SEGMENTS

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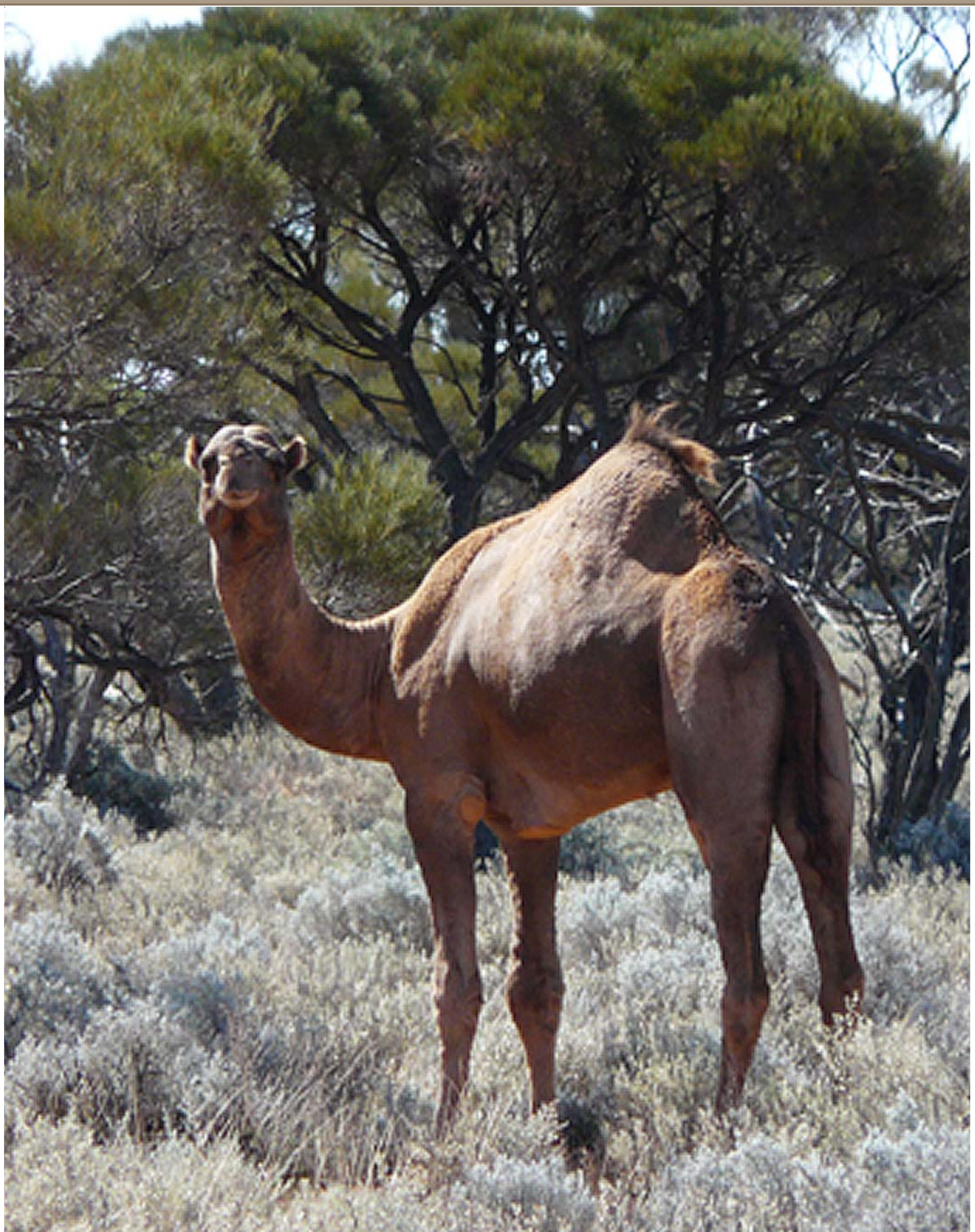

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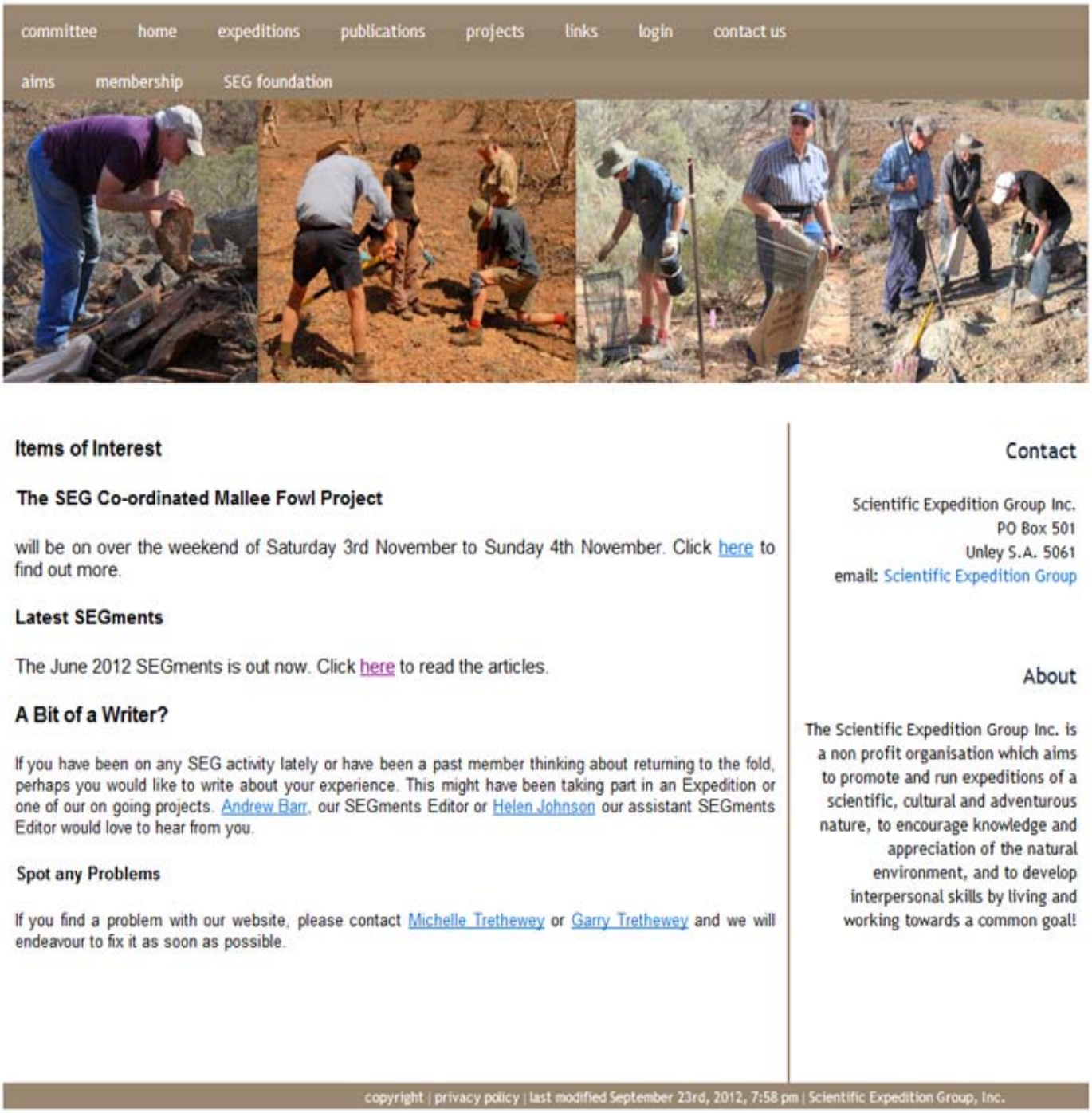

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SEGMENTS

Scientific Expedition Group Inc.

SEG Projects

Vulkathunha Gammon Ranges Scientific Project
Chris Wright

Minnawarra Biodiversity Project
Janet Furler

SEGments Editors
Andrew Barr
Helen Johnson

SEG Website
Michelle Trethewey
Garry Trethewey

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Cover Photograph: Feral camel on the Nullarbor by Jill Tugwell

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Contact:
Scientific Expedition Group INC.
SEG email: scientificexpeditiongroup@gmail.com

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

SEG Treasurer: Graeme Oats
Email: gdoats@bigpond.net.au

SEG Website: Http://www.communitywebs.org/ScientificExpeditionGroup/default.htm

Editorial

Writing an editorial is always a good opportunity to express some opinions that are relevant to this journal . I have been reading the "Australian Biodiversity Conservation Strategy 2010-2030" with interest as it will affect our children.

Ten national targets were outlined in the " Australian Biodiversity Conservation Strategy 2010-2030". The first target was; *by 2015 a 25% increase in public and private organisations who participate in conservation activities.*

The Scientific Expedition Group is a fine example of this as it has over the last 28 years played a significant role in biodiversity conservation. We should begin to actively enlist more young people into our organisation to ensure that we can continue to contribute to this increase in activity.

The final target was to *establish a national long term biodiversity monitoring and reporting system.*

Again the Scientific Expedition Group can demonstrate its involvement through the Vulkathunha Gammon Ranges Scientific project which has just celebrated it's 25th year and will continue to provide climatic rainfall data. Also, the Minnawarra Biodiversity project has just passed it's tenth year and will continue to report and monitor animals for the South Australian data base.

SEG also continues to take part in the National Mallee Fowl project annually. Recently some new monitoring projects are being considered by the SEG committee.

All these targets are achievable , and the next generation will adapt to a climate and environmental change. We still need to be reminded, as history should have taught us, that we are at the mercy of the climate. The challenging factors in this change will be our access to water and stable food supply. So as the climate slowly changes in Australia, our capacity to change our lifestyles to suit the environment is paramount. It is not too late to save the planet.

The Strategy report also stimulated me thinking more deeply about the whole Extinction and Evolution concept that I was writing about for my students. The Extinction and Evolution paradigm can be explained quite simply, that is, without a species becoming extinct evolution does not occur. Nature abhors a vacuum in the ecosystem.

These future teachers will be informing and influencing the younger generations about our Australian plants and animals and ecosystems. We should involve these students in a plan to explore and preserve our unique biodiversity.

Alun Thomas begins this edition with SEG'S AGM report for 2012. SEG has had another very successful year. The main speaker was Terry Krieg who presented his recollections of "Walking with Warren". Trent Porter also reported on the complicated but successful Nullarbor expedition.

The lead article is by Leah Feuerherdt and explores the important management of a very successful feral animal in the Australian environment (see cover).

Ray Sinclar-Wood has written another interesting historical article about Rover Rock Hole in the Gammon Ranges.

The next Malleefowl survey is on November 3rd, 4th weekend in the Bakara Conservation Park and Henry Short's Heritage area. (See advertisment on page 15). Henry has written an interesting article about the use of Stealth- Cams which allows a 24/7 monitoring of activity on certain malleefowl mounds for gathering data relating to activity of the birds and predators.

The final two articles covers the debate about the place of dingos in the ecosystem. Corey Bradshaw and Euan Ritchie have written about more pro-active and natural alternatives to the dingo fence. Danielle Stephens and Malcolm Kennedy explore the distribution of the pure dingo and the dingo-dog hybrids.

Contact Editor: **Andrew.barr@unisa.edu.au**

SEG's AGM report 2012

Alun Thomas

The year 2012 for SEG has been somewhat different than previous years because the major expedition for the year has been early in the year and when we are usually most frantic, about now, has been more relaxed and we are able to plan next year's projects.

This does not mean other facets of the SEG activities have been neglected, there has been activity on every front. GRaSP has expanded its number of pluviometers and is working to upgrade the recording equipment, the Minnawarra Biodiversity Project has continued and is modifying pitfalls, the major expedition to the Nullarbor was a resounding success and we have had a good malleefowl survey at Bakara and are looking forward to the next one.

Vulkathana-GRaSP

Chris and his team have continued to develop the Gammon Ranges rainfall project with taking over the management of a further pluviometer out in the country to the south of the ranges. He has been ably assisted by Michelle Trethewey and many others. Garry Trethewy has spent countless hours digitising all the photos taken at the photopoints over the last 20 years and they are now ready for someone to take up as a research project on vegetation changes in an arid environment. Big plans are afoot to upgrade data loggers. Chris Wright will be giving a short presentation on GRaSP this evening.

Minnawarra Biodiversity Project

Significant changes are occurring with this project with replacement of the original pitfall buckets which have been in the ground of many years with deeper and narrower pipes as the pitfall traps. This should result in better catches. Many of the small mammals could leap out of the old buckets. Some buckets will be left to assist with correlating old and new results. For some of the longer lived species we are also changing from ear marking to determine recapture rates to micro-chipping. This will be trialled at the next survey. Janet Furler will give a short presentation on the project.

Major Expedition

The major expedition this year has been to the Nullarbor Plain and was done in conjunction with the Department of Environment and Heritage or whatever their name is this week. I think that this has been the most logistically difficult expedition ever carried out by SEG with four separate moving camps but it went off very well. Trent Porter will give a brief report in a few minutes.

Planning is already under way for next year's project with several interesting sites being investigated. We also have the opportunity to look at another long term biodiversity monitoring project in the South East which will be a pleasant change from the desert projects we usually have. More details soon.

Malleefowl Monitoring

Malleefowl monitoring was undertaken in November last year as part of the national Malleefowl Monitoring Program. Malleefowl mounds are located and mapped within permanently marked grids, which are surveyed regularly to determine changes in breeding activity over time. Surveys have been carried out in the Murray Mallee and South East of South Australia since 1985. We monitor two sites, Bakara Conservation Park and the property of one of our members, Henry Short. Bakara is located 32 km East of Swan Reach on the Swan Reach to Loxton Road and was established to conserve the malleefowl habitat. After a few years of no bird or active nests being seen in the drought years we are now seeing active sites. It is very interesting to see the amount of earth moving that a malleefowl pair can do. A further monitoring will be done in early November this year. If you have not yet indicated your interest in this survey and you would like to be involved please register with Stuart Pillman.

SEGments

Andrew Barr and Helen Johnson have produced this year's editions of SEGments except for the September issue last year which I edited. The standard continues to improve.

SEG Website

Garry and Michelle Trethewey have redesigned the website in conjunction with a student from UniSA. Garry is working to include data from the GRaSP project live on the site. I encourage members to visit the site regularly to keep an eye on what is going on.

Committee

In my ninth year as Chairman there have been a number of changes to the committee.

The first thing to mention in relation to the committee is the death of our President Emeritus, Warren Bonython. More will be spoken about him later in this meeting. We will miss his wise counsel.

During this year Bruce Gotch and Michelle Trethewey have resigned, and Sarah Telfer, Helen Johnson and Chris Wright has been seconded to the committee. I was particularly disappointed to see Bruce and Michelle go because their valuable contributions to the running of SEG. They have continued to be of assistance in a number of ways and I am hopeful that they will continue to do so and that some time in the future they will rejoin the committee. Helen has taken on the task of assisting Andrew Barr in producing SEGments with great success. Sarah has ably taken over the job as secretary and is actually beginning to understand what goes on at committee meetings. We are delighted to have Chris Wright back on the committee. His enthusiasm for the Gammon Ranges project is infectious. I think if he spent all his time up there it would not be enough for him. Graham Hill has indicated that he will not be seeking re-election. Graham has made a valuable contribution to camping standards particularly on the major expeditions and I am sorry to see him leave the committee.

Summary

The future for SEG looks very bright with a number of new avenues opening up for further exciting activities. We are close to deciding the site for next year's major expedition. Unfortunately it is too early to start talking about this and other opportunities but the committee will keep members informed of developments.

CONTACT : Alun Thomas, SEG Chairman

Email: **athomas@bigpond.net.au**

Reader Feedback by Helen Johnson

Following SEG's major expeditions and smaller monitoring surveys the editors of SEGments often receive written contributions from volunteers and or students describing their experiences and what they have learned. The standard of these contributions is often very high, especially considering some of these contributors are very young, or are first-time writers.

I would like to introduce a new segment to SEG's journal called "Reader Feedback" as an encouragement to our volunteers and students for their written contributions.

Following the June edition of SEGments I received feedback from two readers praising the "Notes from the Nullarbor" article written by Max Barr. Both readers are well versed in English, one being a teacher of English and the other an editor. Both readers particularly liked the style of Max's writing and the wonderful description he gave of his Nullarbor experiences.

I would like to add my own comments. Max's article transports us to the Nullarbor with all the delights and challenges it throws up and he has skilfully included details about other team members' activities and sightings, besides his own. Well done Max!

Readers feedback can be made via Email to Helen Johnson, **kdolphin@internode.on.net**, or in writing to: SEG Secretary, PO Box 501, Unley SA 5061

Australia's Feral Camels: Amazingly adept arid animals

Leah Feuerherdt

Figure 1: Feral Camels on the road between Umuwa and Amata, APY lands, November 2011. Photo: Leah Feuerherdt.

Those of you that were involved in the recent Nullarbor expedition may have seen a live feral camel (*Camelus dromedarius*) or two, and certainly would have seen evidence of them in the Nullarbor region. Feral camels can be found across most of central and western Australia in SA, NT, WA and western Qld (figure 2). Have you ever wondered why they thrive in such hostile environments?

Camels in Australia are an excellent example of a non-indigenous species perfectly suited to Australia's arid environment. The camel's diet, physical adaptations and lack of predators in Australia mean that there are estimated to be over one million feral camels in Australia with the South Australian feral camel population estimated to be approximately 180,000 (Saalfeld and Edwards 2010).

I've been working with feral camels for several years and have learnt a lot about them; they truly are fascinating creatures and I want to share some of their story with you.

Camels have been in Australia almost as long as European settlers. Thousands of camels were imported into Australia between 1840 and 1907 to open up the arid areas of central and western Australia. Camels provided the mobility and endurance needed for moving large quantities of supplies and people and were used to build the railway lines, rabbit proof fence and the Overland Telegraph Line. When the motor car became widely available, many working camels were released into the bush and have become today's feral camels. In less than 100 years, the feral camel population has increased from 5,000-10,000 to more than one million largely due to their incredible physical advantages.

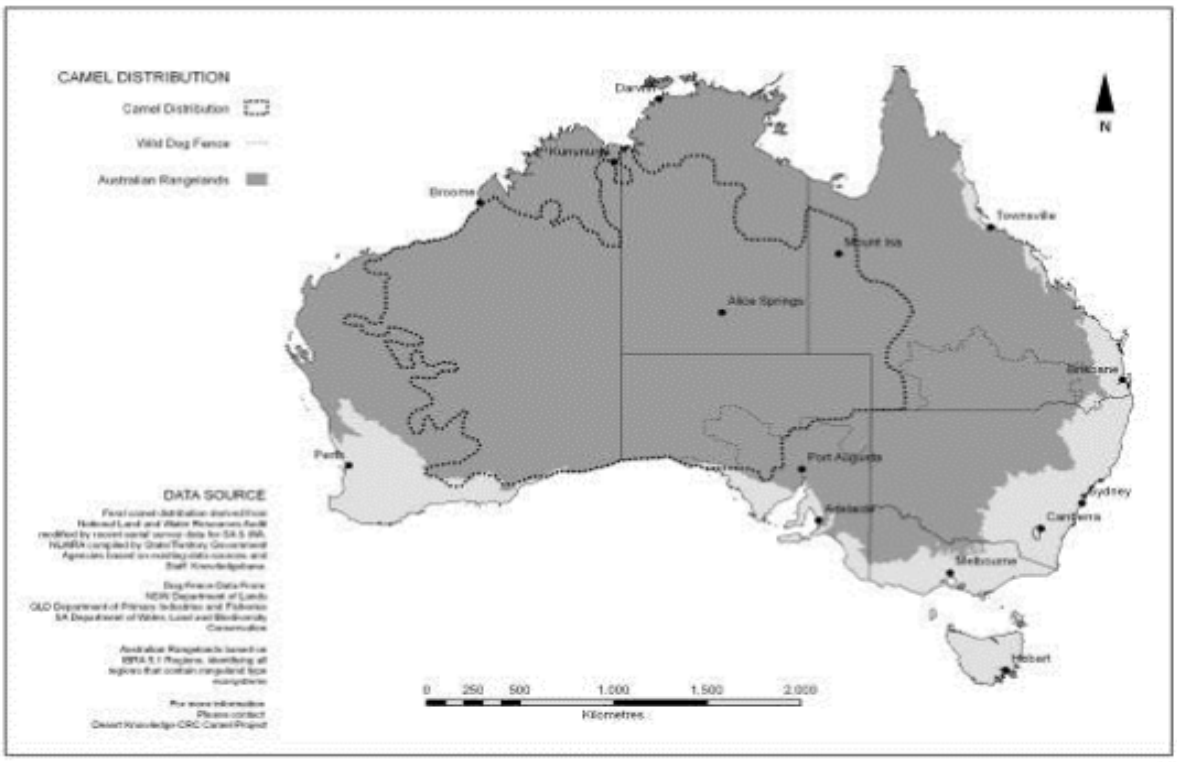

Figure 2: Feral camel distribution in Australia (2008). National Feral Camel Action Plan

Advantage 1: Diet

Camels can eat a wide range of vegetation. Camels are primarily browsers and eat from trees, shrubs, bushes and small plants (like herbs and forbs). However, they will also graze on grasses if the feed is green and succulent, e.g. after a fire. Given a choice, camels will select the most nutritious and digestible parts of plants to get high quality nutrition. They will move between plants taking several bites from one before moving to next. They will move rapidly when feeding to cover a lot of ground, and can travel 15-18 km a day to feed. Camels can spend up to 8 hours during daylight actively feeding. One camel eats 2.5% of its body weight in dry matter a day, which equates to;

· Average size camel (~360kg) needs ~9kg of dry matter a day

· A 500kg camel needs ~12.5kg of dry matter a day

Advantage 2: Physiological adaptations

Camels also have physiological adaptations for diet that help them survive in our arid interior. They have a split top lip that allows them to select and grasp feed from the prickliest trees and plants. The camel mouth has an amazing leathery lining that lets them eat thorny plants without injury. Camels can also get a lot of water out of the plants they eat (such as juicy saltbushes). Camels eat from bushes and trees which are able to access waters deeper in the soil (unlike grasses which dry out quickly). However, if camels don't get necessary water from their diet, a thirsty adult camel can drink 100 litres of water in a few minutes. Imagine the impact this would have on scarce water resources in times of drought.

Camels also need 40-140g of salt a day depending on how hot it is. They get this amount of salt from eating salty plants and drinking salty water. Camels have special kidneys which means they can eat salty plants that would be poisonous to other animals.

Cartoon courtesy Rural Solutions SA, cartoon artist George Aldridge.

Camels have the ability to cause the local extinction of highly preferred species like the quandong (*Santalum acuminatum*). Cartoon courtesy Rural Solutions SA, cartoon artist George Aldridge.

Advantage 3: Physical structure

As well as making the most from food and water, the actual structure of the camel is extremely well designed to withstand hot environments. All camels have the following attributes that help them stay cool:

- They are large animals that warm up slowly
- Their long legs keep the body high off hot ground and allow breeze flow underneath
- The fat in the hump on their back insulates organs from the overhead sun, and their wool insulates them from heat
- They have heat resistant calluses on feet, knees, elbows and chest pad (pedestal) which reduce heat absorbed from the ground when standing or sitting
- They have a special nose –'nasal rete' that acts like an evaporative cooler to stop the blood in their brain from overheating
- Their bodies are able to deal with changes in blood temperature from 34 °C to 42°C

All of these amazing characteristics mean that camels are thriving in Australia. In Australia the only real predators of camels are wild dogs which attack newborn camel calves, snakes and humans. In additions, camels can live in the wild for as long as 40–50 years and breed actively from 3–4 years old.

Unfortunately, the large numbers of feral camels are having significant negative impacts on environmental, social and cultural values. Negative impacts of feral camels include:

- Damage to vegetation through feeding behaviour and trampling
- Suppression of recruitment in some plant species damage to wetlands through fouling, trampling, and sedimentation
- Competition with native animals for food and shelter
- Damage to sites, such as waterholes, that have cultural significance to Aboriginal people
- Destruction of Aboriginal bush tucker resources
- Causing dangerous driving conditions

The impact of feral camels on native plants and drinkable water is most pronounced during drought, when areas close to remote waterholes become refuges that are critical to the survival of a range of native animals and plants. Feral camels can quickly degrade these areas during a drought to the point where they may no longer provide any refuge for native plants and animals.

A substantial reduction in feral camel numbers is required to prevent and reduce severe impacts on rangelands biodiversity, Aboriginal cultural sites, pastoral production, community and rural infrastructure, and scarce water resources.

Feral camels can be managed by:

Keeping them out of high value areas (e.g. waterholes) using fences and/or 'spiders' (a structure that allows the camel to drink from a waterhole but not physically enter it)

- Using traps or mustering to catch them and sell them to a buyer (abattoir or other)
- Culling them via ground or aerial shooting

In 2009, the Commonwealth government committed $19 million (over four years 2009/10 – 2012/13) to reduce feral camel impacts through the Caring for our Country Australian Feral Camel Management Project (AFCMP). In SA, project partners include Primary Industries and Regions SA (PIRSA), the Department of Environment, Water and Natural Resources (DEWNR), the SA Arid Lands (SAAL) NRM Board, the Alinytjara Wilurara (AW) NRM Board, the Anangu Pitjantjatjara Yankunytjatjara Lands (APY) Lands Executive and Flinders University.

I work for Rural Solutions SA (RSSA) pest management team and we have been delivering components of the State Feral Camel Management Project, including:

- Aerial surveys in Simpson and Great Victoria Desert regions
- Collaring camels with satellite tracking devices to learn more about their movements,

Figure 3: Collared camel (at top of picture) in Great Victoria Desert. Photo: John Pitt.

· Indigenous engagement and training to assist remote Aboriginal communities manage camels on their lands

· Development of a Best Practice Camel Management Book which describes national standards for feral camel management. A copy of the book can be downloaded from the RSSA website:

Managing feral camels is as complex as the animals themselves. Their ability to thrive across a large area of our continent means that you will likely see feral camels on future desert expeditions for a few years yet.

References

Saalfeld, W. & Edwards, G. (2010) Distribution and abundance of the feral camel (*Camelus dromedarius*) in Australia. *The Rangeland Journal*, 32, pp. 1-9.

http://www.ruralsolutions.sa.gov.au/publications.

Email contact: **feuerherdt@hotmail.com**
Leah Feuerherdt
State Feral Camel Management Project

Rover Rock Hole

Ray Sinclair - Wood

Figure 1: Rover Rock Hole from its western side. Photograph © Ray Sinclair-Wood

For many decades hikers have regarded Rover Rock Hole, usually known to them more simply as Rover , as the centre of the Gammon Ranges, even as the very heart of them, and a must-visit destination on any lengthy Gammons hike (figure 1). Long-time Gammons hiker Peter Wyld shown in 2008 on the top shelf on his fortieth and final hike there. The bottom shelf is below him, and the bottom of the waterfall is out of sight below that. The Rock Hole itself is on this top shelf just out of sight to the left.

Rover Rock Hole was named in August 1954 by Johnny Alpers, Jim Bullock, Ian Gray, Rob Neill, Brian Wall, and Kim Young of the St Peters College Rover Crew. Rovers were the branch of the then Boy Scout Movement for young men aged between 18 and 24. The name of the Rock Hole is a tribute to the many Rover Scouts and Senior Scouts—the branch then for boys aged between 15 and 18 who had been involved so much in opening up the Gammons for hikers from 1947 on.

Another tribute to Scouts is Bunyip Cranny, named in 1952 by Bill Melbourne and Bob Sexton, 1st Linden Senior Scouts. They named it after their Scout Group's mascot, the Bunyip. It's only coincidental that the Bunyip is fitting company for the legendary Gammons monster, the Adnyamathanha serpent Arkuru, and for the Loch Ness monster that the McLachlan family named Loch Ness Well after, having the Arkuru in mind. Loch Ness Well is down the Balcanoona Creek from Bunyip Cranny.

The Italowie South Branch divides west into Terraces and east into Rockhole Creeks at GR 181 280. (All Grid References are to the *Illinawortina* 1:50,000 Topographic map.) The Rock Hole is around one km up Rockhole Creek. About three km further up the creek is the top of the Blue Range, one km east from Prow Point, which is its southmost point. Prow Point was named by Warren Bonython in the late 1940s.

Prow Point is interesting in that water flows from it into all the three major divisions of the Gammon Ranges: Mainwater Pound to its north; Arcoona Creek in the South-Western Gammons; and the Italowie South Branch in the South-Eastern Gammons.

The Blue Range dominates, and divides the entire Gammon Ranges from west to east without a break. Older names for it, the Gammon Divide and the Benbonyathe Divide, indicate this. Its present name was given to it by Sir Douglas Mawson. Benbonyathe Hill (1064 m) is its highest point towards its eastern end, and also the highest point in the Northern Flinders. Arcoona Bluff (953 m) is the high point near its western end.

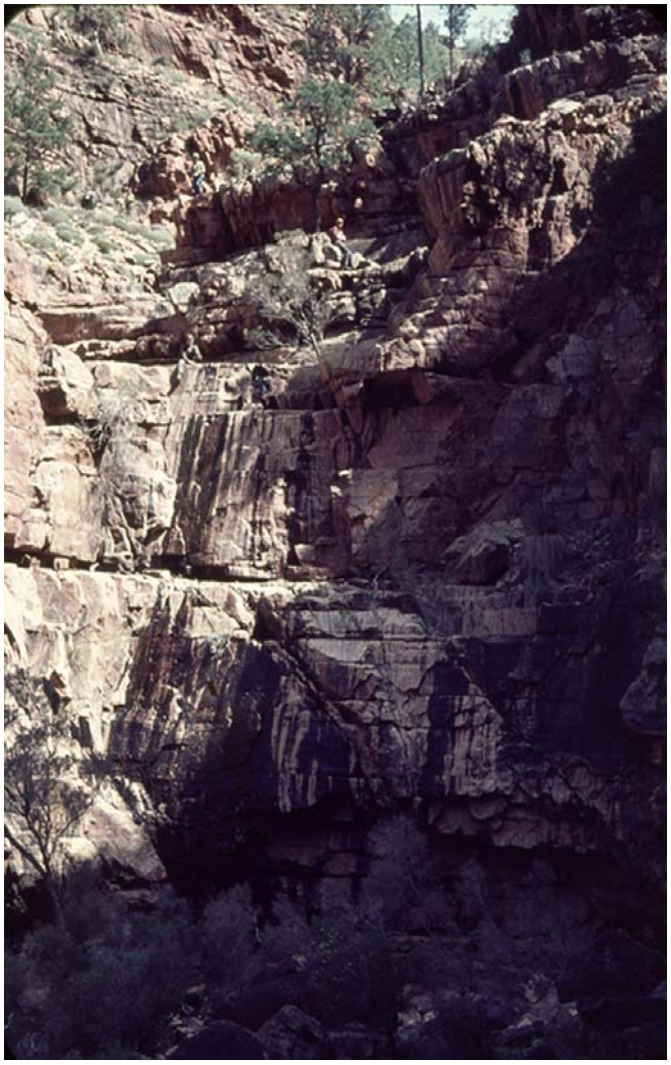

Figure 2: The three-tier waterfall at Rover Rock Hole showing the two shelves. Photograph 10th September, 1963, © Ray Sinclair-Wood

Hikers wishing to make a complete east-west crossing of the Gammons can't do better than to ascend the Blue Range from the entrance to Mainwater Pound, traverse its top all the way along to Arcoona Bluff, and descend to the Mt Serle-Umberatana Road.The creeks running off the Blue Range often have water in them from the apparently higher than average rainfall compared with the surrounding country, caused by its height. But although there are a few somewhat reliable waterholes south of the Blue Range such as SAMBot; Junction; Rover; The Old Man of Italowie (GR 204 302) in the Italowie North Branch; Cliff Camp in the lower Messy Waterfalls Creek (GR 205 309 bottom to 212 311 top) above The Old Man; and Bunyip Cranny (GR 224 310—'Cranny', *not* 'Chasm'); none is completely reliable, including Rover.

The most reliable of those is Junction, despite its being so exposed to the sun. That list is only of waterholes, and doesn't include springs such as Dichondra (GR 237 319), nor waters north of the Blue Range, nor further south. Autumn is generally a better bet than Spring for finding water in the Gammons.

However, fifty years of experience hiking in the Gammons almost annually throughout, has led to an 'Us' Hikers' mantra: 'In the Gammons, water is where you find it', meaning that mobile and canny hikers prepared to scout around rapidly are likely to find water in all kinds of unexpected places, including by digging for it. For example, I remember once constructing a long straw from two sheets of foolscap paper to reach an otherwise unreachable tiny pool hidden well under the base of a big rock. And 'Us' hikers found the tiny Scout Spring (GR 202 298) in May 1982 from a frog's croaking—you sometimes need to dig under rocks to get at it.

Hikers often stay at Rover Rock Hole for a day, or three, since there are so many fascinating day hikes around it (figure 2). Hikers usually climb up the left-hand side. The Rock Hole itself is at the left-hand end of the top shelf with the hiker sitting left of its centre. Day hikes from Rover Rock Hole include; up Fern Chasm; to Prow Point and Lunch Hill (GR 170 308); over the Blue Range from Rockhole Creek into Long Creek (GR 195 348 bottom to GR 176 307 top) and its beautiful Elbow Gorge; to climb Cleft Peak; and to climb Centre Hill via Four Winds Saddle (GR 156 288) at the top of Terraces Creek.

You get from Rover to Fern Chasm's entrance either by hiking down Rockhole Creek to its junction with Terraces Creek, and then up Terraces Creek; or you climb directly over the spur between Rover and Fern. Either route takes about the same time.

In the early decades of hiking in the Gammons, one of the most popular hikes was from Italowie Gap either directly up to Rover in a single day, or in two by stopping overnight at Mt McKinlay Springs. Hikers carried a gallon (4½ litres) of water each in case the Rover proved dry. They'd then base camp at Rover, and tackle some of those day hikes that I've listed above. If the Rover *was* dry, they'd exit in a single day the same way out that they'd come in, when their water ran out. Sometimes a side trip on the way in or out was to climb Mt McKinlay Bluff.

Rover Rock Hole is part of a three-tier waterfall (figure 2), athough it's also used as a name for the general area around the fall. Water is never certain there, and if there is any it may be in rock pools at the top of the fall, and/or at the bottom, and/or in the Rock Hole itself. You're sometimes told that the Rock Hole is at the top of the waterfall, and less often at the bottom. But it seems that the actual Rock Hole is at the western end of the second shelf up. In Figure 1 it's just hidden from view on the left. However, I've never checked on this with any of the six Rovers who named it.

You may find small pools of water in the stretch of Rockhole Creek from below the waterfall to the junction with the South Branch and Terraces Creek, but more rarely below that. That section of Rockhole Creek, and the South Branch below it down to the junction with Western Gorge (GR 183 266), was named Arkaroo Canyon by Linden Park Rovers Peter 'Pedro' Bateman, Keith Fizelle, Jack Melbourne, and Peter Shaw, on 25th August 1947. But it's a name that I haven't heard used since the early 1970s.

It's fairly easy to scramble up the waterfall's western side to the top (the left-hand side in Figure 2), but there *is* a usually cairned track up on the gorge's western side that starts at the bend below the fall. You can't depend on this since some hikers scorn marking trails with small cairns, and are therefore likely to kick them away.

Up to 1970 hikers left notes in a tin in a cairn on a big rock below the waterfall. This was replaced with a *Log Book* by Grahame Ford and Colin Harris, ex-members of the Beaumont Rover Crew, who pasted the earlier notes in it. In 2007 Colin told me that '…it was only Grahame Ford & I who carried it in [in] August 1970. We didn't have a lot of time and had some vehicle problems en-route (broke a rear axle half shaft near Parachilna) so other than a walk up to Prow Point we didn't do much more than get the log book installed'.

The idea for the *Log* was Rob Marshall's. He was the founder and then the first Rover Leader of the Beaumont Rover Crew, and in 1999 founded the South Australian Walking Trails Support Group in which he's still very active. The leather-bound book was provided by James Swanson, a member of the Crew. At the time the book itself was over a hundred years old. He told me in 2007 that the first few pages contained something like the minutes of a church committee in a nineteenth century script, but that they seemed of no historical value, so they were excised. This is why pages 2 to 17 are missing.

And on an 'Us' Hikers' hike Peter Wyld brought the *Log* out of the Gammons because it was falling apart—he wrote a final entry in it for 11th May, 1998, 'We found this log book very wet and just a pile of loose pages'. He deposited it in the State Library of South Australia on 8th October, 1998, where it has been catalogued under D7431 (L), and microfilmed, film which is available on open access. Colin Harris says that, 'It represents a fascinating insight into the activities and attitudes of almost half a century of walkers in the Gammon Ranges and would repay a detailed analysis'.

This first volume of the *Log* was especially valuable during those early years in the Gammons in that hikers entered in it notes about different places to hike to, and where waters were to be found. For example, on a scrap of paper now glued into the *Log* is the brief note, 'ABW 19/4/65 Water above Fall'. And in an exceedingly dry year, on 20th May 1982 when the Rover was entirely dry, I drew a mud-map in the *Log* showing how to get to The Old Man of Italowie, where there *was* water at that time. John Bojczuk in a party following mine later wrote to me saying, 'Thank you for your map in the Rover Rock Hole Log Book showing the location of usable water in the "Old Man" creek. It saved us on our third day from returning to the car many days earlier than planned because of drier than anticipated conditions'.

The historical value of the *Log* is evidenced by such entries as one by P.P. Krantz, R.M. Adamson, J.R. Graham, R.C. Wight, J.W. Hudson, and J.W.M. Lawton, stating, 'Camped here 17th–18th August, 1961 en route from Loch Ness well to Mt McKinley [*sic*] Bluff via Bunyip Cranny, Mt John Roberts, Cleft Peak.' And alongside it is a later note, 'These people helped found Adelaide University Mountain Club in the same year (1961). Ron Harris [19]72'. AUMC's inaugural walk was on 26th November 1961, only three months later. Their first Gammons hike after their founding was in August 1968, according to their website.

A second volume of the Rover Rock Hole *Log* was donated by 'Us' Hikers through Peter Wyld, and carried in to Rover by Bob Buckerfield, Brian Geue, and Peter on 26th August, 1999.

The Rover Rock Hole *Log* was the only one in the Gammons until the end of the 1970s, after which a number of other log books started to appear all through the Ranges, placed there by other hikers. There were even two books on Cleft Peak at one time.

I have two especially memorable experiences of Rover.

One was in May 1972, when Peter Wyld and I did a nine-day hike around the Gammons. We'd come up Long Creek from Mainwater Pound fairly late, and from the top of the Blue Range had hiked down Rockhole Creek by starlight. There was no moon, but fortunately no clouds either.

Now we'd never met anyone else in the Gammons before, despite hiking there frequently from 1960 on. So when we came to the top of the waterfall at Rover, we were surprised to see four or five Adelaide University Mountain Club hikers camped at the bottom. We immediately climbed down the waterfall's eastern face, rather than down the more usual western side, and dropped right into the middle of their camp.

They thought that we were lunatics for both hiking in the Gammons and climbing down the cliff by starlight with our rucksacks. In fact, few hikers seem to know that your eyesight in the absence of any other light continues to improve for around two hours, and you end up seeing quite well. Hikers who use torches around their camp, don't appreciate this. What you lose hiking by starlight is your depth perception, and what looks like a ten centimetre drop the other side of a rock may in fact be all of a metre. You simply have to test every step as you go, that's all.

The second memorable experience was on a ten day Gammons hike in August–September 1973 with eight 'Us' hikers when the Gammons were incredibly waterlogged. Again we came down Rockhole Creek at night time, but the rocks were so slippery from the rain that we camped one kilometer above Rover. The Creek was so full that it was too wet for us to find anywhere to lie down and sleep. Peter Wyld and I then continued to the top of the waterfall and found that the water was thundering over it, not just falling straight down, but shooting out some way into space. The rock face was entirely under water so that there was nowhere to climb directly down it. The noise was tremendous.

In order to get past Rover, the next day we climbed up on to the Cleft Peak Spur in howling wind and torrential rain. The wind was so fierce that Peter had a rucksack shoulder strap tear apart, his pack blow off, and his maps vanish instantly on the wind. We were sinking into mud up to our ankles, and sometimes deeper. It reminded us very much of hiking in Tasmania.

On that same hike we watched the waterfall at the top of Scree Creek on the north side of McKinlay Bluff. It was shooting a long way out into space as if from a fire hose, smashing into a big eucalypt, gradually tearing whole boughs off it, and demolishing it.

Contact: Ray Sinclair-Wood
PO Box 188
Quorn SA 5433

Figure 3: Top of Rover Rock Hole waterfall. Photograph by Raymond Hickman

Remote Malleefowl Monitoring

Henry Short

Figure 1:Mound built up in preparation for a cold night

An article in a previous edition of SEGments (December 2011) about the Malleefowl monitoring on Bakara Conservation Park and on my farm, convinced me to provide an illustrated report on observations derived using a" StealthCam" motion activated camera, set-up on the active mound in my gridded area.

The unit on loan from the Murray Mallee Local Action Planning Group has shown the attention given to the mound by the birds to hopefully produce some offspring. The camera was installed on 15th December 2011, and apart from a few problems with setting up , has recorded up until 3rd May 2012, by which time the birds had cleaned out the mound ready for next season. The card was removed from the camera each week and downloaded to the computer for examination. Generally about 250 to 300 photos each time. The birds would be attending the mound nearly every day.

The mound would be built up each night (figure 1). Sometimes it would stay like this for several days, but then in the warm weather it would be pulled down and opened to collect heat from the sun before being built up again for the night. Figure 2 shows a typical stage in building up the mound: after either laying another egg; checking the temperature; or just building up for the night.

Figure 2: A typical stage in mound building.

In view of the extent of digging it is likely another egg was being laid (figure 3). When the mound was dug out to this depth it appeared to be for egg laying. Later in the incubation period a much smaller hole was dug. On those occasions it seemed more likely that the temperature in the egg chamber was being tested.

Figure 3: Mound dug out, probably for egg laying

The kind of display shown in Figure 4 was seen a few times. Maybe it was to warn off an unwanted visitor or perhaps was just an amorous morning greeting ?

Figure 4: Birds displaying possibly for greeting or warning

Working over-time to build up the mound for the night (figure 5). This was daylight savings time. Visits by a fox were usually in the early hours of the morning. The camera caught several visits around midnight, but it is not possible to say how much time they spent in the vicinity of the mound.

A view of the birds checking the temperature down near the egg chamber (figure 6). Those deep holes were filled as soon as possible. I once arrived at the site to find the mound opened up like this photo. The birds were moving about and looking most agitated. I had my hand held

Figure 5: Working hard to build up mound for the night.

camera out and stood very still while the first one bird came up onto the mound and began filling the hole. The second bird nervously joined in. I have about five minutes of close up movie of the birds working the mound.

Figure 6: Mound opened up

Figure 7 shows the beginning of the end - digging out the mound and discarding unhatched eggs . Note the two eggs in front of the bird in the hole. That bird must be vulnerable to attack by foxes, presumably the bird near the top of the excavated soil kept watch.

Examination of the mound when removing the camera showed the remains of decomposed organic matter which came from below the egg chamber. It was being removed in hard lumps, unlike the soil in the chamber. This material would have been brought into the mound during winter and provided the source of heat for incubation.

Figure 7: Digging out unhatched eggs

Prior to these last few days the crows rarely visited and were not welcome, yet in this view seen in figure 8 a crow is close to the bird.

Figure 8: Rare picture of crows removing old eggs

Unfortunately one suspects the foxes may have been about frequently when the eggs were hatching (figure 9).

Figure 9: Rare picture of fox which visited both day and night.

Photographs by Stealth CAM

Contact email: hdshort@bigpond.net.au

Volunteers wanted for the SEG annual Malleefowl survey 2012

Saturday 3rd November to Sunday 4th November .

Where: Camp at Henry Short's farm approx 30km east of Swan Reach

(map will be sent to those responding).

Arrive at site Friday afternoon or evening and camp overnight so that an early start (08:30 am) can be made on Saturday morning. I plan to arrive about 6:00 pm on Friday. If you can't arrive Friday night, please arrive very early Saturday morning so that you don't get left behind. Training will take place early Saturday morning. Make your own travel arrangements. 4WD vehicle is not necessary but the last 15 km is a dirt/gravel road. If anyone requires transport, send me an email and I will try to arrange something.

CONTACT: Stuart Pillman
Home (08) 83901789
Mob. 0468490855
EMAIL: aspillman@netspace.net.au

Can Australia Afford the Dingo Fence?

Corey Bradshaw and Euan Ritchie

Figure 1: Dingo fence

It is probably surprising to most Australians that introduced species (and the mismanagement thereof) in this country have devastated many elements of our native ecosystems. With over 20 million pigs, 18 million cats, 7 million foxes, 2 million goats, 1 million camels, 300,000 swamp buffalo, 200,000 deer (from six species) and millions of rabbits, our native biodiversity has suffered immensely. Indeed, Australia has the worst record for mammal extinctions in the world, mainly due to foxes and cats.

Furthermore, pigs, camels, buffalo and goats have heavily damaged millions of square kilometres of outback Australia. Even in northern Australia, where deforestation has been relatively light compared to the south, native animals are on the decline in part from introduced species. And guess what? We are no closer to controlling them now than anytime in our past.

So why do we invest billions of dollars in feral animal control and the subsequent recovery plans for endangered wildlife using the same techniques for decades, when a more proactive and natural alternative exists? It's a solution mired in controversy because it involves yet another "introduced" predator – the dingo. The dingo has long evoked fear and loathing in the hearts of Australians. Ever since we learnt that it was introduced around 4000 years ago by Southeast Asian visitors to our northern shores, we have developed an irrational opinion that this sheep-killing, baby-stealing, thylacine- and devil-displacing feral from Asia is a menace that should be eradicated at all costs.

But when you look at the evidence, you are compelled to question that image. Despite some high-profile incidences of attacks on humans, they are perhaps one of the least-dangerous species to humans in Australia. The entirely coincidental disappearance of thylacines (Tasmanian tigers) and devils from mainland Australia when the dingo appeared also ignores that the climate was changing and Aboriginal populations began booming at the same time.

So, what did we do? We built a fence, of course! Over 5500 km long and possibly the world's longest human-built structure, the dingo fence is a monument to predator xenophobia. Its role is controversial, because while it certainly has prevented an influx of a large number of dingoes into southern and eastern Australia, it has also seen a proliferation of competing native (kangaroos) and non-native (rabbits) herbivores where dingoes are absent or in low abundance.

While the roughly $10 million it costs each year to maintain the fence is lower than the cited $48 million per year pastoralists claim to lose to "wild dogs", these costs don't include the labour-intensive and expensive additional poisoning that accompanies the fencing. And poisoning is not the answer either. In addition to killing non-target native species, baiting dingoes might in fact result in increased dingo densities due to social breakdown of the pack, resulting in increasing attacks on stock, not to mention a higher likelihood of hybridisation with feral dogs. Baiting also leads to more juvenile dingoes. These less-efficient predators tend to target calves more than adult dingoes do.

And of course the "costs" also don't include the unquantifiable costs to our biodiversity. How many millions per year do we spend on native species recovery, and how many billions are lost from depleted ecosystem services?

There's also the issue of the fence's effectiveness – today dingoes are penetrating farther and farther south due to camel damage to the fence itself, and other weaker areas where dingoes can penetrate.

It turns out that the dingo is in fact a sorely under-utilised weapon in our feral-animal arsenal. Pretty much everywhere we've looked across Australia, when dingoes are abundant, foxes and cats aren't, and native marsupials are. It's called the "mesopredator" effect, and highlights the important role of predators in maintaining healthy ecosystems.

There are other advantages to dingoes that might not seem obvious. Dingoes reduce herbivore densities and this can reduce the effects of climate change-induced drought by increasing available plant cover. Dingoes can also benefit graziers by providing more vegetation to produce stronger, healthier cattle that can resist attack (indeed, dingoes prefer more passive prey such as kangaroos).

Unfortunately, most pest management in Australia lacks an integrated approach. We remove foxes, and cats increase; we remove cats, and rabbits increase. We remove dingoes, and we have more herbivore competition problems. This inefficient hopping from one single-species crisis to the next is, we argue, a waste of money and time. It lacks a long-term vision.

We need to recognise that species interact along complex pathways, and so the entire system should be managed as a whole (indeed, integrated pest management is advocated in many areas by our own government biosecurity experts). Worldwide, the release of mesopredators after the persecution of higher-order predators is now demonstrating many adverse consequences for biodiversity and economics, from sharks, rays and scallops in the Gulf of Mexico, from lynx, foxes and hares in Finland, from coyotes, cats and birds in America, to our own dingo-cat-fox-marsupial problem.

So with too many herbivores, too many mesopredator foxes and cats, and costly management, why don't we let the dingoes do the work for us? If we focus on ecological function, then dubious labels of good/bad or native/feral become irrelevant. The loss of mainland predators such as devils, thylacines and marsupial lions means that the dingo is our one last hope to restore some ecological balance to our country's highly disrupted ecosystem. Indeed, the solution is readily available and staring us in the face, if only we had the courage to employ it.

It is interesting that the Weekly Times held a poll asking readers to vote "yes" or "no" to the reintroduction of devils and dingoes to manage pest species; just before the poll closed, nearly 80 % had said "yes". Clearly, sectors of the Australian community are receptive, including many pastoralists.

Of course, stock losses will always remain a concern, because sheep and dingoes will never co-exist in harmony. However, advances in trialling guardian dogs show immense promise in this regard, even for remote and large stock populations. Indeed, guardian dogs have even been successful in Namibia to protect stock from leopards.

We should shift our investment in pest control: let's help graziers trial new and more effective solutions. The process will be slow and guarded, but we should be focussing on long-term solutions, instead of costly, questionably effective and ecologically myopic single-species interventions. In light of these arguments, each Australian should ask the question: is the dingo fence worth it?

***Author's note*:** The opinions are ours alone, and not that of our respective universities, schools, institutes or even Biosecurity SA. Biosecurity SA is responsible for, *inter alia*, the dingo fence in South Australia. Although our opinions differ on its role, we are deeply impressed, grateful and supportive of their work in defending us from biological problems.

This is an extract of an article published by Professor Bradshaw in his blog entitled ConservationBytes.com 18/5/2012. (with premission)

The Distribution of Pure Dingoes and Dingo-dog Hybrids in Australia

Danielle Stephens and Malcolm Kennedy

Interbreeding between dingoes and wild dogs

Dingoes were transported to Australia from mainland South-East Asia and Indonesia 5000–18 000 years ago and spread swiftly across mainland Australia, probably with human assistance. Domestic dogs have been in Australia since the arrival of the First Fleet and have subsequently been interbreeding with dingoes to create hybrids. Interbreeding between dogs and dingoes has progressed rapidly and continues to do so. If interbreeding affects wild dog/dingo characteristics such as body size, pack structure, prey preference and their ecological role, there may be implications for wild dog management. Physical characteristics like pelt colour are not reliable indicators of hybridisation. However, DNA testing provides a better determination of dingo 'purity'.

A survey of 2284 wild dog DNA samples from across Western Australia was undertaken with the assistance of over 76 different land managers. These samples were combined with 1353 DNA samples from other states and analysed to provide the most comprehensive study to date of hybridisation between dogs and dingoes (figure 1).

Areas in the south-east of Australia showed a very high proportion of hybrids (figure 2). The degree of interbreeding was lower in other states. The highest proportion of dingoes was found in the Northern Territory (88%), and the second-highest proportion was in Western Australia with 62% of all dogs tested being pure dingoes in this state. As expected, more remote areas had more pure dingoes, but hybrids were found in every region studied. Surprisingly, very few wild-caught domestic dogs were found, with almost all wild dogs showing some dingo ancestry. This suggests interbreeding is most likely to be caused by roaming dogs mating with dingo bitches, which are then able to raise a litter in the wild. High numbers of crossbred dogs may then result through breeding among hybrids.

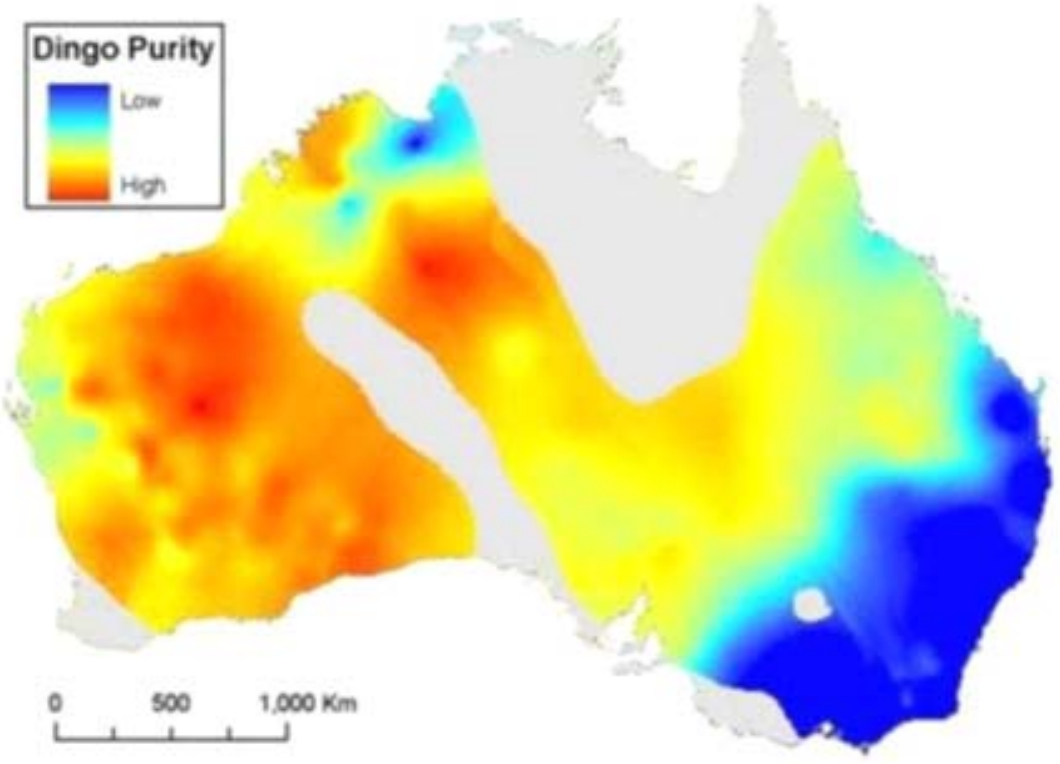

Figure 1 Purity levels of 3637 wild dog samples, showing the distribution of pure dingoes and dingo-dog hybrids. Grey areas were not sampled in this study (Stephens 2011).

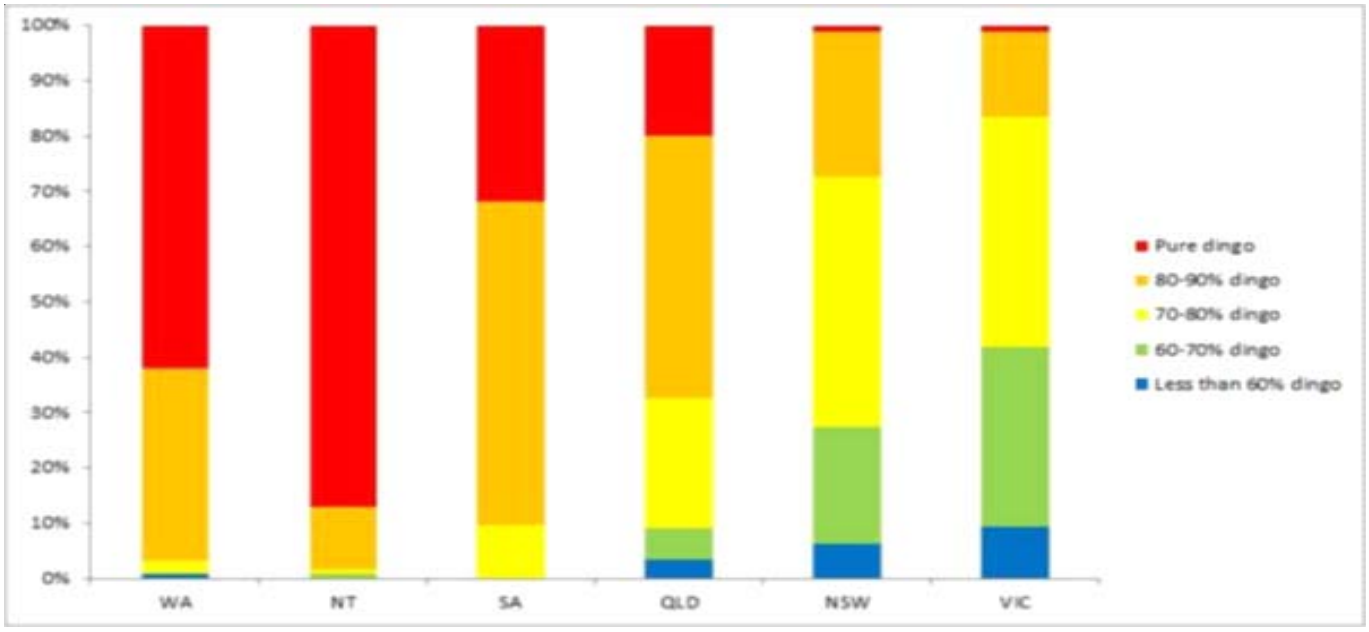

Figure 2: Percentages of pure dingoes and hybrid dogs found in each state

What does this mean for wild dog management?

In Western Australia genetic purity does not affect management options for wild dog control available to landholders. However, it is currently uncertain whether dingoes and hybrid dogs show consistent differences in diet, movement, predation, behaviour and social structure. Identification of dingoes is therefore an important fi rst step to study whether hybrids pose any greater threat to stock and wildlife than dingoes, and to gain a better understanding of the ecology of wild dogs in Australian ecosystems.

Disclaimer

This material has been written for Western Australian conditions. Its availability does not imply suitability to other areas, and any interpretation or use is the responsibility of the user. Mention of product or trade names does not imply recommendation, and any omissions are unintentional. Recommendations were current at the time of preparation of the original publication.

Reprinted from the RANGELANDS MEMO August 2012 with premission.

Contact: Malcolm Kennedy, Research Officer, Department of Agriculture and Food WA
Email: malcolm.kennedy@agric.wa.gov.au

SEGments

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* The furthering of knowledge, understanding and appreciation of the natural environment.

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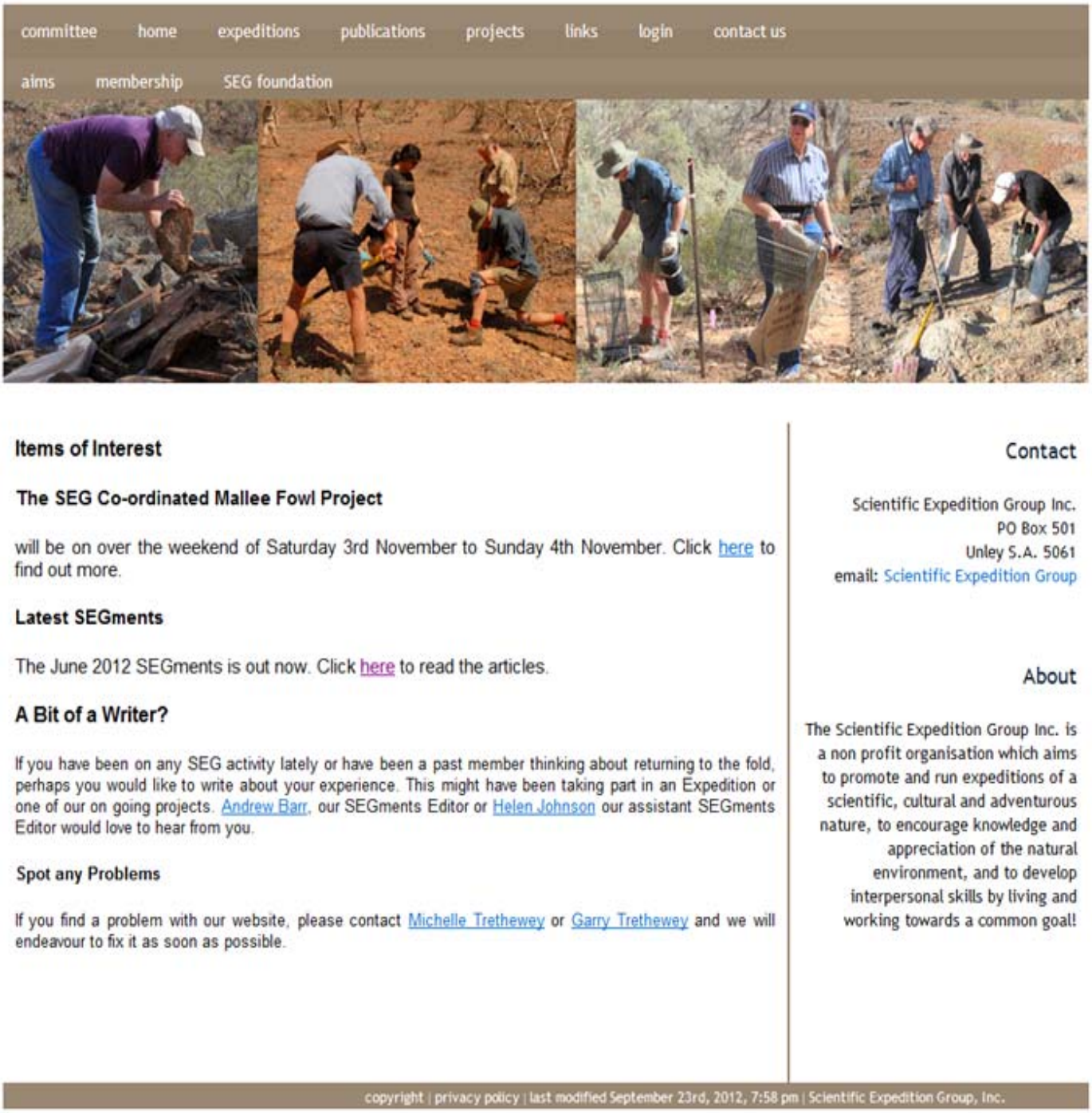

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