



# SEGments



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# Scientific Expedition Group Inc.

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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 for Environment and Water 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 mallee-fowl monitoring in the Murraylands.

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**Cover Photo:** Grey Goshawk at Danggali. Photo Jill

Tugwell

**Rear Cover Photo:** Grivet Monkeys, Ethiopia. Photo

Alun Thomas





# SEGments



Volume 39 Number 4 March 2024

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## EDITORIAL

Most SEG members will know that SEG has a charitable foundation called the Scientific Expedition Foundation. This Foundation can accept tax deductible donations. It is managed by a group of Trustees. Funding from the Foundation is used to purchase equipment used in various SEG activities such as microchips for the Minnowarra Project and trapping equipment for the biodiversity surveys.

The Foundation also sponsors a grant managed by Nature Foundation SA. This grant is called the Nature Foundation Scientific Expedition Foundation RL & GK Willing Grant. This annual grant provides up to \$2000 for one year to support an Honours Student in a research project.

The successful student’s research must focus on:

1. Trends in the abundance and distribution of native populations of South Australian fauna and flora; or
2. Soil, water, geology or climate where it will affect the abundance and distribution of native populations of South Australian fauna and flora.

In 2023 the grant recipient was Rebecca Greening. Rebecca's project studied the TGB Osborn Vegetation Reserve at Koonamore in the north east of South Australia to determine if spatial patterns of soil nutrient accumulation and microbial community compositions are different between 98 years of livestock grazing exclusion versus areas grazed since the 1860's. Her report has recently been presented to Nature Foundation SA and I hope to have a report on this project in a later SEGments.

Previous recipients have included in 2022 Chih-Yun Liu (Kantine Liu) whose project concerned conserving rock-hole biodiversity under climate change through microcosm experiments.

In 2021 Kate Matthews successful project was Response of Soil Microbial Community Structure and Function to Drying and Rewetting, and in 2020 Sarah Baker worked on gidgee skinks at Witchelina. Once again I am hoping to get articles on these projects.

Another area, in which SEG is working to make links between the Group and students is at universities. SEG has decided to set up some internships in conjunction with the University of Adelaide. Students will be offered an internship over a period of perhaps 3 to 12 months, in which they will work with SEG on an existing SEG project. Such a project may be to work on data from a survey to put it into a form where it can be entered onto suitable database. An alternative internship may be to plan and assist on a major project such as a biodiversity survey. In working on such a project a student would learn about the practical requirement of permits and permissions and the like.

Of course, there is an ulterior motive in these various activities because we want to set up a cohort of younger people who can carry forward the work of SEG into the future.

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# DANGGALI AND MONITORING OF MALLEEFOWL NESTS NOVEMBER 2023

## Richard Willing

A small group of volunteers, many from SEG, gathered at the locked gate of Calperum and drove up the Pipeline Track to Canopus on Thursday 16/11/2023. The party consisted of Chris Grant (Leader), Mick Norris, Sarah and Andrew Telfer, Aimee Delasale, Phil and Janet Davill, Jill Tugwell, Sam Furler and me. This was my first trip to Danggali having been prevented by leg surgery and a slow healing wound. Driving through Calperum and the sandhills leading to Canopus was most interesting, and Canopus shearers' quarters provided good facilities during our stay.

Many malleefowl mounds were found with a lidar scan of the wilderness area from a plane one year or so ago. A party from SEG did a survey complete with scan to "ground truth" the lidar scan. This revealed that there were 75 malleefowl nests present. The rest were artifacts. The nests were numbered and GPS confirmed, then grouped into lines that could be followed through the scrub.

The aim of the recent monitoring exercise was to see how many, and which, nests were active. On Friday we split into three groups and walked along the lines of nests in good weather. These were found, identified, studied for evidence of bird activity and photographed from the north. It rapidly became obvious that my walking was not fast enough and I was holding everyone up, so I retired from monitoring, found a tank with a small leak making a watering point for birds, and watched many species for a long time. Jill turned up during the evening which meant that we had four crack teams operating on Saturday. The weather was still fine, and a bit warmer than Friday, but the work was all completed by afternoon, leaving time for rehydration by various available beverages and a yarn.

Seventy five mounds were seen, all recorded with note book, GPS and photograph, seven definitely active, many tracks seen, some malleefowl probably heard, but no birds



The group of volunteers mainly from SEG at Danggali Conservation Park for the malleefowl mound survey. From left Janet Davill, Jill Tugwell, Phil Davill, Sam Furler, Richard Willing, Chris Grant, Andrew Telfer, Sarah Telfer and Mick Norris.



The party relaxing after a successful survey

seen. Some of the other birds seen: rainbow bee-eaters, Major Mitchells, various wood-swallows, grey currawong, singing and other honeyeaters, black kite, wedge tailed eagle, and pink galah. A grey goshawk sheltering in the enclosure around the homestead provided some good photographic opportunities.

Just before we left on Sunday morning we held a short memorial service at the site of the 1966 plane crash close to the Canopus homestead (*see article below*). A very interesting and successful few days!

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## A SHORT HISTORY OF DANGGALI CONSERVATION PARK, WILDERNESS PROTECTION AREA AND CANOPUS STATION.

**Richard Willing**

In the years before European settlement of Australia the Danggali tribe inhabited the plains to the southwest of present day Broken Hill as far as Northwest Bend, Mount Bryan and Burra Creek, and eastward to the River Darling. For water they relied on digging and draining the shallow lateral roots of Water Mallee (*Eucalyptus porosa*), or Red Mallee (*E. socialis*). During drought they would migrate to the Darling Anabranch and River Murray. The NW dwellers were also known as Paritke, speaking Jakumban language, while those further East were known as Jokajoka, a term based on their word for “no”.

Because these are oral languages there were many spelling variations when it came to writing them down in English.

This area was surveyed for pastoral lease in the 1850's. This lease was named Bookmark, a corruption of the aboriginal word ‘pukumako’ meaning ‘flintstone axe’. Flint is found in the river cliffs close by. The name was adopted for the Bookmark Biosphere Reserve (BBR), when it was created in 1977 under the aegis of the United Nations Educational, Scientific and Cultural Organization (UNESCO), before a name change to Riverland Biosphere Reserve (RBR) a few years later.





Canopus Homestead

The Riverland Biosphere Reserve comprises 9000 square km of environmentally sensitive country originally part of or close to the original Bookmark lease, which became smaller as new sections were cut off. Included in RBR are former stations Calperum, Canopus, Chowilla, Gluepot, Hypurna, and Taylorville. RBR is part of a world-wide network of protected areas. The latest count is of 295,584 protected areas in 244 countries.

The first lessees were well known in South Australia - prominent graziers James Chambers leasing Bookmark, and William Finke leasing Chowilla next door. These two, along with James' younger brother John gave enormous support to John McDougall Stuart, the first European explorer to cross Australia from South to North and return. It took him four attempts between 1857 and 1862, each with many privations, scurvy, dangers and tribal attacks, but he found a route for the first overland telegraph line from Adelaide to Darwin. The line was built soon after. A great bushman, Stuart never lost a man, but in civilization he was an alcoholic who died young. James Chambers died in 1862 without seeing Stuart's final success. William Finke, who took over his lease, died in 1864. Stuart remembered his friends when naming Chambers Pillar, Creek, Mount, Bay and Gorge; and Finke River, Bay, Mount



Woolpress in the Canopus shearing shed



Shearing board in the Canopus shearing shed

and settlement in NT. Finke River (Larapinta), starting in the McDonnell Ranges, has been running in the same drainage channel for more than 300 million years, and is, arguably, the oldest river in the world. John Chambers lived on until 1889 and was a successful grazier and horse breeder. Another name in early SA is that of Margaret Rankin/Budge/nee Gunn. She arrived from Liverpool in the ship "*Dingo*" in 1854 after recently marrying Evin Rankin, carpenter. She died on Bookmark near modern day Renmark in 1863. At that time her husband Evin was working for the Chambers as overseer.

In 1864 Richard Holland bought the Bookmark lease for his stepsons John, William and Robert Robertson. The Robertson brothers John and Robert farmed this property until 1896, when Robert took Chowilla, and John took Bookmark. and renamed it Calperum. The record becomes a bit hard to follow here, but there is reference a few years later to cattle running wild on Bookmark.

In the early 1930's Harry Martin took over the lease of their piece of Bookmark and named it Canopus, after a visiting star-gazer pointed out Canopus, the second brightest star in the heavens. Harry ran sheep, and added many improvements including a house, woolshed, sheds and fencing. A note in a

local paper, the Murray Pioneer and Australian River Record in 1937 reports the sheep were looking very well and the removal of wild cattle. It is interesting to note that the house and woolshed are both built of concrete, suggesting that Harry was in it for the long haul. These concrete buildings are now about ninety years old and in good shape. Looking at where heaps of aggregate had been on the ground it appears that Harry had a source of limestone nearby. It was ground to different sizes to mix with cement. The shearing shed, having witnessed thousands of sheep being shorn, stands in solid, silent splendour. It is well built, and looks as though it is a recent addition rather than its present age. The yards around the shed are broken, but the inside is immaculate. The shearing board accommodated 4 shearers. Power came from a big Lister diesel engine in the engine room which drove a belt, giving power to the overhead gear down to the shearers' hand-piece. The wool room, complete with old wool press is big enough for a large party, for which it has been used in the past. Harry's son Howard later ran Calperum.

William Snell, formerly of Angepena, took over the Canopus lease in 1956 and his family moved in at the time of the River Murray floods that year. Canopus became a popular





Engine room in Canopus woolshed

social hub in the area, but disaster struck on New Year's Day 1966 when the pilot and four youngsters of visiting families lost their lives in a light aircraft crash close to the homestead. Soon after a memorial plaque was erected near the site of the accident. During a monitoring of mallee fowl nests in November 2023, involving some SEG members, a small memorial service was held here, to acknowledge those who died and those who still grieve for them.

In the 1970's Canopus and two other properties were acquired to form the Danggali Conservation Park and Wilderness Protection Area further north as part of the RBR. The Snell family left the area in 1976 and the properties were destocked. Management now is by National Parks and Wildlife Service and Department of Environment and Natural Resources. Landscape Australia is the nominal owner of RBR. The buildings still stand and the shearers' quarters provide comfortable accommodation for groups doing maintenance or scientific research. Descendants of some of the early settlers still live in the surrounding districts.

I hope that SEG can make many more trips here in coming years. The mallee country abounds in protected wildlife, part of which are mallee-fowl, whose numerous nests

need monitoring to ensure that they are still thriving. Active mounds were found in November, with many footprints seen, but no mallee-fowl. Cryptic birds!

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# MALLEEFOWL MONITORING – BAKARA CONSERVATION PARK NOVEMBER 2023

**Sarah Telfer and Piers Brissenden**

Keen readers of SEGments will have seen an article in the September 2023 edition written by Murraylands and Riverland Landscape Board Senior Ecologist Craig Gillespie on Bakara Conservation Park. The 2,000 hectare mallee-scrub park is located on the Stott Highway between Swan Reach and Loxton and has been the subject of an annual malleefowl nest-mound monitoring survey since 1989. SEG has played a significant role in undertaking many of these surveys with the data collected feeding into the National Malleefowl Monitoring Database. As noted by Craig in his article, over the years Mound 7

at Bakara has been indicated as one of the most productive breeding sites in the state.

On Sunday 26<sup>th</sup> November 2023 SEG members undertook the annual monitoring of known malleefowl mounds at Bakara Conservation Park. The weather was clear and sunny after a significant amount of rainfall in the preceding few days and a group of 14 eager volunteers gathered in the camping area for a barbecue on the previous Saturday evening.

After a peaceful night of camping several groups of three or four volunteers set out early on the Sunday morning to



A very protective malleefowl guarding its nest whilst we were recording data.





Preparing the evening barbecue at the Bakara campsite

monitor known mounds throughout the Park. The mounds, which are all individually numbered, were located using GPS and data was collected on GPS-enabled smart phone devices, as well as on hard-copy field data sheets. As part of the Na-

tional Malleefowl Monitoring Program a smartphone app has been developed to assist in recording the relevant information. Using the smartphones has helped to make the data



A fox recorded by Bakara predator camera 7 early on the morning of 28 October 2023



A Fox with its prey , possibly a goanna, caught on a predator camera at Bakara



recording process easier and also provides consistent and uniform information that is uploaded to the national database.

A total of 47 mounds were re-visited, and of these six were active nests. One mound actually had a very protective malleefowl roaming the perimeter of its nest as we were inspecting it. The bird appeared to be quite agitated by our presence so we got on with our work and left as quickly as possible.

A search of the database indicates that Mound 28 was last active in 1996 (27 years ago) and Mound 65 was last active in 1992 (31 years ago). These are good examples of why we visit all the mounds, even if there has not been any signs of activity for a long time.

There are also 8 monitoring cameras located throughout Bakara that are activated by infrared movement sensors. The purpose of the cameras is to build a better understanding of potential relationships between malleefowl predators (such as foxes, cats and goannas) the mound monitoring data (and therefore malleefowl breeding effort) and information from predator control programs (such as fox baiting). This project is being led by the Murraylands and Riverland Landscape Board and is part of a national scale Adaptive Management Predator Experiment. New cameras were put out for testing 3 months prior to the December monitoring trip. Instead of relying on solar panels to re-charge NiCad batteries, the new cameras are powered by longer lasting rechargeable lithium batteries. It

was very pleasing to see that all of the 8 new cameras were still working in December 2023 and still had around 60-70% battery charge remaining.

A review of the images captured by the cameras showed that there are significant numbers of foxes and some rabbits within the Park. It was unfortunate to see a couple of young foxes with one of the adults. There was also an image of a feral cat. On the positive side no goats were recorded and four of the cameras recorded malleefowl, including one image of a pair.

SEG will continue to contribute to the annual Bakara Conservation Park Malleefowl Monitoring Program and encourages members to become involved when calls for the 2024 survey are circulated.

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Mound 28 – Photo on left hand side was taken in December 2022 and shows a mound which had not been active for 27 years. The photo on the right hand side shows that the mound has been re-activated in 2023.



Mound 65 - Photo on left hand side was taken in December 2022 and shows a mound which had not been active for the past 31 years. The photo on the right hand side shows that the mound has now been re-activated in 2023.

# URBAN ECOLOGY – WHY AND HOW?

Chris Daniels

As a global phenomenon, the scale and speed of modern urbanisation is unprecedented. From Jakarta to Cairo and Seoul to Sao Paulo, strings of megacities are emerging and growing at breakneck speed. Indeed, the year 2007 was the very first point in human history when the percentage of the world's population living in cities surpassed the percentage living in rural areas. This trend is projected to intensify over the coming decades, with the UN predicting that by 2050 roughly two-thirds of the world's population will live in cities. Unsurprisingly, urbanisation is accompanied by dramatic changes to lifestyle and the environment. Indeed, as cities grow, their influence over natural systems increases.

As more and more swathes of land are earmarked for construction (ironically called 'development'), ecosystems are extensively damaged, and biodiversity becomes homogenised as native and regional biodiversity is decreased and replaced with species that live with humans. This is a serious problem, especially as biodiversity is inextricably linked to climate moderation, the purification of air and water, the fertility of soils and the decomposition of waste. Crucially, while protecting biodiversity in cities is a growing prerogative, to date there has been relatively little research into the ecology of urban areas. In response, a new breed of ecologists – called *Urban Ecologists*, are investigating the benefits of biodiversity in urban environments and how humans can best accommodate wildlife. Urban Ecologists focus on developing practical initiatives to maintain and preserve biodiversity in cities and promote positive human-wildlife relationships with constant changes to the urban environment. It is crucial to understand how urban ecosystems function because these changes have a significant impact both on the lives of humans and on the natural environment.

## URBAN ADAPTATIONS

While the expansion of urban environments has a major impact on wildlife, different species respond to their altered habitats in different ways. In recognition of this, wildlife is classified into the following three categories: urban avoiders, urban adapters and urban exploiters. Urban avoiders are those species that require a specialised environment or have behaviours that do not easily co-exist with humans; they are the species that will generally not survive the seismic changes brought to their habitat from building cities. Urban adapters are those native species that adjust to and survive the development of human settlements in their natural habitat. Finally, urban exploiters are species that have adapted so well to living with

humans that they are found abundantly – sometimes even solely – in urban settlements.

Despite these heterogeneous responses, most species are limited in their response to drastic environmental change – and the construction of buildings and roads can severely limit their movement and means of dispersal. However, it is important to take into account the different categories when developing conservation strategies for different species: Urban avoiders are usually the group requiring the conservation of natural bushland and other specific and targeted conservation strategies. On the other hand, urban exploiters are often seen as plagues and pest species and require careful management to control their numbers.



An Urban Adapter ---the brush-tailed possum. Photograph John Hodgson



An Urban Exploiter ---the red fox





An Urban Avoider --The Owlet Nightjar. Photograph John Hodgson

### **A NEED FOR NATURE**

People need nature in their daily lives. Indeed, evidence from scientific studies has demonstrated that humans derive enjoyment from seeing, hearing and interacting with nature – and the presence of wildlife and flowering plants is known to strengthen the bonds of individuals to their local community: In this way, ‘green’ communities are more internally connected, they are healthier, they have a greater ‘sense of place’ and the children in these communities tend to spend more time outdoors and are more resilient. Therefore, increasing the nature content within communities is becoming the driving force behind planning, designing and even retrofitting urban communities worldwide. In addition to the wealth of psychological benefits to be had from contact with nature, there are many other advantages associated with the presence of vegetation in urban areas. For example, not only does vegetation diminish air and noise pollution, it can also help to stabilise soils, sequester carbon, facilitate evapotranspiration and provide protection from direct sunlight and from the wind. Moreover, vegetation is also an important source of food and shelter for animal communities, allowing for greater levels of biodiversity.

### **AN UNEASY RELATIONSHIP**

In spite of the deep-seated human need for nature, the destruction of natural landscapes through the expansion of cities challenges the maintenance and conservation of natural

places and processes. Unfortunately, this is amplified by the uneasy relationship between the value of urban wildlife and human perception of their value. Borne from a lack of understanding, the fear of animals can become deeply entrenched within families and communities and is difficult to remove. All too often, negative perceptions about wildlife lead to inappropriate or incorrect management actions that make the problems worse rather than better. However, it is vital to manage the human-wildlife relationship in a sensible, balanced way. Indeed, the strength of this relationship often determines the environmental quality of urban living spaces – and this is where new research and the development of action based organisations like Green Adelaide, play a role. Through organisations like Green Adelaide, we provide communities and city councils with knowledge about the importance of wildlife and biodiversity in urban areas, generating more positive and informed attitudes towards nature. Green Adelaide disseminates this work by educating communities about local wildlife through community radio programmes, podcasts, social media, running citizen science research projects and releasing books and fact sheets. Green Adelaide engages with

individuals and groups through supporting large and small scale on ground rehabilitation work, seminars, presentations, and workshops. In addition, Green Adelaide influences policy makers by working alongside state officials and members of the local and State government Departments to develop strategic wildlife and environmental management guidelines. Generally, these guidelines involve explaining how people can best live alongside wildlife: For instance, if a bothersome or dangerous species – such as snakes – are present, the focus should be on removing those things that attract their prey or provide hides rather than on removing the snakes themselves.

### **IMPROVING CONSERVATION**

Looking to the future, industrialisation, urbanisation and resource consumption will continue to drive change and present environmental challenges. Yet while change is normal and unstoppable, it is vital to address the human-induced processes that endanger ecosystems, threaten natural resources, generate waste and reduce the aesthetic and psychological benefits derived from nature. Continued work into urban ecosystems is vital in forging a deeper understanding of the natural processes in cities to improve conservation of wildlife and biodiversity in urban areas.

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# THE CONSERVATOR OF WATER

## John Love

During the SEG expedition to Munyaroo Conservation Reserve on Eyre Peninsula in 2005, we saw a large, derelict underground tank in an area of uncleared mallee with no houses or other buildings in sight. The tank is about nine metres in diameter with a stone wall 50 cm thick projecting above ground level. It has a corrugated iron roof sloping inwards like butterfly wings to catch rain. Beside it is a smaller tank about four metres square with a gable roof and gutters to catch rain. Land surface runoff during heavy rain was diverted along artificial channels into the smaller tank, or 'catchment pit', where silt could settle before the water flowed into the main tank. The nominal capacity was 57,800 gallons (about 263,000 litres). A windmill, no longer there, would have pumped water to a sheep trough nearby.

This tank was one of several hundred small water sources – tanks, dams, wells, bores and harnessed natural springs – in Eyre Peninsula and other low-rainfall areas. They were in areas surveyed for agricultural development in the late nineteenth and early twentieth centuries, and were intended to enable settlers to get on with establishing their farms without having

to spend a lot of time and money looking for water. They were offered for lease, the lessee being responsible for maintenance and entitled to charge other users at fixed rates per head for sheep, cattle, horses and camels.

These small engineering works were provided and administered by the Conservator of Water, J.W. Jones, who was paid a good salary and was held in high public esteem.

(Large reservoirs, such as Beetaloo and Barossa, were the responsibility of the Hydraulic Engineer. Both these departments were fore-runners of the Engineering and Water Supply Department.)

Jones was also responsible for water points along travelling stock routes. Two of these were located on Hiltaba, a former sheep station where SEG conducted a survey in 2013. They were called Punkey Plains Reservoir and Hiltaba Reservoir. These names appear on the Division of National Mapping 1:100,000 series, sheet 5933, Yartoo. They are earth dams, much bigger than other dams on Hiltaba. When their original purpose was no longer relevant, they became part of the station water system.



The underground tank on Munyaroo Conservation Reserve on Eyre Peninsula . The Author is shown inspecting the tank.



Punkey Plains Reservoir has the usual windmill, tank and trough, the latter surrounded by the usual pavement of local stone and cement. The pipe from mill to tank has interesting supports: water pipes as posts surmounted by short rods neatly welded forming a "V". Their purpose was to avoid air locks by preventing the pipe from sagging.

'Hiltaba Reservoir', now Brothers Dam, has no sign of mill or tank or trough and appears to be unfenced. However, the inlet from the settling pond to the main dam is a large diameter plastic pipe, so, in spite of its present appearance, it was in use comparatively recently.

A tank similar to the one near the Munyaroo Conservation Reserve was seen much further west during the SEG Nullarbor expedition of 2012. It is near the route of the telegraph line from Adelaide to Perth. In spite of many years of neglect, it still held water.

The tank near the Munyaroo Conservation Reserve was built in 1899 in what is now recognised as one of the driest parts of Eyre Peninsula, between Cowell and Whyalla. The land round it is not suitable for farming. The tank never really served its intended purpose as a centre of agricultural development and nobody wanted to lease it in spite of repeated advertisements in the South Australian Government Gazette. It is a testimony to one of the failures in the attempt to push the wheat belt out into marginal areas. Nevertheless, these water supplies, many of them serving only two or three farmers, were, in total, a major factor in the State's early rural development.

More information and suggestions for further reading may be found in the article on Water in the *Wakefield Companion to South Australian History* (Wakefield Press, 2001).

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The outlet from the smaller tank to the main tank.

**ADVANCE NOTICE Keep the date**

**Sunday 20th October 2024 Belair National Park**

**Combined SEG 40th Birthday Celebrations, AGM, BBQ Picnic and Talk**

# VULKATHUNHA-GAMMON RANGES DATA RECOVERY TRIP

## LEADER'S REPORT

### GARRY TRETHERWEY

**Dates:** 6-11/10/2023

**Participants:** Michelle & Garry Trethewey

**Itinerary:**

Vegetation Photopoints

Further document *Codonocarpus pyramidalis* life events.

Record any other interesting observations

**Description of the expedition:**

Predicting the creek to be dry, camping half way was not an option. Operation Flinders very kindly allowed us to stay at Owieandana overnight, so we had a whole day to get to our water cache, doing jobs along the way.

As well as describing, we are positively locating each Bellfruit tree. Previously we've found them by GPS, which is OK if they're 50 meters apart, but when there are several spaced 4 or 8 meters apart, closer than GPS reliability, and in surprisingly thick scrub with poor visibility, we've found that we have recorded the same tree twice in one day, finding it from different directions. In some cases, three trees have proved to be one. So we've instituted a laborious but workable system. 'From tree 57 go 20 meters NNW to tree 32', 'From tree 32 go 3 meters NE to tree 45'. After their initial rapid growth in ideal conditions, they've stopped growing, and most are starting to self prune their lower branches.

Day 2 was up the hill to do the bulk of the photopoints. Days 3 and 4 were more observations and tidying up of our tree positions. Arriving back at Owie late that afternoon, we stayed another night.

Large animals seen.

Canine (?) scat toward the plateau.

Eagle - nil, but some droppings under a tree on North Tusk..

Echidna - one, nil scat. That's interesting. Normally I collect around 10 poos for 'Echidna CSI' at Adelaide Uni.

Emus - nil but some scats.

Euros - five, all adults. Again interesting. Around Arkaroola I see mainly females with young at foot.

Goats - nil seen, one heard, some fresh (< a month or two) poos on rocky ridges. I note however, that from Mt Serle back to Copley there were lots of small groups of up to 10, plenty of babies.

Yellow Footed Rock Wallaby - nil animal or scat.

Ctenophorus modestus - 1 x male in colour, 1 x female or juvenile, on a hilltop 1km east of North Tusk.

Surface water distribution was unexpected. Seeps - even less than last trip, and probably less than we've ever seen. From memory, this was the first time I have been unable to find any visible water. One hole dug by animals, with only enough moisture to attract bees. Another spot with bees making their way under large pebbles, no water visible or available to macropods.

Woodcutter's Well - overflowing to form a pool 1 x 1.5 meters. I think this is more than we've seen before, and I wonder if it's because of increased supply, or lack of animals drinking.

Wild Ass Waterhole - dry and dusty.

SAMBOT - a metre or two deep, frogs, tadpoles, and I think *Nitella sonderi*, the unusual algae normally found much further south.

Lower SAMBOT was over 30cm deep, nearly 20 metres long, clear and drinkable.

Grandfield - dry.

**Water caches:** (how much in the cache and what quality?)

Grandfield Cache 100 / 140litres

Plateau @ 3m W of pluvio 19 / 20litres

garrytre@bigpond.com

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# IRENEPHARSUS PHASMATODES: A RARELY SEEN ENDEMIC ON KANGAROO ISLAND

**Beverly Overton**

*Irenepharsus phasmatodes*, Hewson: Cruciferaeae: This plant does not have a common name.

It was first recorded by JB Cleland in 1923, but was not formally described until 1982 by HJ Hewson.

It is a short lived early coloniser appearing only after fire.

*Irenepharsus phasmatodes* has been found in one geographical area on the island & is specific (endemic) to Kangaroo Island.

The plant grows amongst regenerating native vegetation following significant fires in the western portion of Flinders Chase NP (FCNP), Kangaroo Is.

Plants were found, between 27 September 1992 to 01 October 1993, growing on two different soil types. The soil leading down to fresh water streams is generally scattered surface sandstone over loamy-sand, whereas the soil of other populations is sand over limestone to sandy-loam over ridges of limestone. No plants were found in soils with lateritic influence (Overton, pers. obs. 1992-94).

Collections have been officially recorded in the Adelaide Botanic Gardens & State Herbarium, (AD) in 1923, 1958, 1971, 1992 & 1993. Interestingly, it was not until 9 December 1982, that Hewson formally described this plant & established its endemic nature.

## **Fires in Flinders Chase National Park affecting *I. phasmatodes* habitats**

### **1923**

The cause of the major fire of 9 April 1923 is not recorded. It is reported to have started near Ravine des Casoars and to have burnt 150 - 250 km<sup>2</sup> of FCNP. The original Cleland collection (type species) occurred 7 months later, from "near Rocky River homestead" so obviously the fire travelled in a southeasterly direction.

### **1958**

The fire of late January to early February 1958, burnt all of FCNP & considerable amounts of adjacent land, extending north up to de Mole River to within 2km of the Borda Road, southeast to the western boundary of Kelly Hill Caves. This massive fire, which started in West Bay resulted from "... spectacular lightning flashes ..." which were observed by a nearby resident who witnessed "the smoke go up", while driving home.

Three collectors - Jackson, Wilson and Eichler - made their discoveries months later, from Breakneck River. During this period, Eichler also collected specimens from West Bay.

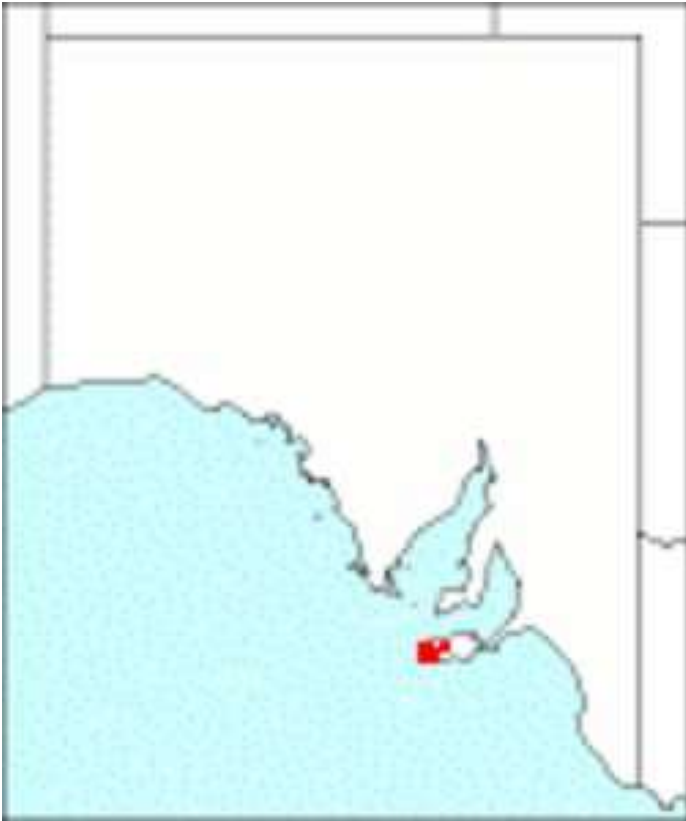
### **1970**

A major fire, between 16-18 April 1970, originated as part of burn-off operations reported to have burnt 66% of FCNP. The Jackson Collection was made 19 months post fire, from "...near West Bay ..." so obviously, the 1970 fire travelled west



*Irenepharsus phasmatodes*

**Published illustration:** Hewson (1982) J. Adelaide Bot. Gard. 6: fig. 1A, D, G.



Distribution map of *Irenepharsus phasmatodes*

towards West Bay. On examination of the collections at AD, by Overton (4 April 1995), the specimens proved to be biennial (plants showing 2nd year growth).

#### 1991

Lightning caused the fire of 19 October 1991, which originated on the immediate eastern boundary of Larikan Lagoon (Overton, pers. obs., February 1995). Re-ignition occurred several days later & burnt until 4 November 1991. Previous fire scars (1985 & 1990) & a huge effort by volunteers of the Country Fire Service and paid staff of National Parks & Wildlife Service, prevented the fire from burning the remaining southwestern portion of FCNP.

Collections of *I. phasmatodes* were made by Overton 11.5, 14, & 22.5 months post fire. The precise date and location of the Davies Collections is not known.

#### Field Observations Following '91 Fire

Hundreds of *I. phasmatodes* were found in bud & flower, between 27 September - 03 October 1992 in the immediate vicinity of the southeast decline of Breakneck River [SEG, KI 1993].

Lesser numbers were found on 6 November 1992, scattered along parts of the Rocky River Trail (nearest to Snake Lagoon) & near the northwestern decline of an internal Ravine des Casoars tributary. Many of these were fruiting. These sites were checked on 9 January 1993, but very few of the plants were seen. At the same time, several fruiting plants were tagged to ascertain annual or biennial status.

A concentrated search between 29 September - 1 October 1993, finally revealed 3 plants from the original

hundreds. These plants, found at the Breakneck River site, had 1 - 3 partly herbaceous stems. Each stem terminated with a small inflorescence on which had developed a few buds. Only on 3 of the stems were 1 - 3 white flowers open.

Field trips conducted on 26 - 27 September, 4 - 5 & 11 - 12 October 1994, eventually found plants tagged in January 1993 at the Rocky River Walking Trail site. All these were totally dry, with grey stems & were found laying on the ground (limestone) where they had fallen.

#### Conservation Status Rating

The conservation status rating of VULNERABLE should remain unchanged.

Many persons have assisted in various aspects of this self-funded research, which is part of an on-going post-fire ecology of individual species within various habitats on several soil types.

Grateful thanks are extended to the 1992 & 1993 SEG members [Expeditions KI 1992 & 1993]. Pleasant company & helpful field assistance has been donated by Dean Overton, Christopher & Justin Graham, Michelle Haby & Monika Jankofsky. Continued support & interest has been forthcoming from KI West NPSA staff.

Thank You All.



Photograph of flowers of *Irenepharsus phasmatodes* from Plants of South Australia

This article is reprinted from SEGments Volume 11 No. 1 dated June 1995. It is of interest because the recent bushfires on Kangaroo Island may have caused a regrowth of these elusive plants.

Editor



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