Land for Wildlife and Garden for Wildlife

Central Australia Newsletter

April 2017

From the Land for Wildlife Coordinator

As the rampage of grasshoppers on our yards slows and the baking sun eases up for another year, Land for Wildlife has been catching up on new member assessments and running another round of domestic cat monitoring and awareness.

With the cool weather approaching the Cassias (*Senna sp*.) will begin to flower, in turn providing an abundance of sweet nectar to native pollinators. Other frost-sensitive plants may not be so lucky and so it's a good time to start protecting seedlings with tree guards and extra mulch.

Many of the properties undergoing assessment are extremely active with wildlife, from reptiles and birds, all the way down to the insects. What has been happening in your yard? Feel free to send us any photos to share.

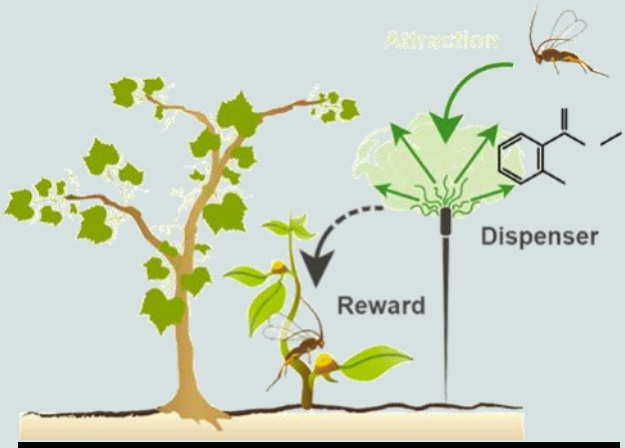
Mulga Ant (*Polyrhachis macropa*) nest on a new Land for Wildlife property, decorated with plant material, a common practice for the species.

In This Issue

Plant Scent: What's that Smell?

The production of a scent by a flower is well-understood by many as a method of attracting birds, bats, butterflies, beetles, ants and various other invertebrates to the flower. The smell produced by a flower acts as an attractant, which is generally combined with a reward of nectar, and has the primary function of assisting the plant with reproduction via pollination.

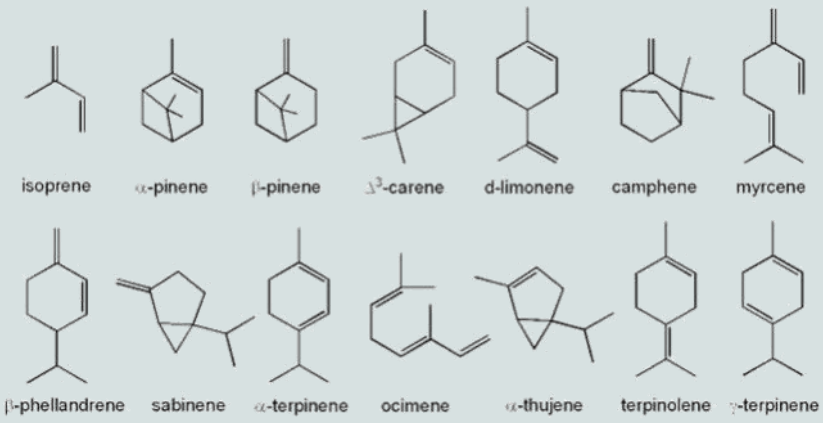
For some plants, the floral scent can be a delight, with each flower producing a distinctive scent that is attractive to a certain faunal assemblage. For other flowers, the scent can be less appealing to the human nose, but attracts the correct pollinator none-the-less. Flowers that smell like carrion have evolved to attract flies and beetles that would normally lay their eggs in rotting meat and faeces. They are often tempted to the carrion flowers by the smell and their visitation to the flower inadvertently pollinates it, before they depart for a more suitable place to lay their eggs.



Plant scent is used as an attractant for pollinators, predatory insects, and is also used as a defense mechanism (*Image PhysOrg*).

But what about the strong scent emitted by leaves, bark and other plant tissues when no flowers are present? The roots of many Acacia have a strong foetid smell when being handled, which is produced by nitrifying root bacteria nodules, indicating that they are active and performing their task. But often, the scent in plant leaves is produced by complex chemicals. The complex chemicals that give plants their odour are often the by-products or waste components of plant metabolism, or photosynthesis. These secondary metabolites are known as volatile organic compounds. They are known as volatile, because they evaporate quickly from the liquid state and enter the air as gas, which causes the sudden detection of a scent. The largest groups of volatile organic compounds are the terpenoids (compounds with an isoprenoid structure) and green leaf volatiles. For other plants the odours are a result of other secondary metabolites called flavonoids and phenols, which are composed of hydroxyl groups attached to an aromatic ring.

Green leaf volatiles are best known as the smell that is produced by freshly mown grass, generally resulting from 6-carbon aldehydes and alcohols. When grass is damaged (e.g. cut by a lawnmower) it triggers enzymes to start breaking down fats and phospholipids, leading to the formation of linolenic and linoleic acids that are oxidised and broken down by another enzyme. The process splits the molecule into fragments that lead to the cut grass smell.



Terpenoids are responsible for contributing to many scents produced by plants. The smell of Native Pine (*Callitris glaucophylla*) comes from pinene. The smell of native lemongrass (*Cymbopogon ambiguus*) is a result of limonene and alpha-terpineol (both commonly found in citrus), as well as eugenol and elemicin (found in nutmeg and clove). Species of Eucalyptus contain a terpenoid called cineole, which gives the leaves their characteristic fresh scent. Cineole can also be found in other local native plants such as Striped Mintbush (*Prostanthera striatiflora*). Sticky Bluerod (*Stemodia viscosa*) contains terpenoids such as caryophyllene (pepper-like scent in rosemary), fenchol (found in basil) and limonene.

Some other strongly scented natives are Apple Bush (*Pterocaulon sphacelatum*), Gidgee (*Acacia cambagei*), and Curry Wattle (*Acacia spondylophylla*).

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Sticky Hopbush (*Dodonaea viscosa*)

While Sticky Hopbush (*Dodonaea viscosa*) has a distinctive scent and flower capsules that are visually similar to Hops (*Humulus lupulus*), used in the production of beer, they are not botanically related. Hopbush (*D. viscosa*) gets its name, as is was used to make beer by early European Australians, yet there are no taxonomic links to Hops (*H. lupulus*). Sticky Hopbush produces a scent from a combination of flavonoids such as isorhamnetin, hyperoside and a citrus flavonoid rutin, whereas Hops produces its scent from myrcene, beta-pinene and alpha-humulene (a sesquiterpene). Their scent is, however, somewhat similar despite the difference composition. On a side note, Hops and Marijuana (*Cannabis sativa*) have similar organoleptic properties (taste and smell), as they have similar aromatic compounds, owing to their taxonomic relatedness.

Volatile organic compound emissions are affected by factors that include temperature (determines rates of volatilization) and sunlight (determines rates of biosynthesis). Emission occurs almost exclusively from the leaves, the stomata in particular. Hence, the Gidgee around town will smell to varying degrees, depending on the weather.

Gidgee (*Acacia cambagei*) produce a distinctive smell on rainy, misty and humid mornings (*Image Wikipedia Commons*).

There is a stand of Gidgee near Billygoat Hill in Alice Springs, which commonly will stink out the region on a rainy, misty and high humidity morning during a period of weather depressions.

The production of volatile organic compounds can require extra energy by plants and therefore can come at a cost. So why bother? Strong odours emitted by plants may also be a way of deterring browsing herbivores or insects. Volatile terpenoids released by plants when under attack from herbivorous insects allows predatory insects (or insect parasitoids) to locate prey secondarily through infected hosts (*e.g.* Pine trees). Volatile organic compounds may even be produced to help kill off other plants in the vicinity, in order to thrive themselves (e.*g. Eucalyptus sp*.). Some plants give off scent when crushed that induces defence mechanisms in neighbouring plants or promote production of new cells at the site of the wound to repair the damage. Some compounds even act as antibiotics to prevent infection at the site of the crush.

So if you start smelling something strange on the wind following a change in weather, you may be able to sniff it out to a plant upwind! *Blog*►

Calicivirus Confirmed in Pest Rabbits

CSIRO have confirmed that the first pest Rabbit has been infected and perished as a result of the newly released strain of calicivirus, known as RHDV1 K5. It was found on the outskirts of Canberra two weeks after the January release by the Invasive Animals CRC. Since then, several other cases have been reported in Western Australia, Queensland, South Australia and elsewhere. You can monitor the Rabbit Biocontrol Tracker to see confirmed infections of this and other strains (orange stars are release sites and red balloons indicate confirmed infections). Members of the public are encouraged to report dead Rabbits to RabbitScan. Deceased Rabbit samples can also be sent in to assist with identification of the spread of infection (see the January Land for Wildlife Newsletter for more details). A vaccine called Cylap is available to protect domestic rabbits against the virus—consult your veterinarian for more information.

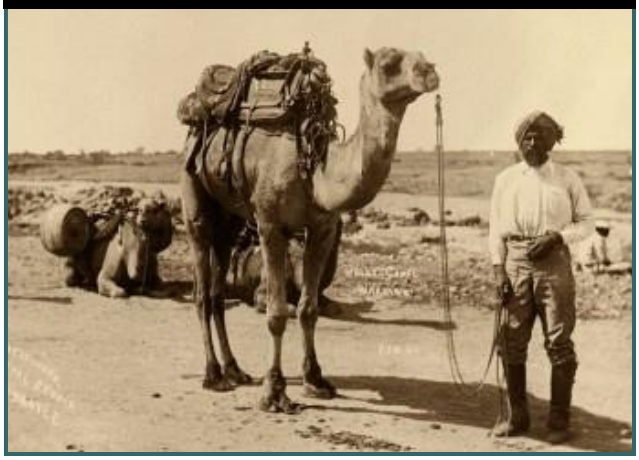
Camels and cameleers (*Image Australian Geographic*).

Plant Stowaways in Camel Harness

By Marg Friedel

Back In March, Marg gave a talk to the Alice Springs Field Naturalists Club, which she called "*Where did they come from and how did they get here? Examining the evidence for some familiar weeds of arid central Australia*". As part of her rummaging in the records of Australia's Virtual Herbarium (AVH), and lots of follow-up reading and discussion, she found evidence for camel harness being the source of a surprising number of invasive plant species.

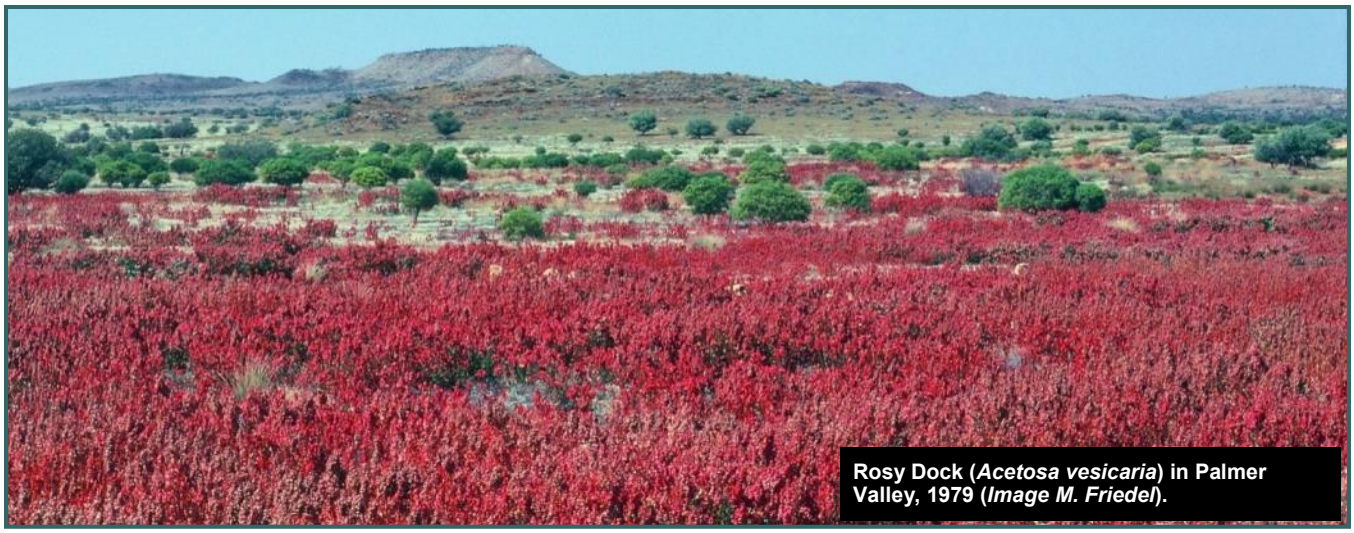
Not so surprising was the evidence for Buffel Grass (*Cenchrus ciliaris*), which was first recorded in AVH south of Wyndham in 1897, near the Ord River. Camels were in use, supplying the goldfields at Hall's Creek, and the cameleers commonly rested at waterholes and creeks. From the 1880s, camels were sourced from India to modern Afghanistan and were brought into Western Australia via Fremantle predominantly, as well as Geraldton, Port Hedland and Albany. They serviced the pastoral industry and mines both inland and along the WA coast. Joe Moore, storekeeper at Port Headland, persuaded school children to collect the seeds from buffel grass growing around the town from about 1910, and distributed it to stations in the district.



***Top*: Buffel Grass at Nicker Creek WA, 2014, from 1930s Michael Terry expedition (*Image M. Friedel*).**
***Bottom*: Afghan camels and their cameleers spread several invasive weeds throughout Australia (*Image Muslim Village*).**

Buffel grass also came with camels via Port Augusta from the 1860s, and camel trains and Ghan towns were a feature of much of inland South Australia, Northern Territory and New South Wales, as well as WA. The first herbarium record for NT is Woodforde Well in 1931, but we know from Walter Smith that cameleers were deliberately spreading buffel grass well before that.

Fountain Grass (*Cenchrus setaceus*) first appears in AVH in 1903 at Eurelia, near Orroroo, South Australia. Cloncurry Buffel (*Cenchrus pennisetiformis*), supposedly introduced by General Birdwood after WWI, appears in 1915 in the Geraldton-Greenough area. Birdwood Grass (*Cenchrus setigera*), appears at Roebourne in 1932, in keeping with its introduction by General Birdwood. Hence



Rosy Dock (*Acetosa vesicaria*) in Palmer Valley, 1979 (*Image M. Friedel*).

it's likely that three of the *Cenchrus* species, including buffel grass, came with camels initially, and that subsequently there were deliberate introductions.

Rosy Dock (*Acetosa vesicaria*) was first collected by naturalist Richard Helms in Perth in 1892, after he left the Lindsay expedition in the Murchison district. Rosy dock is native to north Africa, southwestern Asia and the Indian sub-continent, so it's a likely accidental inclusion in camel harness arriving in Fremantle.

Kapok Bush (*Aerva javanica*) was found in 1937 on the de Grey River and Roy Hill Station in 1938, according to AVH. The Ord River Regeneration Project was undertaken from the 1960s, using seed sourced from existing populations on Anna Plains station in the Pilbara and Fitzroy Crossing in the West Kimberley. These populations were understood at the time to have come from camel harness, and kapok bush was known to be used historically by Arabian people for cushion and saddle padding.

Above: Kapok Bush (*Aerva javanica*) at Alice Springs, 2017 (*Image Weed Management Branch, NTG*).
Below: Rubber Bush (*Calotropis procera*) on Barkly Tablelands, 2004 (Weed Management Branch, NTG).

Perhaps more surprisingly Rubber Bush (*Calotropis procera*) is likely to have arrived with the camels that serviced the railhead at Mungana, in Queensland, for the nearby copper mines. A railway operated from Mareeba to Mungana from about 1900, and Mungana was the focus for camel teams for about six years. Rubber bush was first reported in AVH in 1935 at Mungana.

And of course the Date Palm (*Phoenix dactylifera*) was distributed by cameleers, all up giving us quite a substantial list of species likely to have arrived with cameleers and their camels.

Marg would like to hear from anyone with any additional information – whether in support or counter to her story. *Blog*►

~ Marg Friedel

Marg will be presenting her talk "Where did they come from and how did they get here" at the Rangelands Seminars on Friday 12th May 2017 at 3:30 pm at CDU's Lecture Theatre.

Note: This will be a repeat of talk given to the Alice Springs Field Naturalists in March 2017.

Long-term Land for Wildlife Members Get a Spruced-up Report

This year marks 15 years of the Land for Wildlife program in central Australia. As a result, we have been endeavouring to revisit some of our members that signed up in the early days and see how they are tracking.

Are you a long-term member and are interested in a reassessment? Get in touch and we will try and schedule a visit!

» Wanngardi Caravan Park

Michael and Andrea have been members of the Land for Wildlife program since 2003, signing up a year after the program began in 2002. Wanngardi Caravan Park is a rural park that translates to 'Native Pine' in Warlpiri.

Wanngardi has a range of local and non-local natives on site, as well as some native forbs and impressive River Red Gums (*Eucalyptus camaldulensis var. obtusa*) along the creekline.

Many species of bird call the property home, including Galahs and Ringneck parrots.

***Clockwise from Top*: Ranges view from Wanngardi Caravan Park, Perennial Yellowtop (*Senecio magnificus*) and caterpillar and Australian Ringneck (*Barnardius zonarius*) sitting in a tree on the property.**

A property with a view for Bryan.

Michael Hewett has been doing an excellent job at encouraging wildlife and is also doing his bit for the environment by installing several large solar panels to keep the property powered.

» Bryan Clark

Bryan Clark has been a member since 2003 and has turned his property into a haven on the hillside. A few weeds remain a challenge but the natives are shining through, with Spinifex, Sennas and Woolly Cloak Ferns calling the slope home.

Bryan has goals of turning the property into an artist retreat in perpetuity, somewhere that artists can stay to find inspiration and calm.

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Bryan's property is also home to a host of wildlife, including Euros (*Macropus robustus*), Caterpillars, Australian Ringnecks and a range of honeyeaters.

***Left*: Yipa (*Boerhavia schomburgkiana*) is prolific on Bryan's property. *Right*: Caterpillars feeding on Dead Finish (*Acacia tetragonophylla*).**

Golden Everlasting (*Xerochrysum bracteatum*) in bloom and White-plumed Honeyeater (*Lichenostomus penicillatus*).

» *Campfire in the Heart*

David and Sue Woods have been members of Land for Wildlife with their retreat, Campfire in the Heart, since 2004. The property has undergone a range of regeneration phases in that time, resulting in a well-established and self-maintaining native garden. The property has a range of native forbs that have flowered over summer, providing an array of colour. There are a couple of splendid Beefwood (*Grevillea striata*) on the site, and four species of Senna, among other natural beauties.

The property is home to Fairy Martins (*Petrochelidon ariel*), who have built nests under the carport eaves. Babblers (*Pomatostomus sp.*) have also constructed nests in the taller trees, while numerous White-plumed Honeyeaters (*Lichenostomus penicillatus*) chatted and squeaked to make their presence known.

You can find out more about their property and retreat, by heading to their website Campfire in the Heart.

New Land for Wildlife Member

» *Jim and Lorraine Sligar*

Jim and Lorraine are fairly new to town and eager to control Buffel Grass (*Cenchrus ciliaris*) and watch birds from their elevated property. Jim is a keen birdwatcher and has already ticked off dozens of species that have been viewed from his verandah. There are daily fly-bys of Red-tailed Black Cockatoos (*Calyptorhynchus banksii*), a resident Mistletoebird (*Dicaeum hirundinaceum*), among others.

Jim, a teacher, is keen to try his hands at looking after worms and is learning about bee-keeping in central Australia. He plans to revegetate the property with more natives.

Jim and his desire to identify the grasses on his block has given Land for Wildlife momentum to develop a grass guide (see the March issue of the LFW Newsletter). Keep posted on the progress, as copies will be made available to members once a more comprehensive grass sample set has been collected.

Native Fuchsia (*Eremophila latrobei*) and Potato Bush (*Solanum ellipticum*).

Upcoming Events

» Pets on Parade: 28th May

Land for Wildlife will be hosting a stall at Pets on Parade at the end of the month. Pop by to learn more about the Domestic Cat Monitoring and Awareness project and how you can get involved in the program.

We will have copies of the newly printed edition of Reptiles and Frogs of Alice Springs by Nic Gambold and Deb Metters available. We will also have the usual membership information and planting advice.

The event runs from 8:30 am to 11:30 am at the Alice Springs Civic Centre Lawns. The parade will be followed by a range of activities and prizes.

You can find out more about the event by heading to the Alice Springs Town Council website.

» World Parks Day: 1st May

A day to pause for a moment and recognise the role that parks play in our everyday life. They are places where people from all backgrounds come to congregate, where that people can connect with nature and educate themselves in an urbanised society. Take a walk, go for a ride, have a picnic and go nature spotting.

> *Cities without parks have no limbs to play, no lungs to breathe, no mind to wonder, no heart to live, and no spirit to soar.*
>
> *~ Steve Coleman, Washington Parks and People*

» International Migratory Bird Day: 10th May

This day recognises the importance of migratory bird stopover sites and their habitats. Find out about a stopover site or help to create ideal stopover sites on your property.

» International Day for Biological Diversity: 22nd May

The international day for biological diversity has the theme of biodiversity and sustainable tourism for 2017. Biodiversity, at the level of species and ecosystems, provides an important foundation for many aspects of tourism.

New Garden for Wildlife Members

A host of new members have joined the Garden for Wildlife team.

» Col and Tiff Shaw

Col and Tiff have a gorgeous native garden that is well established. The native Yellow-throated Miner's (*Manorina flavigula*) are posing a bossy problem, keeping other native birds at bay on occasion. However, their yard is home to many native reptiles, including some juvenile Bearded Dragon's (*Pogona vitticeps*).

» Mikaila Mangohig

Mikaila is starting from scratch with her new home. She plans on planting as many local natives as possible once the earthworks are finished and Garden for Wildlife have begun providing her with the information to get her started. Good luck Mikaila!

» Tim Seager

Tim is an eager resident of Alice Springs, with a native garden and a water feature to attract wildlife. Tim has been planting out the top level of plants and is now working on filling out the mid-level and lower canopy.

An Australian Ringneck (*Barnardius zonarius*) was chortling in one of his trees when we visited, quite comfortable with the lush yard.

» Laryssa Montgomery

Laryssa is new to the Garden for Wildlife team and has been seeking information on native plants that will grow successfully in her garden. We have provided her with a list of local natives and some handy fact sheets for planting in the area.

» Bruce Owens

Bruce has a lovely established native garden in Eastside and is successfully attracting wildlife to his garden. Like many other residents, the grasshoppers have been a challenge for Bruce (attacking citrus trees and other fruit trees), but the plants are recovering quickly as a result of the additional rains in the area.

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» *Jen Noble*

Jen has been interested in the program for some time and is volunteering with the Australian Plants Society so is well on her way to learning about the local native plants that are best suited for planting in central Australia.

Jen's garden is home to a male Western Bowerbird (*Ptilonorhynchus guttatus*) and his bower, which has been cleverly build on top of the garden shed, so that it is clear of neighbourhood dogs. We will endeavour to obtain a photo to share with you in an upcoming newsletter!

» *Elizabeth Moloney*

Elizabeth is new to town and lives in a unit with a paved area and so is seeking local native plants that can be planted in pots and moved about. Garden for Wildlife has provided her with a list of plants native to her block, some of which will be suitable for pots.

Some other general native plants, such as Sticky Bluerod (*Pterocaulon sphacelatum*) and other native herbs are suitable as they don't grow too tall or spread in their root system. Cassias (*Senna sp.*) are also suitable for large pots filled with standard potting soil with good drainage.

Not a member yet? Get in touch with us at lfw@lowecol.com.au to find out how to join!

Newhaven Begins the World's Largest Feral Cat Eradication Project

Newhaven Sanctuary, located north-west of Alice Springs and coordinated by the Australian Wildlife Conservancy, has begun the construction of a feral cat-proof fence. The aim is to exclude feral cats from a 9,450 hectare area in the first stage and increase the population of ten nationally threatened mammal species, with the assistance of the Warlpiri traditional owners. You can read more about Newhaven Wildlife Sanctuary and the Endangered Wildlife Restoration Project by clicking the respective links while viewing the newsletter as a PDF online.

Further Reading

Click the link symbol to be redirected to the article

Article • Feral animals and diseases greater threat than habitat loss

Article • Where the old things are: Australia's ancient trees

Article • Northern Territory Government announces $10 million to map soils and water for development

Article • Cat Tracker reveals the unknown adventures of felines through GPS technology

Article • Kakadu threatened species team take on feral cats

Article • Talking point: Cats should never be free to roam

Article • Snake population 'like a can of spaghetti' following heavy rainfall

Audio • Alice Springs man eats grasshoppers to combat plague

Do you have any stories or images to share? Get in touch! We are always looking for members to share their experiences via our social media and newsletter. Email us with your suggestions of articles or topics that you wish to hear more about.

Cheers,

Caragh and Bill

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