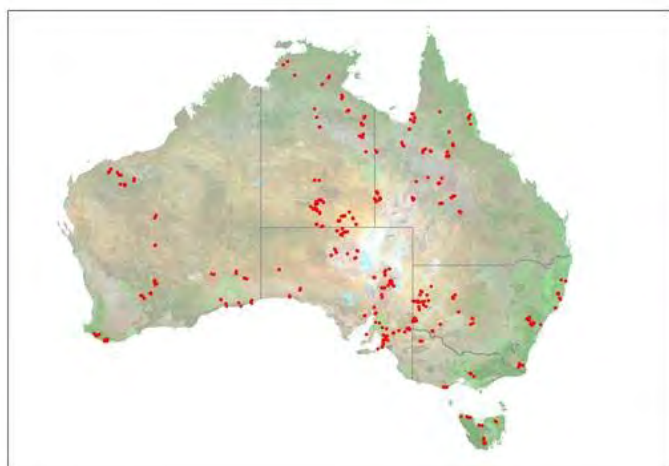


Regrowth after the fire

TERN AusPlots - WHO ARE WE?

Christina Pahl - Project Data Officer

As this June edition of the SEG's Newsletter hits your screen, the TERN AusPlots team of 5 will be making their way north to the Arnhem Plateau Bioregion of the NT, establishing more surveillance monitoring sites for vegetation and soil data. These will complement the 515 sites established throughout the Rangelands of Australia, where a huge amount of baseline ecological data has been collected. Rather than try to squeeze our story into this newsletter I invite you to check out our website www.ausplots.org

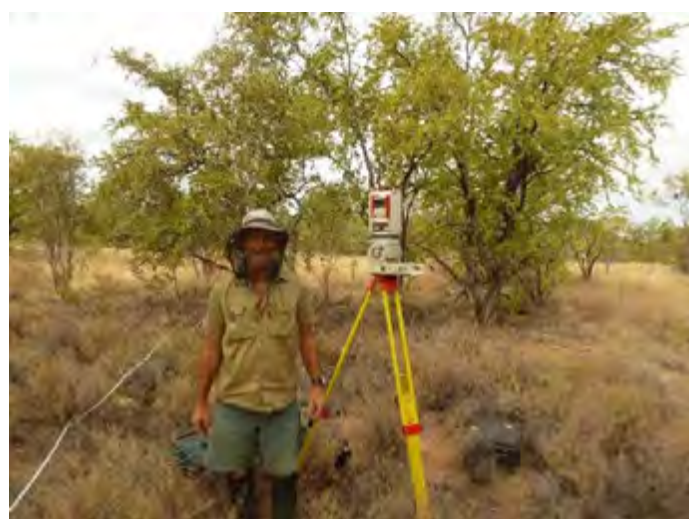


Adelaide. Leaf tissue samples (25,000 to date) are documented and stored to enable genetic, chemical or isotope studies and are available for access (by application) to interested researchers.

AusPlots is a facility of the Terrestrial Ecosystem Research Network (TERN), part of the federally funded National Collaborative Research Infrastructure Strategy (NCRIS). TERN connects ecosystem scientists nationally, enabling scientists to share and integrate collected data across disciplines and thus reduce otherwise fragmented effort. TERN AusPlots is based at and administered by the University of Adelaide.

AusPlots Rangelands methods were developed out of a dire need for consistent, national scale ecological surveillance monitoring data in Australia's rangelands. Since its inception in 2010, AusPlots has established and surveyed 515 one hectare long term monitoring sites.

Specimens of every vascular plant species found within a one hectare plot (100mx100m) are collected for herbarium identification. Vouchers are identified and lodged at the identifying state herbarium or at the AusPlots facility in



Soil and soil metagenomic samples (genetic material recovered directly from environmental samples) are collected at every site. Soil samples are sent to the National Soil Archive in

Canberra and the soil metagenomic samples are stored at the AusPlots facility in Adelaide. Data from these samples has been used to increase the reliability of the rangelands component of the Soil and Landscape Grid of Australia, produced by the TERN soils facility consistent with the Global Soil Map specifications.

Each site gets a lot of attention and it would take up too much space here to explain all the methodology but in a nutshell, photo panoramas, leaf area index, vegetation cover and condition is measured using a 1,000 point intercept technique, soil surface disturbance and physical characteristics are recorded and a 1 metre soil pit documents the soil horizons and multiple characteristics. A manual outlining all methodologies is available on our website. On a good day, two sites can be established.

Current projects using AusPlots samples

The data and material is being used by researchers and land managers in many ways – here are just a few examples.

- Ground-truthing a variety of satellite derived vegetation and soil data.
- Assessing long term change in vegetation diversity and cover using AusPlots as both a baseline and a continued surveillance monitoring tool
- Detecting the impact and predicting the potential spread of invasive plant species.
- Assessing plant water stress using plant traits as well as isotopic composition.
- Using chemical signatures of plants to better understand modes of adaptation to climate change.
- Development of genetic markers in *Santalum* (sandalwood) to determine provenance of illegally-logged timber.
- Carbon levels in arid soils.



AusPlots has developed a field data App for use on an Android tablet. Data goes straight to the tablet, in the field, including unique barcodes on every sample. This ensures zero chance of losing the link between a sample and its site information, vital for any study where our ecological data needs to be compared with our samples. It has been designed to upload to our database for editing and publication, eliminating the use of paper forms and handwriting, much to my delight. As the Project data officer, I find this system works well and ensures data integrity.

We publish the site data in TERN's AEKOS data Portal and the Soils to satellites tool regularly and this is where researchers and PhD candidates access most of the ecological data they need.

Many of you would be interested to know that two sites have been established on Witchelina Reserve, and the material collected has gone into the ever increasing data pool. These will be revisited in the future building on the knowledge we have of the Australian arid zone ecosystem.

Christina Pahl

Project Data Officer



SEG ANNUAL GENERAL MEETING

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

Date: Friday 21st October 2016

Time: 7:30 pm

Place: Fullarton Centre,

Corner of Fullarton Road and Fisher Street, Fullarton

After a short business meeting our talk will be:

“Endearing and endangered: why our southern brown bandicoot is still endangered, and what you can do to help”

The speaker will be Dr Jasmin Packer, University of Adelaide.

Nominations are open for positions on the SEG Committee. Nominations forms can be obtained from the Secretary and should be received by the Secretary at least one month before the AGM.

VULKATHUNHA-GAMMON RANGES DATA RECOVERY TRIP

Garry Trethewey and Chris Wright OAM

The Anzac Weekend V-GRaSP data recovery trip ran from 21st to 24th April 2016.

Expeditioners: Garry and Michelle Trethewey, Jackie Drury, Chris Wright, Alex Cornish, John Love, Graham Blair, Trish Williams and Ray Hickman.

Leaders: Michelle Trethewey, Chris Wright and Graham Blair.

Garry Trethewey's report

Garry, Michelle and Jackie left Gepps Cross by 6:00am on Thursday 21st April, drove to Henzell's Camp, left the car there and walked in to Upper Vandenberg, arriving about ½ hr before sundown. The group's trip went pretty routinely. Weather was nice and cool for a change, which made walking much easier. Probably the main point of interest is the result of the fire that started early Dec 2015. South and east views of some of our photopoints show burnt ground and burnt or scorched trees in the distance, and our route over the plateau skirted the burnt area. One of our photopoints was actually burnt. The fire came within about 15 metres of Gammon Plateau Pluvio (pluviometer or rainguage), which is pretty safe on rock. But it was lucky that it didn't burn the telemetry installation a few metres away, in scrub. Regrowth is already springing up from lignotubers and seeds.

Issues of water become more fascinating as time goes on. My last trip report (Oct 2015, printed in SEGments December 2015) involved descriptions of vegetation drying out and dying off, and animals fighting over meagre water sources, and me predicting 'the next big drought'. Then a month later (early Nov 2015) 90mm rain fell on Arcoona Bluff and Plateau Pluvios, including some short lived but high intensity bursts. Detailed monitoring shows that one hour after one of these bursts, the stream gauge, 10 km downstream in Arcoona Creek, rose from 0 to 875mm in less than 10 minutes, but dropped to almost nothing a few hours later.

Six weeks before the current trip, Arcoona Bluff and the Gammon Plateau got 33 mm of rain. So we were expecting at least some water in creeks, and a bit of new growth. But no. The Seeps and Woodcutter's Well are the only standing water sources, and are even lower than last time, if that's possible. Rock Sida (*Sida petrophila*), one of my indicators, is dying back more, with last trip's bare but live stems now dead, and only a few small leaves at the bottom of each plant, and *Ptilotus obovatus*, generally pretty hardy, is almost absent.

Very few mammals were seen. Some hypotheses: perhaps they have all died off (but I would expect carcasses around the last water sources); perhaps they have died off up the hill, seeking food away from an over-grazed area around the water sources; perhaps they are getting enough moisture from dew

and so aren't tied to water sources. Hypotheses are cheap, and work better with a few beers. Finding out is what costs time & money.

Photos available garrytre@bigpond.com

Chris Wright's report

Chris Wright, John Love and Alex Cornish left Adelaide by 5:45am on Thursday 21st April in John's car. Our group arrived at Pfizner's Well Pluvio by mid-afternoon where we met up with Graham Blair and Trish Williams who had already arrived from Adelaide a bit earlier. The two groups recovered data and calibrated the rain gauge (pluviometer), and then both vehicles went on to Mocatoona Pluvio on a fairly rough track. We got there probably by about 4:30pm and worked on the Pluvio, recovered data and calibrated the gauge. By the time we were heading back to Maynard's Well shearer's quarters it was almost dark. We found the track to Maynard's Well okay, but in pitch dark we missed a vital turn, and in finding our way hit a very bad patch of track and caused some damage to the Love Subaru (front wing panel came adrift). Also Graham's Subaru had a slow puncture, and so the wheel was changed the next day. We got "home" to Maynard's Well by about 7:30pm and invited the Nichols family to join us for dinner, which they did, and we all enjoyed Patricia Wright's bolognaise sauce plus spaghetti with salad by Alex Cornish.

Friday 22/04/2016: We were slow getting going, after the busy day on Thursday, and by the time we arrived at Henzell's Camp and got ready to walk it was 11:00am. Because we had only one calibrator, Alex and I took it with us to Arcoona South Pluvio. Graham and Trish climbed up to Arcoona Bluff to service the Pluvio (but no calibration), and then they walked in to Upper Vandenberg. John Love and Ray Hickman (Ray joined the group at Henzell's Camp) walked directly (leisurely?) up to Upper Vandenberg.

Alex started his first serious Aussie walk, with a heavy pack and plenty of enthusiasm. We took the normal track east, via the Kemp short cut, to Arcoona South junction, and then walked up South branch for half an hour, stopped for lunch, and to offload packs, just taking with us what we needed for the Arcoona South Pluvio, plus scroggin, water and emergency essentials. We got to the pluvio without too many distractions and successfully completed the service and calibration, then back to our packs.

By the time we were sorted and heading across country to Will Ass Creek it was after 5:30 and we expected it to be dark by about 6:15. I was keen to get back on the normal track to Vandenberg before we were completely benighted. When night fell we were about 15 minutes east of Wild Ass Creek. I

navigated as best I could by torchlight which tended to reflect off the trees and shrubs and so it was not always easy to follow the track. Alex was starting to tire, with very sore neck and shoulders. We contemplated leaving his pack and walking up to Vandenberg, and sending someone enthusiastic to come and collect it! We could also have camped where we were, as we had all the gear we needed. I was a bit worried that the others would not know where we were. I had SPOT with me, but there was no necessity to SOS for help. We decided to soldier on. I fell at one stage and lost SPOT, fortunately I realised shortly afterwards, and Alex noticed it not far back on the track.

We finally got to camp at Upper Vandenberg at about 7:30pm, too tired to eat. Michelle and Garry Trethewey and their friend Jackie were there, plus the others of our group. Plenty of cups of tea were provided, and they helped us pitch tents and set up camp. We ate what we were able to and then went to bed. *Moral-* if the trip to Vandenberg includes the dog-leg to service the Arcoona South Pluvio you must start at 9am at the latest, or walk a lot faster than Alex and I did with heavy packs. It was quite a cold night in bright moonlight, with a strong wind blowing through the trees. Those in tents were comfortable!

Saturday 23/04/2016: After breakfast Michelle, Garry and Jackie headed back to Henzell's Camp and then on to Arkaroola. Graham, Trish, Ray, Alex and I, climbed North Tusk, leaving John Love in camp for the day. We got to the Plateau Pluvio without incident, noting the path of the recent bushfire which had burnt a fair bit of the Plateau and had come within 15m of the Pluvio. No damage was caused to our equipment. Graham did the regular service, data download, and we helped with calibration. Graham also walked some of the perimeter of the fire with his GPS, and photographed the fire boundary adjacent to the Plateau gauge and telemetry equipment so that he could later match what we saw with the satellite imagery of the fire. We returned to Upper Vandenberg without incident, and after a cup of tea visited the SAMBOT pluvio to recover the data and calibrate the pluvio. That was all done before dark, and it was nice not having sort out gear by torchlight. The Sourdough bread, olives, Dukah, semi-dried tomato and olive oil, which I had brought especially for the occasion disappeared rapidly. Dukah and olive oil were popular, olives in brine were okay. Pesto, pine nuts, basil, garlic, olive oil pasta cooked in 10 minutes by Alex was shared with, and much appreciated by John Love and me. After supper, storytelling and an epic poem (The Bush Cricket Match) by Chris, helped by a few slugs of Port, supplied by Alex, with everyone retiring by 8pm. Bright moonlight all night, clear enough to read a book!

Sunday 24/04/2016: We packed up camp in reasonable time and walked out to Henzell's Camp. Alex's shoulder and neck

were much improved. We got to camp about 11:30am and Graham and Trish worked on the Streamgauge. Chris, Alex, John and Ray serviced the Exclosure pluvio, finding that one of the micro-switches on the instrument was crook, and it had been giving crook data to the internet website for some time. The total rainfall was 289mm, instead of 425mm recorded on the Backup logger. Graham decided to swap the leads so that the correct total would be transmitted daily to the system and thence to the web. In doing so, we noticed that the soldered contact on one of the switches was loose. By wriggling it, we got it to work, and it is now linked to the Backup logger. Hopefully it will stay connected. Graham has decided to bring a soldering iron next trip and fix on site. (Rather than return the pluvio to the BoM for repair/replacement.)

The party left Henzell's about 3pm and drove to Maynard's Well shearer's quarters to set up for the night. Then we visited the Maynard's Well pluviometer site about 5 minutes drive to the north. All work was done there satisfactorily and we returned to the shearer's quarters for the night. We were joined by most of the Nichols family, who had baked a pie for us for dinner, which with John Love's Gammons stew, and some pasta went down very well, especially when accompanied by glasses of red and white wine. Off to bed at 9pm, again in bright clear moonlight.

Monday 25/04/2016 ANZAC Day: We packed up our gear, said goodbye to the Nichols family and John, Alex and Chris drove back to Adelaide via Copley, Hawker and Orreroo. Graham and Trish diverted to North Moolooloo to service the pluvio before driving to Adelaide. This was Trish's first time doing the computer work, while Graham acted as assistant.

Water

The only surface water that we found was at Woodcutters Well, and the nearby seeps. The water in the Grandfield cache was okay, but the quality was not too good. The small cache at Upper Vandenberg was full. We didn't investigate any of the other caches. At each of the pluvios there was about 10 litres of water in the drum. It was used for calibration, and then we filled up our bottles and wineskins. Our group of 7 managed with this supply plus what we brought in. The weather was not particularly hot and so our rate of consumption was not excessive.

The following link to the Scientific Expedition Group V-GRaSP project shows a map of the rain gauge sites; links to the BOM records; describes the hydrology of the Northern Flinders Ranges and describe frequently used technical terms.

http://www.communitywebs.org/ScientificExpeditionGroup/hydrology_data.php

Contacts: garrytre@bigpond.com
cpwright45@optusnet.com.au



A PREVIEW OF EXPEDITION WITCHELINA PART 2

Darren Niejalke

In April a small SEG team consisting of Stuart Pillman, Margie Barnett, Graeme Oats, Trent Porter and myself had the fortunate opportunity of witnessing Witchelina Nature Reserve in full bloom. Our mission was a reconnaissance visit to Witchelina, which is owned and operated by the Nature Foundation of SA, to prepare for a SEG Expedition in September, later this year. The rain gods have been very generous to Witchelina in recent times, so the footing has been laid for an exciting expedition. The Mitchell grass was knee high in places and vagrant birds such as budgerigar, Zebra Finch, Chats and the like, were in great abundance. What's more, I believe there has been considerable rain in the months since we visited.



The rewards from intensive goat control by the nature Foundation was also evident with regeneration of trees and other long lived perennials.

SEG has a three year agreement with the Nature Foundation to undertake biological surveys at Witchelina. The first survey, in September/October last year, focused on the plains and dune systems in the southern section of the property. More than 1,100 records of plant, mammal, reptile and bird were reported (plus over 6000 invertebrates) during this 2 week survey by about 30 scientists and expeditioners.



Red-barred Rock Dragon spotted during reconnaissance to Witchelina Reserve



Old Mt Nor' West Gorge is part of the Willouran Ranges which cover a large part of Witchelina.



Shearers Quarters at Witchelina Station



Shearers Kitchen

This year, the survey will be based at the homestead and will focus on the middle section of the property. Most of the homestead area is open flinders style ranges with large red gum creeks, but we also have some sites on Mitchell Grass plains out to the west.

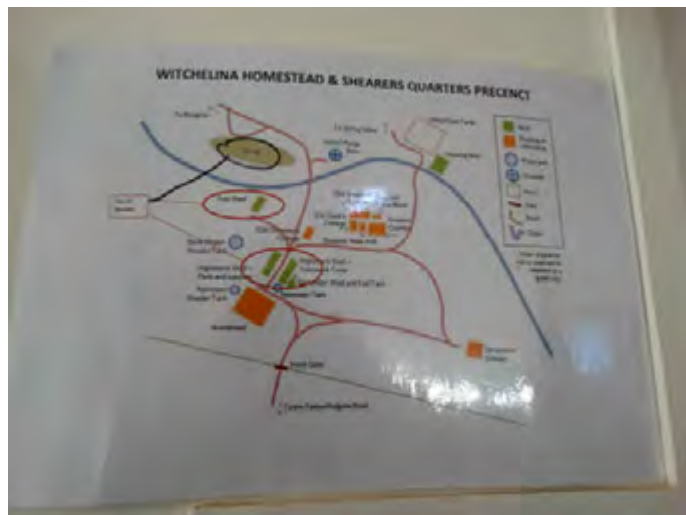
The accommodation at Witchelina presents a stark reminder of the early pastoral history in the region. The 19th century stone buildings, including the recently restored bakehouse, will be available to accommodate the expedition team. Remnants of the property's pastoral story are everywhere. The huge stone shearing shed, built in the 1870's, looks like the pastoralists walked out yesterday.

Expedition Witchelina will operate from Sunday 11th September until Saturday the 24th. Budding expeditioners can find more information, register interest or obtain an application form via email to athomas6@bigpond.net.au or phone 8296 9453 A/H.

The total cost including food, transport and all activities is set at \$500 for the 2 weeks. Some student concessions will be available – please enquire ASAP as they will be limited in number.



Old Mount Nor'West Homestead Ruin on Witchelina



MINNAWARRA BIODIVERSITY SPRING SURVEY DATE 2016

Wednesday 28 September to Sunday 2 October 2016

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

Minnawarra is situated on the southern Fleurieu Peninsula

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

MINNAWARRA BIODIVERSITY PROJECT AUTUMN 2016

Richard Willing

The 16th autumn biodiversity survey was held at Minnowarra from 20th to 24th April 2016 in cool weather with little wind and a few light showers in the middle days. The light of a full moon was largely annulled by persistent cloud.

The early disappointment was a fox attack on Site 1(NW scrub), usually one of our most productive sites. All traps had been visited by this predator on the first night and some of the Elliott traps turned over. The mammals at this site lay low for the rest of the survey, the site only capturing 11 natives during the 4 days. Setting wildlife cameras at this site confirmed the intruder, with several pictures at night during the survey. This is the site where we recorded Southern Brown Bandicoots (*Isodoodon obesulus*) last spring.

The “reproductive medal” goes to the Antechinus genus (*A. flavipes*). After their meagre appearance last spring these marsupials were trapped 133 times during the survey, some so small that it was not possible to tell if they were boys or girls. 61 were caught for the first time and females were micro-chipped, while 8 were recaptures from previous surveys. In the normal sequence of events we do not expect to meet the males again because their life span is 12 months or less. During prolonged copulation the male immune system suffers and the boys die of infections and general wasting. Micro-chipping this number of animals is expensive, so instead we use a clipped ear code for the males.

Bush rats (*R. fuscipes*) were well represented with 29 new and 5 recaptures visiting traps 52 times. Swamp rats (*R. lutreolus*) were quiet this time with 11 new and 3 recaptures visiting traps 26 times.

The total mammal catch was 220, of which 110 were new animals, 16 were recaptures from previous surveys, and 9 were ferals – 5 black rats (*Rattus rattus*), and 4 house mice (*Mus musculus*).

Because of the cool weather, only 1 Grass skink (*L. guichenotii*) and only 5 Brown Froglets (*Crinia signifera*) were caught.

One ill-advised Blackbird wandered into a cage trap for a feed and was released, but otherwise the bird count revealed no surprises. The birdos, though, Brian and Jo, made an opportunistic sighting of a Water Rat, or Rakali, (*Hydromys chrysogaster*) swimming across the large dam on the north end of the property. This is only the second sighting in 20+ years, and a new record for the area.

Many thanks are due to the 25 volunteers who contributed nearly 400 hours of labour to help make the survey a success. These data will go into the SA Biological Data Base. It is good to see the young people who take an interest in wild life.

The spring survey will take place from **28th September to 2nd October 2016**. Mark it in your diary now!



The Fox photographed by the wildlife camera

BOOK REVIEW

Richard Willing

Shackleton's Heroes: The epic story of the men who kept the *Endurance* expedition alive

Wilson McOrist, pp 362, The Robson Press, 2015, ISBN978-1-84954-815-1

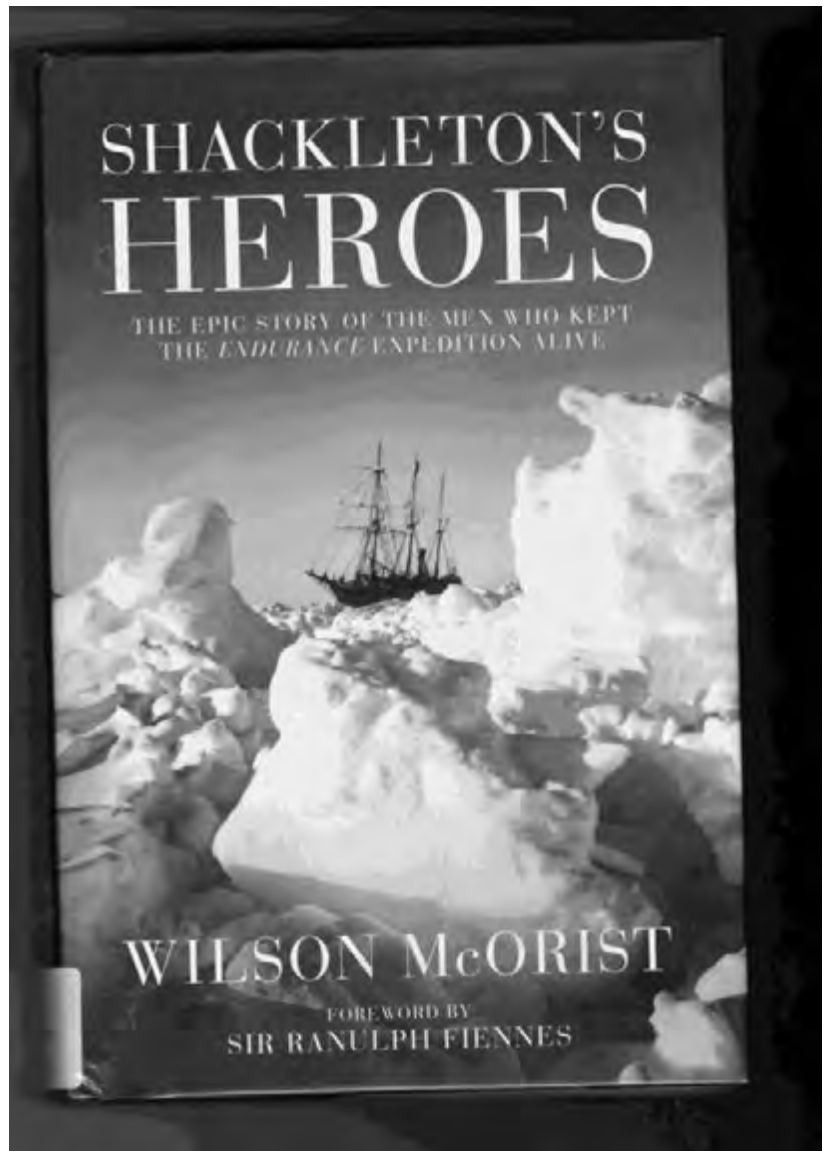
Alerted by Graeme Oats to this book, I grabbed it from the library and read it avidly. Graeme had previously visited Elephant Island, and empathised with the story. The retelling of a 100 year old "Heroic Era" Antarctic expedition has been brought to life brilliantly by the author using quotes from diaries of members of the party. His research has been meticulous, with good references.

Many remember the story of the Imperial Trans-Antarctic Expedition, when Ernest Shackleton, "the Boss," planned to cross Antarctica, from the Weddell Sea to the Ross Sea via the South Pole. His party came to grief when his ship, *Endurance*, was crushed in pack-ice and destroyed. The pictures of Frank Hurley recorded the episode for posterity. Stranded on the sea-ice, they dragged three life boats to Elephant Island, and camped in them upturned during the winter. When the sea-ice broke up next summer the Boss and a few men made an amazing 800 mile journey in an open boat to South Georgia whaling station to start a successful rescue operation for those left on Elephant Island. Although the expedition failed, Shackleton did not lose a man.

At the same time, on the other side of Antarctica, a small group of "Heroes," the Mount Hope party, was crossing the Ross Ice-shelf given the task of laying food depots from McMurdo Sound to Mount Hope, 83 degrees South, to enable Shackleton to complete his trans-Antarctic crossing. Their task was completed in spite of the fact that they were unaware that their efforts were in vain because of the disaster that had befallen Shackleton's party in the Weddell Sea.

The quotations from the diaries make the boring drudgery of man-hauling heavy loads for hundreds of miles into an exciting story of a race against time as their health deteriorated. For me it evoked uncomfortable memories of field work in Antarctica – the condensation on the roof, the interior rain when it melted, the wet clothes and bedding, working to put on frozen boots, and cold hands that do not work properly. As well, the diaries describe fit, active men gradually succumbing to the ravages of scurvy, in spite of drinking lemon juice, and a reckless decision that had disastrous consequences.

In short, a good read, with interesting conclusions about why some succumbed to scurvy when others did not, and another insight into the last of the "Heroic Era" expeditions. The first trans-Antarctic crossing occurred forty years later when Vivian



Fuchs, from the Weddell Sea, and Edmund Hillary, from the Ross Sea, combined to achieve the feat, using tracked vehicles. At the same time I was part of a small Australian party 600 km inland from Mawson Base, in the southern Prince Charles Ranges, blocked by heavy crevassing from reaching newly discovered, and yet un-named, Mount Menzies.

Anyone for seal steak?

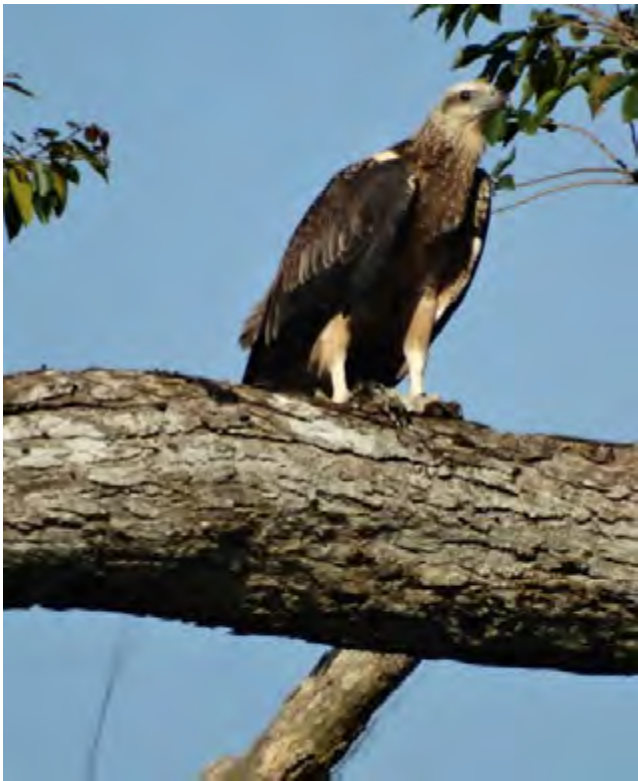


BIRDS OF SRI LANKA

Photographs by Alun Thomas and Kathleen Cunningham



Indian Pond Heron
Ardeola grayii



Juvenile and adult white-bellied sea eagle
Haliaeetus leucogaster



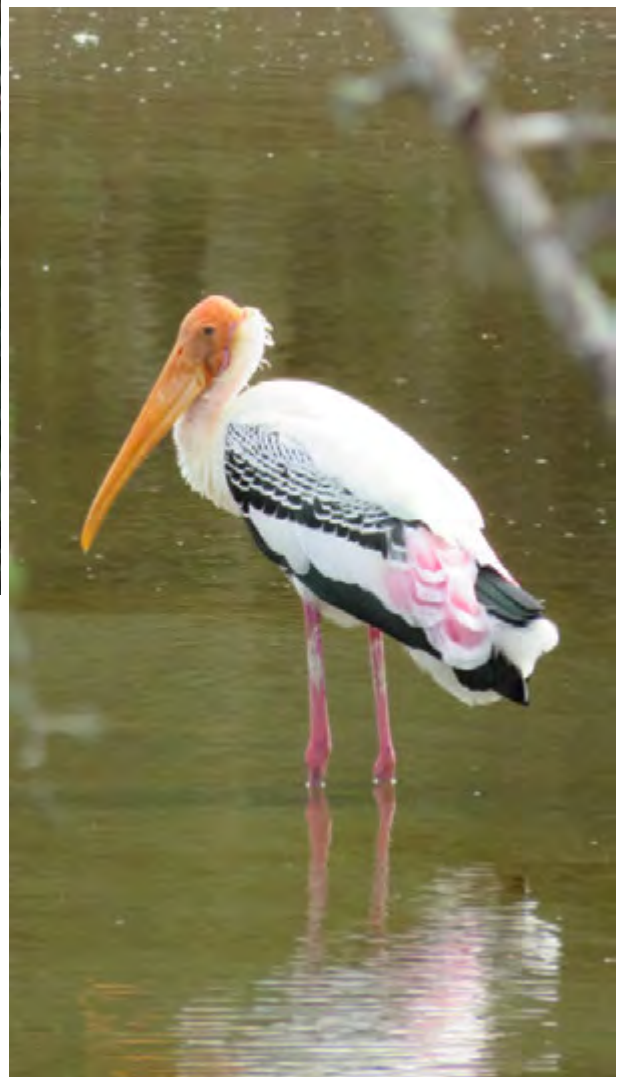
Little Egret *Egretta garzeta*



Jungle Fowl *Prionailurus rubiginosus*



Cattle egret in breeding plumage *Bubulcus ibis*



Painted Stork *Mycteria leucocephala*



Chestnut headed bee-eater
Merops leschenaulti

SCIENTIFIC EXPEDITION GROUP INC.
APPLICATION FOR MEMBERSHIP AND MEMBERSHIP
RENEWAL for 2015 —16

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

SUBSCRIPTION RATES

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

.....

.....

ELECTRONIC PAYMENT

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

Acc Name – Scientific Expedition Group Inc.

BSB - 105-086

Acc No. 330629440

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

Email address – gdoats@bigpond.net.au

PLEASE NOTIFY ANY CHANGE OF POSTAL ADDRESS

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

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

SCIENTIFIC EXPEDITION GROUP

2016

EXPEDITION
 WITCHELINA

You are invited to join us on our next Expedition, in conjunction with Nature Foundation, to conduct phase two of our biodiversity survey on their property at Witchelina just south of Marree, in the north of the State.

This property is widely varied in its landscape with areas of gibber plain, spectacular gorges, rocky outcrops and floodout plains. There are also extensive sand dune areas and salt lakes.

In this survey it is proposed that we will work mainly in the areas northeast and southwest of the Homestead (our base) and will conduct a comprehensive study of vegetation, birds, reptiles, mammals and invertebrates.

This is a great opportunity for people of all ages to observe and participate in professionally conducted field survey work with 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 usually open to the public.

DATES:- The Expedition departs early on the morning of Sunday 11th. September 2016 and returns on Saturday 24th. September 2016.

ACCOMMODATION:- on this trip we are fortunate to be able to make some use of the excellent facilities at the Homestead and will have limited 'indoor' accommodation (twin share) as well as camping and a full kitchen and dining hall. There are also toilet and shower facilities available as well as a stone science room complete with its own pizza oven!

Please advise sleeping preferences on application.

COSTS:- at present, the total cost, including food, transport and all activities is set at \$500.

To register your interest and obtain an application form please email athomas6@bigpond.net.au or phone 8296 9453 A/H

Some student concessions will be available - please enquire ASAP as they will be limited in number.