



FACT-FINDING VISIT

**SOUTH AUSTRALIAN ARID
LANDS NATURAL
RESOURCES MANAGEMENT
REGION**

Second Report of the Fifty-Fourth Parliament

of the

NATURAL RESOURCES COMMITTEE

Tabled in the House of Assembly and ordered to be published 17 October 2018

First Session, Fifty-Fourth Parliament

PRESIDING MEMBER'S FOREWORD

One of the Natural Resources Committee's important roles is undertaking fact-finding visits to South Australian Natural Resource Management (NRM) regions. The Committee aims to visit at least two of the eight NRM regions in each year. The visits are opportunities to meet with NRM Board members and local NRM Groups, and to obtain direct understanding of the challenges and priorities in each Region.

The Natural Resources Committee visited the SA Arid Lands NRM Region on 6 – 9 August 2018. The Committee previously visited this region in 2010, and attempted to visit on several occasions in the intervening years. Unfortunately these planned visits were thwarted by weather and other unforeseen circumstances. The 2018 visit therefore provided a rich array of experiences and activities for the Committee to investigate.

In 2018, the NRM framework in South Australia is under review. The Committee's visit provided an insight into the complexity and challenge of establishing a management structure that meets the interests of its users.

The SA Arid Lands is the state's largest NRM Region. It covers over half of South Australia's area and meets the borders with New South Wales, Queensland and the Northern Territory. Its iconic and ancient landscape is an intersection of many human uses, as well as the largest percentage of intact ecosystems and biodiversity in the state. This is particularly remarkable, given the 'boom and bust' weather cycles that affect the Region. Pastoralism, mining, and tourism are key priorities for growing economic activity in the Region. Further innovation opportunities may be available in the future through the mediums of renewable energy generation and storage. Co-management of significant sites is being achieved through the collaborative efforts of multiple groups, the governance of which is providing an exemplar for other states. The Region proudly claims a Ramsar Wetlands site and is seeking World Heritage Listing for another site. It is also home to some of Australia's largest, most remote, and most significant protected areas. This truly spectacular and unique combination of assets is a special part of our State.

The Committee is extremely appreciative of the people who contributed to our enriching visit. Our thanks go to: Ms Janet Brook, Presiding Member, SAAL NRM Board; Mr Rick Barratt, Member, SAAL NRM Board; Mr David Leek, Manager Sustainable Water Use Planning and Evaluation, Department for Environment and Water; Mr Tony Magor, Manager Parks and Co-Management, Department for Environment and Water; Ms Jodie Gregg-Smith, Manager Partnerships and Engagement, Department for Environment and Water; Mr Alan Walton, Dog Fence Inspector, Coober Pedy; Ms Chevahn Hoad, Kanku-Breakaways Conservation Park; Mr Ian Crombie, Chair, Antakirinja Matu-Yankunyjtjajara Aboriginal Corporation Board; Mr Erik Dahl, Ranger in Charge North East Deserts, Department for Environment and Water; Katheryn Litherland, Ranger, Innamincka and representative of the Yandruwandha/Yawarrawarrka People; Mr Anthony Brook, OBE Organic Farmer, Manager Cordillo Downs Station; Mr Don Rowlands, Wankangurru traditional owner, Queensland National Parks Service, and Mr Stephan Pursell, Queensland Police. We also extend thanks to the many others who

contributed to the organisation, transport, and successful progress of the visit from inception to completion.

I recognise and thank each of the members of the Committee for their contributions to this report: Mr David Basham MP, Mr Nick McBride MP, Dr Susan Close MP, Hon John Darley MLC, Hon Terry Stephens MLC, and Hon Russell Wortley MLC. Finally, I thank the Committee staff, Parliamentary Officer Phil Frensham, and Research Officer, Dr Monika Stasiak for their essential, and much appreciated, work in support of the Committee's functions.

A handwritten signature in black ink, appearing to read 'Josh Teague', written over a horizontal line.

Mr Josh Teague MP

Presiding Member

17 October 2018

EXECUTIVE SUMMARY

The 2018 fact-finding visit to the SA Arid Lands NRM Region provided the Committee with a wealth of information about the issues affecting the region. Local stakeholders were generous in sharing their insights and time. The Committee acknowledges the level of expertise, passion and knowledge that the regional stakeholders demonstrate. All stakeholders with whom the Committee met were able to offer a nuanced explanation of the issues affecting the region.

The Committee's four-day visit provided the opportunity to understand the key strategic issues, opportunities and challenges for the SA Arid Lands Region. During its visit, the Committee received information about:

- Development of co-management frameworks for significant Aboriginal sites;
- Impacts and management of overabundant species on the region;
- Management of pastoral leases, access to pastoral properties for alternative purposes, and State and Federal sustainability programs operating on pastoral leases;
- Multiple governance frameworks for natural resource management in the region;
- Eco- and cultural heritage-based tourism initiatives and the management of visitors in significant and protected areas;
- Innovations and pilot trials in natural resource management issues;
- Co-operation between states in the region, including Queensland, Northern Territory and South Australia.

The Committee commends the region on the success of its NRM-related initiatives, which are characterised by cooperative relationships. The Committee was impressed to observe that the region has achieved the alignment of many different outcomes through collaboration. For example, the use of a co-management model has achieved cultural heritage protection and enabled Aboriginal groups to better connect with Country, as well as preserving the unique natural resources held within protected areas of the Arid Lands. Similarly, collaborative efforts have arisen through partnerships between states in managing the Desert Parks network, and at a State-Federal level in applying funds through the National Landcare Program, Great Artesian Bore Sustainability Initiative, and other grants.

The SA Arid Lands NRM Board exercises responsibility over a vast area that is subject to multiple land uses and the interests of many stakeholder groups, including pastoral, resource extraction and exploration, conservation, tourism and Aboriginal cultural heritage. Balancing these many uses and maintaining strong, connected communities are outcomes that all stakeholders in the region should be proud of. The Committee was inspired by the forward thinking and entrepreneurial spirit of the region. The Committee heard that stakeholders are looking to manage the significant asset base of the region for sustainable and long-term use, and capitalise on opportunities. Seeking World Heritage Listing in recognition of the Ediacaran fossils in the Flinders Ranges is an example of this spirit, as is the thoughtful consideration that staff are giving to managing an increasing tourism potential, as well as the exploration of ground breaking technologies such as geothermal energy production.

TABLE OF CONTENTS

PRESIDING MEMBER'S FOREWORD	I
EXECUTIVE SUMMARY	III
FUNCTIONS OF THE COMMITTEE	VI
INTRODUCTION	1
LOCATION VISITED.....	1
SUMMARY ITINERARY	2
DISCUSSION.....	3
WILD DOG MANAGEMENT	3
<i>SA Arid Lands NRM Board involvement in Wild Dog Management.....</i>	5
<i>Site Inspection of Dog Fence near Coober Pedy.....</i>	6
ABUNDANT SPECIES IN THE SA ARID LANDS NRM REGION	8
<i>Kangaroos and Euros.....</i>	8
<i>Goats.....</i>	9
CO-MANAGEMENT IN THE KANKU-BREAKAWAYS CONSERVATION PARK	11
INNAMINCKA REGIONAL RESERVE: AN INTERSECTION OF PARTNERSHIPS	13
GEOTHERMAL EXPLORATION IN THE COOPER BASIN	16
PASTORAL LAND MANAGEMENT IN THE SA ARID LANDS	17
MANAGEMENT OF NATURAL AND CULTURAL VALUES: BIRDSVILLE NATIONAL PARKS HEADQUARTERS	21
FUTURE OPPORTUNITIES FOR NATURAL RESOURCE MANAGEMENT IN THE SA ARID LANDS	22
FINDINGS AND OBSERVATIONS.....	23
CHANGES TO NRM FRAMEWORK AND NRM LEVIES.....	23
GOAT MANAGEMENT	23
KANGAROO MANAGEMENT.....	23
CO-MANAGEMENT.....	23
TOURISM AND ACCESS IN THE SA ARID LANDS	23
LEVERAGE OF FUNDING FOR REGIONAL PRIORITIES	24
REFERENCES	25

NATURAL RESOURCES COMMITTEE

The Natural Resources Committee was established pursuant to the *Parliamentary Committees Act 1991* on 3 December 2003.

Its membership during this period was:

Mr Josh Teague MP (Presiding Member)
Mr David Basham MP
Dr Susan Close MP
Hon John Darley MLC
Mr Nick McBride MP
Hon Terry Stephens MLC
Hon Russell Wortley MLC

Parliamentary Officer to the Committee:
Mr Philip Frensham

Research Officer to the Committee:
Dr Monika Stasiak

FUNCTIONS OF THE COMMITTEE

Pursuant to section 15L of the *Parliamentary Committees Act 1991*, the functions of the Committee are:

- (a) to take an interest in and keep under review—
 - (i) the protection, improvement and enhancement of the natural resources of the State; and
 - (ii) the extent to which it is possible to adopt an integrated approach to the use and management of the natural resources of the State that accords with principles of ecologically sustainable use, development and protection; and
 - (iii) the operation of any Act that is relevant to the use, protection, management or enhancement of the natural resources of the State; and
 - (iv) without limiting the operation of a preceding subparagraph—the extent to which the objects of the *Natural Resources Management Act 2004* are being achieved; and
 - (b) without limiting the operation of paragraph (a), with respect to the River Murray—
 - (i) to consider the extent to which the *Objectives for a Healthy River Murray* are being achieved under the *River Murray Act 2003*; and
 - (ii) to consider and report on each review of the *River Murray Act 2003* undertaken under section 11 of that Act by the Minister to whom the administration of that Act has been committed; and
 - (iii) to consider the interaction between the *River Murray Act 2003* and other Acts and, in particular, to consider the report in each annual report under that Act on the referral of matters under related operational Acts to the Minister under that Act; and
 - (iv) at the end of the second year of operation of the *River Murray Act 2003*, to inquire into and report on—
 - (A) the operation of subsection (5) of section 22 of that Act, insofar as it has applied with respect to any Plan Amendment Report under the *Development Act 1993* referred to the Governor under that subsection; and
 - (B) the operation of section 24(3) of the *Development Act 1993*; and
 - (c) to perform such other functions as are imposed on the Committee under this or any other Act or by resolution of both Houses.
- (2) In this section—
- natural resources** includes—
- (a) soil;
 - (b) water resources;
 - (c) geological features and landscapes;
 - (d) native vegetation, native animals and other native organisms;
 - (e) ecosystems.

INTRODUCTION

Location visited

Members of the Committee who attended the fact-finding visit included: Presiding Member Mr Josh Teague MP, Mr David Basham MP, Dr Susan Close MP, Mr Nick McBride MP, and Hon Russell Wortley MLC.

The Committee flew from Adelaide to Coober Pedy, where it received a briefing on regional issues including management of native and non-native overabundant species. Members visited the Dog Fence and Kunku-Breakaways Conservation Park near Coober Pedy. After flying to Innamincka, the Committee received a briefing from regional Department of Environment and Water staff, visited the Innamincka Regional Reserve and former Geodynamics Geothermal Energy production site. The Committee then flew to Cordillo Downs Station over the Mulkumba-Coongie Lakes National Park. The Committee participated in a site tour of the Station, including an artesian bore site, dam under construction and cattle grazing areas. It was then flown to Birdsville, where it received a briefing on cross-border issues, as well as regional initiatives and emerging issues.



Figure 1: Map of northern South Australia and boundaries showing the region visited by the Committee

Summary Itinerary

Monday 6 August 2018 Day One	
07.30 – 09.30	Flight Adelaide to Coober Pedy
10.00 – 12.00	Discussion of Wild Dog management issues, Coober Pedy
12.00 – 1.00	Lunch, Coober Pedy
1.15 – 5.00	Site visit: Dog fence and Kanku-Breakaways Conservation Park. Discussion of co-management models and dog fence management.
6.00	Dinner, Coober Pedy Desert Cave Hotel: discussions with DEW regional staff
Tuesday 7 August 2018 Day Two	
07.30 – 08.30	NRC Breakfast Meeting, Desert Cave Hotel
08.30 – 11.00	Fly Coober Pedy to Innamincka over Moomba and Tirrawarra Swamp
11.30 – 12.30	Presentation by DEW staff on regional issues and co-management approaches
12.30 – 1.30	Lunch, Innamincka
1.30 – 3.00	Site visit: Cooper Creek, Burke's Gravesite, Innamincka Regional Reserve
3.00 – 4.00	Site visit: Geodynamics Geothermal Energy Project
4.30 – 5.15	Fly Innamincka to Cordillo Downs over Mulkumba-Coongie Lakes National Park
5.15 – 6.15	Sunset refreshments, Cordillo Downs Station
6.15 – 8.15	Dinner, Cordillo Downs
Wednesday 8 August 2018 Day Three	
07.30 – 8.30	NRC Breakfast Meeting, Cordillo Downs Station
09.00 – 11.30	Site inspection, Cordillo Downs: pastoral land management issues, Great Artesian bore site
12.00 – 1.00	Lunch, Cordillo Downs Station
1.00 – 2.00	Fly to Birdsville
2.30 – 5.00	Meeting National Parks Office on feral animal control, visitor management in outback parks/townships, cross border NRM issues
6.00 – 8.00	Dinner, Birdsville Hotel
Thursday 9 August 2018 Day Four	
07.30 – 08.30	Breakfast Meeting, Birdsville: discussion of World Heritage Listing bid Nilpena Station, NRM review in South Australia.
09.00 – 12.00	Fly Birdsville to Adelaide

DISCUSSION

Wild Dog Management

The Committee began its visit in Coober Pedy with an introduction to regional issues from SA Arid Lands NRM Board Chair, Ms Janet Brook. The management of wild dogs is a key issue for the region.

The Dingo Fence traverses Australia with a total length of around 5400 km. Its aim is to prevent the movement of wild dogs into the main pastoral regions of southern Australia. It is shown below in red:



Figure 2: Map of mainland Australia showing Dog Fence in red

In South Australia, the *Dog Fence Act 1946* establishes the management arrangements for upkeep of the fence, including a fortnightly patrol and the management of costs associated with maintaining the fence.

Some sections of the fence have been electrified to manage breaches. Approximately 500 kilometres of fence in total contains electric current. The electrified portion of the fence is mainly located on the West Coast of South Australia. Around 100 kilometres of the fence includes an electrified top-wire only. This section of the fence is located near Mabel Creek and is directed at preventing incursions by camels. Nearly 100 kilometres of the fence contains an electrified portion located near ground level, which is directed at preventing incursions by

wombats. The electrified portions have provided a deterrent to animals seeking to breach the fence.¹

South of the fence, dingoes are a declared pest species under section 182 of the *Natural Resources Management Act 2004* and must be euthanised. Section 186 of the Act also empowers landowners to lay baits and set approved traps on the 35 kilometre-wide buffer zone land immediately to the north of the fence. Additional trappers have been employed in conjunction with an aerial baiting program and additional baits being made available through NRM offices since July 2018.²

To the north of the fence beyond the buffer zone, dingoes are an unprotected species under Schedule 10 of the *National Parks and Wildlife Act 1972*. On pastoral properties, their main sources of food include smaller native and non-native animals. Their water sources are the sources of water used by livestock.

The *South Australian Wild Dog Strategic Plan 2016 – 2020* explains the goals for each zone:

Goal 1 – Detect and eradicate wild dogs inside the dog fence

Goal 2 – Prevent incursions by wild dog through the dog fence

Goal 3 – Protect the cattle industry and human safety while maintaining populations of wild dogs outside the dog fence

Goal 4 – Ensure good governance for management of wild dogs across South Australia.³

The three areas for management of wild dogs in South Australia are shown on the following map:

¹ Mr Michael Balharry, Executive Officer SA Dog Fence Board, pers. Comm.

² Peter Treloar MP, Member for Flinders: 'Wild Dogs', Question without Notice, House of Assembly South Australian Parliament, 25 July 2018.

³ South Australian Wild Dog Advisory Group, *South Australian Wild Dog Strategic Plan 2016 – 2020*. p.3.

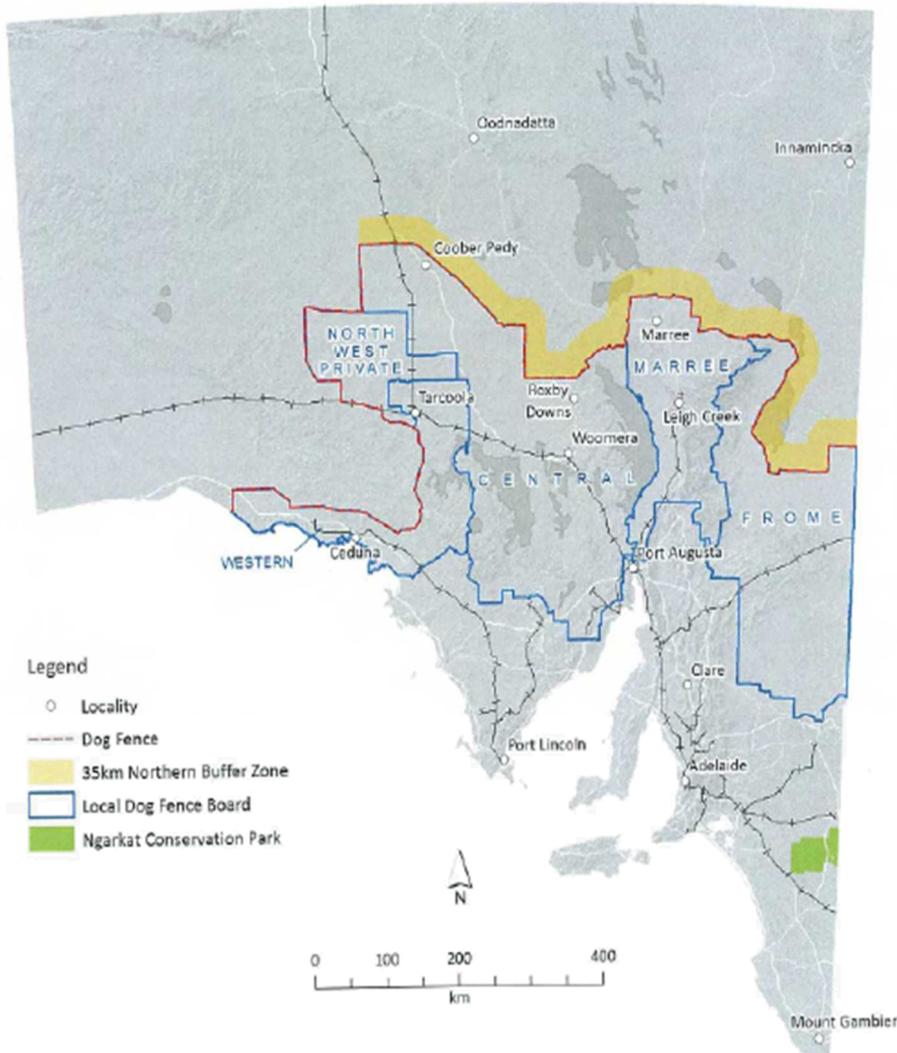


Figure 3: Map of South Australia showing Dog Fence, buffer zone, and Dog Fence Boards/private landholder responsibilities.

SA Arid Lands NRM Board involvement in Wild Dog Management

The SA Arid Lands NRM Region encompasses areas inside the dog fence, along its buffer zone, and areas outside the dog fence. The *SA Arid Lands Natural Resources Management Plan* provides the NRM Board with responsibilities to manage the impacts of wild dogs on the livestock industry, and to ensure public safety while also recognising the ecological role of dingoes as apex predators within the landscape. The *SA Arid Lands Wild Dog Management Plan* recognises that wild dogs are also a culturally significant animal for Aboriginal people.⁴

The Committee heard from SAALNRM Board Chair Ms Janet Brooks that the impacts for pastoral landholders affected by wild dogs include lower incomes where sheep and cattle are killed by dogs, and as a result, lower employee numbers on stations. The SA Arid Lands NRM Board subsidises the Biteback program for the area south of the fence. The program includes ground baiting, trapping, and shooting control measures, and encourages local landholders to

⁴ South Australian Arid Lands NRM Board (2015). *SA Arid Lands Wild Dog Management Plan*, p.1.

coordinate a landscape-based approach in sharing information and resources on best practice management techniques. The Committee was interested to hear that local Biteback groups are now using an app, FeralScan, to provide more accurate information about wild dog activity. The SA Arid Land NRM Board released the *Wild Dog Management Plan* in 2015 and *Best Practice Guidelines for Wild Dog Control* in 2017. The 'Best Practice Guidelines' explain that both proactive and reactive control measures are required. A region-wide commitment to upholding the Guidelines will be required to achieve best outcomes.

The Region also receives Federal funding for wild dog management activities. The SA Wild Dog Advisory Group are responsible for implementing the Federal *National Wild Dog Action Plan*.

Outside the fence, wild dogs are recognised by landholders for their important role in managing cat, fox, and kangaroo numbers. They are also totemic animals for Aboriginal people, as was confirmed by Mr Ian Crombie of the Antakarinja Matu-Yankunytjatjara Aboriginal Corporation. The Committee heard, therefore, that land managers are not seeking to eliminate wild dogs outside the fence, but manage their numbers to achieve a balance between pastoral activities, environmental management, and cultural recognition. Baiting remains the most effective way of managing dog numbers, but organic farmers cannot use 1080 baits. Therefore, shooting is used as the primary means of controlling dog numbers.

Site Inspection of Dog Fence near Coober Pedy

The Committee met with Mr Alan Walton, who is the Dog Fence Inspector for the section of fence nearest the Coober Pedy Region. Mr Walton is employed as an inspector under the *Dog Fence Act* (SA) 1946. The Dog Fence Board constituted under the Dog Fence Act is responsible for managing the fence and employing contractors who undertake its upkeep. Mr Walton hosted the Committee on a site tour of a section of the Dog Fence near the Kanku-Breakaways Conservation Park and Coober Pedy township. Mr Walton described his work routine whereby he travels along his allotted section of fence, which takes approximately two weeks in each month. He undertakes repairs to the wire fencing, lays baits and euthanises dogs via shooting when he sees them. The Committee heard that dogs rarely breach the fence directly, but that repairs are required as a result of kangaroo activity and environmental conditions. Breaches are difficult to prevent so that constant, diligent fence management is required. Dogs are more likely to dig underneath the fence rather jumping over it. Figure 4 below, shows Mr Walton near a section of fence, with skirting at ground level to prevent digging by dogs and other animals.



Figure 4: Mr Alan Walton explains his role as a dog fence inspector, near Coober Pedy. At rear, section of fence showing original fence post circa late nineteenth century and skirting along the ground to prevent breaches.



Figure 5: Committee members and staff in Coober Pedy

Abundant species in the SA Arid Lands NRM Region

Kangaroos and Euros

Ms Janet Brook, Presiding Member SAAL NRM Board and Ms Jodie Gregg-Smith, Manager Community Engagement and Partnerships, Department of Environment and Water, provided the Committee with a presentation about kangaroo management in the SA Arid Lands. Kangaroos contribute to total grazing pressure and impact on conservation and effective resource management. The management of abundant populations of macropods (including grey and red kangaroos, and euros) is a challenge in all mainland Australian states. A 2017 survey shows that there are close to 50 million individuals in the Australian population.⁵ Macropods are supported through stock water sources on pastoral properties. Macropod populations fluctuate according to factors such as weather (in particular, floods and droughts), predation, disease, and habitat availability.⁶ Mr Rick Barratt, SA Arid Lands NRM Board Member, noted that the current drought conditions have resulted in macropods starving to death.

⁵ News.com.au, 'Experts warn that Australians need to eat more kangaroos as the marsupial's population booms', 11 September 2017.

⁶ Department for Environment, Water and Natural Resources (2017). *South Australian Commercial Kangaroo Management Plan*. Adelaide, South Australia, p.8.

The Department for Environment and Water (DEW) coordinates the Kangaroo Management program in accordance with the National Parks and Wildlife Act. The *South Australian Commercial Kangaroo Management Plan 2018 -2022* was recently released. The SA Arid Lands NRM Board has no directive influence on the management framework, but the Board's stakeholders have raised relevant issues in several contexts.

Ms Gregg-Smith explained that DEW conducts a yearly aerial survey as part of its commercial management program. The survey provides data for the management program, based on prevailing factors year to year. The number of individuals surveyed indicates the size of the population, from which a sustainability quota is derived. The previous year's quota was around 1,100,000 animals that could be harvested. The number actually harvested was around 100,000. This means that only a small portion of the potential quota are being harvested, partly due to a lack of commercial opportunity. The management program directs that male animals only may be harvested, and that these animals are euthanised via a single head shot by a licenced permit holder, who is accountable for each animal that they take. The success of a commercial management program depends on demand within the market for the product. Demand fluctuates according to several factors such as potential uses for the product, number of buyers, location of buyers, and volume of product available within the market. The South Australian industry is decreasing in size; there are 38 licenced field processors in South Australia compared with over 2000 in New South Wales.

Pastoral lease holders can apply for a permit to shoot and let lie to remove overabundant numbers of kangaroos from their property. This is logistically difficult for leaseholders, as shooting is undertaken at night in addition to a normal daytime workload. The number of animals required to be removed after being euthanised is beyond the capacity of leaseholders. It also facilitates an influx of wild dog predators.

The Committee heard that there are significant animal welfare issues related to the euthanasia of native species. The management of public perception is a factor in the management approach adopted.

Given that an overabundant macropod population is a national issue, the Committee suggested that it could be effectively managed from a Federal and/or national perspective. Cluster fencing has worked effectively in the management of wild dogs, and could be a potential option for macropod management. Drought funding is a priority for the Federal Government that may present an opportunity for South Australia.

Goats

Goats are an abundant non-native species that are highly mobile and can move easily between properties by scaling and/or damaging fences. They consume a wide range of

vegetation to a grazing height of 1.8 metres.⁷ They reproduce easily and can produce multiple offspring. In the SA Arid Lands, they are common on properties south of the dog fence.

The Committee heard that the SA Arid Lands NRM Board has discussed management of feral and escaped domesticated goats on several occasions, with differing views among stakeholders. The Pastoral Board has also discussed the issue over a period of years without reaching a formal policy position. One view is that goats contribute to total grazing pressure. Where a property is fully stocked with sheep in accordance with a recommendation from the Pastoral Board, degradation of land can occur when goats have access to that property. Goats consume different types of vegetation than sheep and therefore contribute to an overall pressure on the resources available at a particular site, as well as contributing to environmental decline and destruction if overgrazing occurs. However, goats may also present an additional income stream for a lease holder due to a growing market for goat meat and other goat products. For this reason, some landholders are more diligent about controlling goat numbers on their properties than others.

The Committee heard that the management regime of feral and escaped domesticated goats in South Australia is more active than in other states. Landholders are responsible for controlling feral goats on their properties, in accordance with the Natural Resources Management Act. The *Declared Animal Policy (Feral Goats)* operates in addition to the broad provisions of the Act and specifies that domestic goats may not be released into the wild. Captured feral goats may not be re-released into the wild. They may be held for up to 14 days before being slaughtered on property or elsewhere, or rehomed. The NRM Boards are responsible for certain compliance activities under the Feral Goats Policy, including obtaining a permit when re-domesticated feral goats are being held on a property. The NRM Board may impose penalties on a landholder if they allow domestic goats to stray, and may recover the costs associated with recapturing the animals or destroying them where the release was shown to be due to a wilful or negligent act.

The Feral Goat policy is under review. While no changes to the current management regime are anticipated in the near future, the Committee heard that it is likely that a long-term outcome will be more active management of goat grazing, especially if there are changes to the market for goat meat and other goat products. The Committee heard that a 'total grazing pressure model' could be a potential future direction for consideration by the Pastoral Board.

⁷ Government of South Australia (2015). *Declared Animal Policy (Feral Goats)*. Adelaide, South Australia, p.7.

Co-management in the Kanku-Breakaways Conservation Park

The Committee observed stakeholders in the SA Arid Lands investing significant efforts in building partnerships and relationships. The SA Arid Lands are country for multiple Traditional Owner groups. The SAAL NRM Board recognises the important role of Aboriginal partners, and of traditional knowledge and experience in contemporary NRM practice.⁸ The Board has articulated a Strategy for Aboriginal Partnerships in the Region, which is supported by Guiding Principles, Key Strategies and a vision:

An effective partnership between Aboriginal groups and the SAAL NRM Board that supports Aboriginal participation and incorporates traditional knowledge and culture in natural resource management policies, plans and actions in the SAAL NRM Region.⁹

The Kanku-Breakaways Conservation Park near Coober Pedy is located on the traditional land of Antakirinja Matuntjara Yankunytjatjara people and is an area of sacred significance. It was converted from a Regional Reserve to a Conservation Park under the *National Parks and Wildlife Act 1972*, in 2013.

The National Parks and Wildlife Act provides for three models of co-management between non-indigenous and indigenous groups. The Kanku-Breakaways Conservation Park is owned by the Antakirinja Matu-Yankunytjatjara Aboriginal Corporation (AMYAC), and forms part of AMYAC's native title claim granted in 2011 in accordance with the *Aboriginal Heritage Act (Cth) 1988* and *Native Title Act (Cth) 1993*. The Kanku-Breakaways Conservation Park Co-management Board is responsible for managing the Park. It comprises representatives from the Antakirinja Matuntjara Yankunytjatjara people, the South Australian Government Department for Environment and Water, and the District Council of Coober Pedy.

The Committee visited the Kanku-Breakaways Conservation Park with hosts Mr Ian Crombie, who is a Councillor for District Council of Coober Pedy, Chair of the Kanku-Breakaways Conservation Park Co-management Board and Traditional Owner, and Ms Chevahn Hoad, Breakaways Management Board Coordinator. Mr Crombie explained some of the dreaming narratives to the Committee members; he described the significance of the Papa Kutjara (two dogs), watti (man), kalaya (emu), and angkata (bearded dragon) and willly wagtail sites.

The Committee heard that Kanku-Breakaways co-management model is providing significant benefits for indigenous and non-indigenous stakeholders. Kanku-Breakaways is one of two Conservation Parks in South Australia owned by Traditional Owner groups, the other being the Mamungari Conservation Park adjacent the border between South Australia and Western Australia. Through co-management, the AMYAC is achieving better recognition of the sacred nature of the Park and greater protection. Mr Crombie provided the Committee with information about a new visitor access plan, which incorporates vehicle and pedestrian

⁸The use of Aboriginal traditional knowledge and experience is critical to effective land and water management and Aboriginal people are important partners and participants in contemporary natural resource management.' SA Arid Lands Natural Management Board (2013). *Everybody's land: A Strategy for Aboriginal Partnerships in the SA Arid Lands Natural Resources Management Region*. Port Augusta, South Australia.

⁹ Ibid, p.4.

access, park signage, a cultural interpretive tour, visitor facilities, and the designation of a Cultural Conservation Zone. The Park is regularly used for tourism and events. Numerous international films have also featured the landscape. Mr Crombie told the Committee that he provides cultural advice and guidance to visiting film crews in accordance with the permit system granted by the Co-management Board. Continuing to protect the cultural and natural significance of the Park through management of its access and use is a key outcome for the future.



Figure 6: Mr Ian Crombie explains the Dreaming narrative of ‘two dogs’, with site, and cultural heritage interpretive signage, in background.



Figure 7: Members of the Natural Resources Committee with Mr Ian Crombie at Kanku-Breakaways, with 'two dogs' site in background. L-R: Mr Ian Crombie, Dr Susan Close MP, The Hon Russell Wortley, Mr David Basham MP, Mr Nick McBride MP, Presiding Member Mr Josh Teague MP.

Innamincka Regional Reserve: an intersection of partnerships

On its way to Innamincka, the Committee flew over the Moomba township and Santos oil and gas exploration and processing fields. Moomba is the main site for extraction and exploration in the SA Arid Lands. The Cooper Basin region is Australia's most economically significant site for petroleum and natural gas exploration.

Innamincka is sited on the Cooper Creek, which forms part of the Lake Eyre Basin system and the Great Artesian Basin system. The Lake Eyre Basin is one of the world's few unregulated arid area freshwater systems.¹⁰ In Innamincka, the Committee received a presentation from Mr Tony Magor, Manager Parks and Co-Management, Department for Environment and Water, and supporting staff. The SAAL NRM Board has no formal interaction with National Parks or with the co-management structures but they are shared stakeholders in the region. Developing these emerging relationships are an area of focus for the future through the next iteration of the Region's NRM Plan.

The Committee heard that the area surrounding Innamincka is an intersection of partnerships between stakeholders. The township of Innamincka is located within the Innamincka Regional Reserve, which was negotiated between Santos, Delhi Petroleum, the Kidman family pastoral lease holders and the South Australian Government, to 'protect the integrity of the

¹⁰ Natural Resources SA Arid Lands. *Surface Water*.

<https://www.naturalresources.sa.gov.au/aridlands/water/managing-water-resources/surface-water> Accessed 4 September 2018

internationally significant wetlands'¹¹ located in the Mulkumba-Coongie Lakes and surrounding area. The Regional Reserve status facilitates pastoral activities, tourism, conservation, cultural heritage preservation, and mining being concurrently undertaken in the area.

Innamincka Regional Reserve is adjacent to the Strzlecki Desert and the Sturt Stony Desert. The Strzlecki Track is a major tourist thoroughfare for four wheel drive travellers, though road closures frequently occur with rain events. Road closures impact on visitor numbers, as does the lack of infrastructure in the Region and its remoteness. The Committee heard that nature-based tourism is a key opportunity for the SA Arid Lands Region. The *SA Nature Based Tourism Strategy* is an initiative being developed to foster this opportunity across the state. Mr David Leek, Manager Sustainable Water Use, Planning and Evaluation from DEW observed that federal funding to undertake any forms of infrastructure development or maintenance for tourism, conservation or heritage purposes is becoming increasingly difficult to access.

The Yandruwandha and Yawarrawarrka (Y/Y) people are Traditional Owners of the Innamincka area, and were granted formal recognition of native title in 2015. In 2009, the Y/Y people entered an agreement for co-management of Innamincka Regional Reserve and Mulkumba-Coongie Lakes National Park in accordance with the National Parks and Wildlife Act. Ms Katherine Litherland, Ranger, Innamincka and representative of the Yandruwandha and Yawarrawarrka People accompanied the Committee on its visit to Innamincka Regional Reserve. Ms Litherland reflected on the need to protect Country for the future, and also the opportunities for engagement between visitors and stakeholders. Mr Magor told the Committee that the co-management model is a genuine success story for reconciliation and should be better celebrated. Numerous Aboriginal people have articulated to him that they have derived greater benefits from participating in co-management than in other reconciliation programs. The co-management model is an exemplar for other Australian states, and has recently been showcased in New Zealand as a reconciliation initiative.

Co-management of Innamincka Regional Reserve and Mulkumba-Coongie Lakes National Parks is undertaken through the National Parks and Wildlife Act using a slightly different model from the co-management approach used at Kanku-Breakaways Conservation Park, though this may change in future with the recognition of native title. For Innamincka and Mulkumba-Coongie Lakes, the land is currently held by the Crown and managed by the Director of National Parks and Wildlife, but an advisory structure is in place which guides and supports Crown management of the Park. The Yandruwandha Yawarrawarrka Parks Advisory Committee is the relevant co-management authority. It has recently assisted the Department for Environment and Water in developing the *Innamincka Regional Reserve Management Plan 2018*.

The Committee heard that co-management strengthens the relationships between Aboriginal and non-Aboriginal interests. It also recognises the importance of Traditional Owners' knowledge and management practices within decision-making processes, and promotes

¹¹ Department for Environment, Water and Natural Resources (2013). *Innamincka Regional Reserve and Coongie Lakes National Park*. Port Augusta, South Australia.

understanding of the cultural history of co-managed sites. Mr Magor reflected that co-management of protected areas is an evolving concept that also requires consideration of strategic issues, including what level of management is appropriate for each area in which it operates, what level of management authority each Aboriginal group is interested in holding in each area, whether co-management is a sustainable model for long-term outcomes, and how a co-management model operates in practice in each area to facilitate outcomes for Aboriginal and non-Aboriginal stakeholders.

The Committee flew over the Mulkumba-Coongie Lakes National Park. Mr Tony Magor and Mr Rick Barratt provided the Committee with information about the Park and pointed out sites of interest. The National Park has international significance as a wilderness area. It has been listed under the *Ramsar Convention* as a Wetland of International Importance, in recognition of its important role as a habitat and breeding zone for birds. Two hundred and five bird species have been recorded in the park, including 24 species that are listed as rare or threatened in South Australia. The park provides critical habitats and extensive breeding areas for 75 waterbird species. Eighteen species are listed under international treaties and 29 species are listed as migratory with Australia.¹² It is also home to multiple flora and fauna species classified as rare or threatened in South Australia. There are 43 rare, vulnerable or endangered animal species whose habitat includes the Innamincka Regional Reserve, as well as 20 rare, vulnerable or endangered plant species.¹³

Mulkumba-Coongie Lakes is a significant area for the Yandruwandha Yawarrawarrka people, who exercise traditional rights here in accordance with the National Parks and Wildlife Act. The Mulkumba-Coongie Lakes Management Plan was adopted to achieve the dual outcomes of maintaining healthy country and extending the Yandruwandha and Yawarrawarrka people's relationship with their Country.¹⁴ The Management Plan recognises that the Park forms part of the wider Cooper Creek catchment and Lake Eyre Basin ecosystem, and is therefore managed as part of a wider catchment-based approach.¹⁵

The Committee heard that development of the Mulkumba-Coongie Lakes National Park has been discussed as a potential contributor to regional tourism. Improved road access and visitor facilities would increase the number of people able to visit the Park. However, making the area more accessible may impact on its wilderness attributes and ability for Traditional Owners to exercise their rights on Country. Balancing the interests of stakeholders in tourism, conservation, and cultural heritage is the key priority for managing the Park into the future.

¹² Government of South Australia (2014). *Mulkumba-Coongie Lakes National Park Management Plan*. Adelaide, South Australia, p.11.

¹³ Government of South Australia (2018). *Innamincka Regional Reserve Management Plan 2018*. Port Augusta, South Australia, p.7.

¹⁴ Mulkumba-Coongie Lakes National Park Management Plan 2014, p.1.

¹⁵ *Ibid*, p.2.



Figure 8: Committee members and staff at Cooper Creek, Innamincka Regional Reserve. L-R: Ms Janet Brook, Mr Josh Teague MP, Mr Nick McBride MP, Mr Erik Dahl, Dr Susan Close MP, The Hon. Russell Wortley MLC, Mr David Basham MP, Mr Rick Barratt, Mr Tony Magor, Ms Katherine Litherland.

Geothermal exploration in the Cooper Basin

The Committee visited the former Geodynamics geothermal pilot trial power production site outside of Innamincka. The site is now being decommissioned and rehabilitated after closing in December 2015. The site caretaker explained that the geothermal process offers an opportunity to produce baseload electricity without emitting carbon, by using the natural heat advantages of underground hot granite rocks that are located at depths of 5500 – 6000 metres underground. The hot rocks occur at a natural temperature of approximately 280 degrees Celsius, and are used to heat water, which is then returned to the surface and used to produce electricity.

The caretaker explained that the pilot ran for eight months and offers a proof of concept. Energy in the brine produced at the surface was used to drive a steam turbine and produce electricity. Many learnings arose from the trial, including relating to the quantum of costs that would be required to run a geothermal power production process. In particular, the project demonstrated the high costs associated with the drilling extraction process, and the high pressures that would need to be overcome to remove and then reinject the water. Ultimately, significant capital investment would be required to implement the technology and deliver it to the market. This was determined to be unfeasible at the current juncture.¹⁶

¹⁶ *Innamincka Geothermal Power Plant* <https://www.aussierenewables.com.au/directory/innamincka-geothermal-power-plant-30.html>

Multiple interest groups have recognised the future opportunities offered by the geothermal process and the enormous potential of the natural resources available within the SA Arid Lands Region. Professor Martin Hand from the South Australian Centre for Geothermal Energy Research at the University of Adelaide commented that geothermal energy should be seen as a 'national resource' through which 'a vast amount of energy...could be potentially unlocked.'¹⁷



Figure 9: Former Geodynamics geothermal energy site near Innamincka

Pastoral land management in the SA Arid Lands

Pastoral lease holders Ms Janet and Mr Anthony Brook hosted the Committee on its visit to Cordillo Downs Station, which is located approximately 100 kilometres north of Innamincka and approximately 150 kilometres south of Birdsville. The station was previously used for sheep grazing, but converted to cattle due to several factors, including the lower risk of predation by wild dogs. The station occupies an area of around 7000 square kilometres and is an organic Hereford beef cattle enterprise. The property is currently stocked at around 7000 animals. The station uses a free range grazing model where the cattle are not paddocked but are free to range according to water sources on the property. Very little supplemental feed is

¹⁷ T. Fedorowytch, 'Geothermal power project closes in SA as technology deemed not financially viable'. *ABC News*, 30 August 2016.

provided. The cattle have a range of around 200 species of native grasses and naturally occurring vegetation on which to feed.¹⁸

Each station must obtain approval for its stock numbers upon the recommendation of the Pastoral Board constituted under the *Pastoral Land Management and Conservation Act (SA) 1989*. The Pastoral Board calculates a maximum stock carrying capacity for each lease that is dependent on an assessment process of each station's individual resource conditions. Mr Rick Barratt, SA Arid Lands NRM Board, told the Committee that he had previously undertaken assessments of Cordillo Downs for the Pastoral Board, and provided an overview of the assessment process.

The Brooks explained their supply chain management process, which produces meat through the OBE (Organic Beef Exporters) collective for the international market. Certification of organic status is undertaken in both Australia and the importing markets, which include the Middle East, Asia, and North America. Being certified as organic farmers means that the Brooks cannot use certain types of chemicals on their property, including 1080 baits for wild dogs.



Figure 10: Hereford beef cattle at Cordillo Downs Station

The visit provided the Committee with an opportunity to tour the station and understand some of the issues facing pastoral lease holders in the SA Arid Lands. The main challenge for pastoralists is water access and storage. Cordillo Downs usually receives around 160mm of rain each year, and in accordance with the boom and bust cycles of the Arid Lands, also

¹⁸ OBE Organic Farming Australia <https://www.obeorganic.com/our-distinctive-difference/free-roaming/>

receives infrequent floodwaters. The Committee toured the site of a new proposed dam on the station and also saw the desalination equipment that the Station has recently acquired, which will be used to assist in reverse osmosis treatment of saline bore water on the property.

Groundwater sources in the Arid Lands Region are subject to the *Far North Prescribed Wells Area Water Allocation Plan*, which was developed by the Arid Lands NRM Board as a statutory framework for managing the Region's water sources in accordance with the *Natural Resource Management Act 2004*. Each Water Allocation Plan 'prescribes' water sources within the relevant area and provides a plan for the use and management of those sources. The Plan is currently under review, in consultation with stakeholders.

The Committee toured an artesian bore site on the Station. Mr Brook explained that it discharges water at a temperature of approximately 93 degrees Celsius. The Great Artesian Basin (GAB) is one of the world's most extensive underground water sources. It has natural discharge points and bores that have been accessed by leaseholders since the late 19th Century. From the mid- to late- 20th Century onwards, collaborative efforts by governments and leaseholders have worked towards more effective management of Artesian discharge sites. Past exploitation of GAB water sources has revealed that inappropriate management practices impact on water pressure, volume, quality, and ecosystem integrity. Management of GAB sources under the Water Allocation Plan is directed at:

- (1) *Providing for the water needs of water-dependent ecosystems;*
- (2) *Maintaining acceptable aquifer water pressure and water level;*
- (3) *Maintaining water quality;*
- (4) *Promoting active and efficient uses of the water resources;*
- (5) *Implementing water allocation policies in line with the GAB Strategic Management Plan;*
- (6) *Minimising interference between licensed wells;*
- (7) *Enabling further allocations within sustainable limits and optimising social and economic benefits;*
- (8) *Providing clear concise guidelines for the allocation and use of water;*
- (9) *Providing flexible and fair access to underground water resources, having regard to the uniqueness of the Far North Prescribed Wells Area.*¹⁹

The Committee heard information about the Great Artesian Bore Sustainability Initiative (GABSI), implemented by the Federal Government as a partnership between the Commonwealth, States, and landholders. The GABSI scheme has assisted pastoralists to upkeep, cover, and maintain flow from bores on their property. Funding from the GABSI will be used at Cordillo Downs to cover the bore and support infrastructure to pipe its water to different parts of the property. The Committee was pleased to learn that pastoral leaseholders view the GABSI scheme as an important, successful, and much-appreciated partnership scheme entered into between stakeholders. The GABSI represents an example of funding that achieves combined outcomes for commercial enterprise and best practice NRM stewardship.

¹⁹ South Australian Arid Lands Natural Resources Management Board (2009). *Water Allocation Plan for the Far North Prescribed Wells Area*. Port August, South Australia.



Figure 11: artesian bore site at Cordillo Downs



Figure 12: Mr Anthony Brook, Manager Cordillo Downs, explains the challenges and rewards of pastoral land management in the SA Arid Lands, to the Committee and staff.

Management of natural and cultural values: Birdsville National Parks Headquarters

The Committee met with Mr Don Rowlands, Wankangurru Traditional Owner, Queensland National Parks Service, and Mr Stephan Pursell, Queensland Police at the Birdsville office of the Queensland National Parks Service. The Committee heard that the Simpson Desert Reserve complex crosses three states: Northern Territory, Queensland, and South Australia. The three states are working collaboratively to manage shared issues where practicable. The Reserve network has significant natural and cultural values. Its dune structure is the longest in the world at 500 kilometres.²⁰

The Committee heard that a key challenge for the area is visitor management. With an increasing number of four wheel drive visitors, the impacts of vehicles and trailers on local tracks and dunes are a concern, as are weeds and pests being spread through vehicle contact, damage to vegetation through campfires, and traffic issues. Approximately 10,000 visitors are counted in the Simpson Desert each year.

The management and protection of Aboriginal cultural heritage is another significant issue with the growth in tourism. There are multiple culturally significant sites in the Parks network. The remoteness and extensive area of the Simpson Desert Parks network means that patrolling cannot be undertaken more regularly with the current resourcing available. The Committee heard that the Parks network is so vast that as few as two patrols per year may be undertaken.

A related issue is infrastructure services within remote areas. Mr Stephan Pursell described the challenges of policing in an area adjacent to state borders for three states, and the need for collaboration between states in visitor management. For regional events such as race meetings, vehicle rallies, and charity fundraisers, staff must be able to respond to the challenges of managing a temporary influx of hundreds or thousands of visitors.

²⁰ National Parks and Wildlife South Australia. *Munga-Thirri-Simpson Desert Conservation Park and Regional Reserve*. https://www.environment.sa.gov.au/parks/find-a-park/Browse_by_region/flinders-ranges-outback/munga-thirri-simpson-desert-conservation-park-regional-reserve#see-and-do

Future opportunities for natural resource management in the SA Arid Lands

Ms Jodie Gregg-Smith, Manager Partnerships and Engagement, Department for Environment and Water provided the Committee with an informative presentation about current and future initiatives in the Region.

The Committee heard that a World Heritage listing process is being sought for the Flinders Ranges, which would recognise the fossils and geological features in the Adelaide Rift Complex as a unique and outstanding example of major stages in the earth's history (the Ediacaran period). The Department for Environment and Water is leading the community engagement elements of the nomination process. The process is being undertaken in partnership with SA Museum and Geological Survey of SA. If the World Heritage Listing is successful, significant new opportunities for nature-based tourism will arise, with accompanying infrastructure requirements. These will need to be balanced against the need to protect and manage the listed sites.

South Australia is currently responding to the National Landcare Program (NLP) 2 funding rounds. The NLP is a Federal program that provides allocated funding for NRM issues, including addressing specific priorities and supporting stakeholders to manage resources sustainability. As in NLP1, the SA Arid Lands NRM Board will provide local oversight and assist in the delivery of projects underpinned by NLP funds. The Committee heard that the South Australian Arid Lands were recipients of \$8 million funding over five years of the NLP1 program, as well as funding for programs that operate in the Region, such as Bounceback and Beyond and Ramsar funding.

Ms Gregg-Smith then reflected on the proposed changes to NRM statewide arising from the review of the NRM Act. The Minister for Environment and Water, the Honourable David Speirs MP, is playing an active role in the consultation process for the review, with a series of roundtable forums being held across the state during August and September. The role of NRM is unknown since the the Department for Environment, Water and Natural Resources became Department for Environment and Water. Staff are therefore eager to understand whether their roles will be affected by the proposed changes. At the Board level, it is understood that there will be nine NRM Regions instead of eight. Boards are eager to understand the proposed makeup of Boards as well as the funding model supporting a new NRM framework.

FINDINGS AND OBSERVATIONS

The Natural Resources Committee observed that the following issues are worthy of further consideration by the Government in the coming term.

Changes to NRM Framework and NRM levies

Numerous discussions with stakeholders raised the forthcoming changes to the NRM framework, and the impacts of these on NRM levies and funding for NRM-related initiatives. How will the changes impact on NRM levies? Is there potential to consider whether different models of applying or distributing NRM levies would deliver more effective or more equitable outcomes? For example, one option may be to pool the funds received and distribute these across the State in an agreed application of funds.²¹

Goat management

The Committee's discussion with local stakeholders about goat management indicated that there may be an opportunity to consider the uptake of a total grazing pressure model in Pastoral Board assessments.

Kangaroo management

The Committee's discussion with Ms Janet Brook and other stakeholders, and with Ms Jodie Gregg-Smith, about macropod management highlighted the need for additional measures to assist in responding to overabundant kangaroo populations. In present numbers, kangaroo populations are a significant contributor to local environmental degradation. Additional resources are required to assist to both facilitate and implement practical measures for reducing the number of kangaroos. There may be an opportunity to seek Federal funding through drought-relief schemes or other programs to implement cluster fencing or consider options for national management.

Co-management

The Committee's discussions with Mr Tony Magor about co-management of protected areas highlighted that co-management is an evolving concept. It has proven to be an extremely successful approach for the groups who have so far been involved. For the future, strategic considerations will include the level of responsibility and decision-making for parks management that each stakeholder group is willing and able to accept, and how co-management impacts on Aboriginal and non-Aboriginal use of protected areas.

Tourism and access in the SA Arid Lands

Tourism and eco-tourism provide both a challenge and a significant opportunity for economic growth in the SA Arid Lands. An increasing number of adventure and four wheel drive tourists

²¹ Note Liberal Party SA Policy 'Capping NRM levies' directs that levies will be spent in the region in which they are collected, with local boards required to publish transparent budgets showing spending: <https://strongplan.com.au/policy/capping-nrm-levies/>

to the region would impact positively on businesses and services operating in the area. However, an increased number of vehicles accessing remote tracks and roads would necessitate substantial further investment in infrastructure to ensure public safety. Water access is also a significant regional challenge that must be considered if the opportunity for tourism can be capitalised upon.

Increased access to protected areas also pose opportunities and challenges for the SA Arid Lands. The region features some of Australia's most iconic national park, conservation park, and regional reserve environments, including some areas recognised as internationally significant. Discussions with National Parks staff indicates that further ranger resources would be beneficial to conduct more regular patrols.²² Several Traditional Owner groups are responsible for management of culturally significant areas within the region. Opportunities for increased visitor access must balance the interests of cultural heritage, connecting to Country, and the protection of environmental values.

Leverage of funding for regional priorities

The Committee witnessed the successful application of both State and Federal funding for projects in the SA Arid Lands. The region represents an example of leverage, whereby funds from multiple sources have been put to effective use to address priority issues. For the future, further funding allocations will need to take into account the unique nature of the region, its significant and irreplaceable asset base, its prospects for sustainable resource use, and its potential for growth.

²² Note Liberal Party SA Policy 'More park rangers' commits to 20 additional park rangers being employed, including pathways for indigenous rangers: <https://strongplan.com.au/policy/more-park-rangers>

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