

An aerial photograph of a desert landscape. A winding, lush green track, likely a watercourse or a path, snakes through the arid, reddish-brown terrain. In the upper left, a circular spring or pond is visible, surrounded by dense green vegetation. The overall scene is a mix of vibrant green and earthy reds and browns.

THE OODNADATTA TRACK

String of Springs

A guide to water, plants and trees of
the Oodnadatta Track

Created by the local
Marla-Oodnadatta
Landscape Group

Welcome to Country

We acknowledge the traditional custodians whose ancestral lands we are travelling on.

We acknowledge the deep feelings of attachment and relationship of Aboriginal people to country – the Arabana, Kuyani, Antakirinja and Yankunytjatjara people.

We also pay respect to the cultural authority of other Aboriginal groups whose country we may travel on during our journey in this region.

THE MOUND SPRINGS

The mound springs featured in the String of Springs are mostly on Arabana Country. While the group's tribal name is Ngurabanna, meaning the land of the mound springs, the group has been known as Arabana since 2012, the same year it was granted Native Title to an area of more than 69,000 square kilometres.

The wide and spacious Arabana Country contains many places of significance. Some secret sites relate to men's business and others, like Kati-Thanda (Lake Eyre) link the past with the present.

Mound springs are precious water holes central to Arabana, and Aboriginal Culture more broadly, and they help sustain life in our beautiful desert lands. Maintaining bores and the natural mound springs within the region helps to keep land healthy and language strong.

Cover image: an aerial image of The Bubbler on the Oodnadatta Track by Julie Fletcher

THE OODNADATTA TRACK

Visitors to the Oodnadatta Track might think they are journeying over waterless plains. But beneath them lies one of the world's largest aquifers, the Great Artesian Basin.

And it is along the edges of the Oodnadatta Track that the Basin squeezes to the surface, creating oases of springs and attracting birds, wildlife, industry and tourists.

There's not much rain – it varies from around 180 mm (7 inches) a year in the northern parts of the Track to around 115 mm (4½ inches) in the south. Temperatures can be high, sometimes exceeding 50°C in summer.

Rainfall patterns are largely cyclical, ranging from years of dry to heavy flood events.

In wet times, plants flourish and animal numbers boom. In dry times, this country is lean and all life keeps a low profile. In these times, vegetation and wildlife concentrate around refuges, such as waterholes and mound springs.

The Oodnadatta Track crosses the traditional lands of three Aboriginal groups. In the south, between Lake Torrens and Kati Thanda-Lake Eyre are the Kuyani people; most of the west of Kati Thanda-Lake Eyre has been traditionally occupied by the Arabana people; and to the north is the land of Arrernte people. Now many people from further west, Antikirinya people, live there too. Indigenous Ranger programs that are caring for Country operate in this region, including the Arabana Rangers.

A string of springs runs right through this country. Knowledge of these springs has been passed down through generations of Aboriginal people since ancient times. It was a path that was well travelled whether for cultural ceremonies or trading purposes. The Aboriginal people passed their knowledge on to explorers and settlers, telling them, 'It isn't the straightest route, but it's the only one if you want to survive'.

The Track has many stories to tell, and water is at the heart of all of them.

- This is the path of ancient Aboriginal trade routes, where traders hopped from one spring to another, carrying materials from the Flinders Ranges deep into central Australia and back;
- The string of springs following the Track made it possible for John McDouall Stuart to complete the first crossing of Australia's interior from south to north in 1862;
- The overland telegraph was constructed along this pathway, linking Australia to the world for the first time;
- This was the route of the Great Northern Railway, which made the land of the Northern Territory accessible for white settlement;
- And this is pastoral country, where Sidney Kidman and others developed their leases such as Anna Creek Station.

All of this has only been possible because of the waters of the Great Artesian Basin that come to the surface along the Track, creating the 'string of springs'.



The Oodnadatta Track

This map is drawn to give an idea of water and plant locations and should not be regarded as a driving map.



APPROXIMATE TRAVEL DISTANCES

Marree to Bopeechee	65km
Bopeechee to Roxby Downs	122km
Bopeechee to William Creek	134km
William Creek to Coober Pedy	160km
William Creek to Algebuckina	143km
Algebuckina to Oodnadatta	56km
Oodnadatta to Marla	208km
Oodnadatta to Coober Pedy	190km
Oodnadatta to Dalhousie Springs	179km
Dalhousie to Kulgera	355km

PUBLIC ACCESS ROUTES (PARs)

Only signposted Public Access Routes on pastoral stations can be used without first seeking landholder consent. All other station tracks are considered to be private tracks. Contact the Public Access Officer on 1800 678 447 or (08) 8648 5300 for further information.



Wangkangurru/Yarluyandi

Simpson Desert
Regional Reserve

Simpson Desert
Conservation Park

DOG FENCE

One of the longest man-made structures in the world at 5600km, the Dog Fence was built to protect sheep from predation by dingoes and wild dogs.

It marks the northern boundary of sheep production country. The more vulnerable sheep are run in the protected south, while the cattle run to the north can better withstand dingo and wild dog impacts.

In 2019, the Commonwealth and State Governments and the livestock industry funded a \$27.4 million rebuild of two-thirds of the South Australian Dog Fence. Designed and built to suit the terrain, soil type and existing pressure from wild dogs and other animals, the work is due to be completed by 2025.

WANDERING STOCK

Avoid travelling at night as cattle will move out to feed along the Track. Even though there are plenty of cattle around, you will probably only see them in small groups, except during mustering or at watering points on warmer days, when they are more likely to appear as big mobs.



BE PREPARED FOR THE OUTBACK

Travelling in remote Outback South Australia can be a rewarding and enjoyable experience. It can also be very hazardous with rapid onset of extreme weather conditions, challenging terrain and isolation from services. For a safe journey, it is essential to plan carefully, have a well maintained and equipped vehicle, and be well-prepared and well-provisioned. Refer to the Top 10 Travel Tips on the back cover for more information.



A typical mound spring.

THE GREAT ARTESIAN BASIN

The Great Artesian Basin (GAB) is one of the world's largest groundwater basins, underlying 22 per cent of the Australian continent.

Its significance as a water resource is magnified by its location, underlying arid and semi-arid landscapes to the west of the Great Dividing Range. The Oodnadatta Track lies on the western margins of the GAB. In many places the basin water has squeezed to the surface in the form of natural springs. Many of these are known as mound springs because of the characteristic mounds associated with them. The mounds have been formed by mineralised material coming to the surface with the ancient water.

The springs have been discharging GAB water for at least one million years, during which the climate has changed dramatically around them. They occur in the driest parts of Australia and provide oases for unique aquatic life forms. The ecological communities of native species dependent on natural GAB groundwater discharge are listed as endangered under the *Australian Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. These communities include the amazing diversity of unique and relict flora and fauna that are found in the springs of the Oodnadatta Track.

Groundwater naturally discharges from the basin via diffuse upward leakage and spring discharge. Pumping and discharge from bores over the past century has also added a significant level of discharge. Recharge occurs around the margins of the basin with most of the current recharge occurring in the east. The western margin receives very little local recharge and only partial recharge from the east. However, the basin is vast and it is this reserve of water that maintains the springs through extended dry periods.

The South Australian section of the GAB is home to almost 5000 individual spring vents in 169 spring groups. Many have great significance for local First Nations people, whose ancestors relied on them as watering points and as sacred sites for important ceremonies. Important cultural stories and practices are linked to springs and their associated topographical features. These springs are located on the traditional lands of the Arabana, Dieri, Kokatha, Kuyuni, Yankunytjatjara/Antakirinja and Wangkangurru/Yariuyandi people.

The largest group of springs is found at the Dalhousie complex, where more than 60 springs are located. Most are not mound springs, but small inconspicuous soaks in the ground. Evidence of extinct mound springs can be found along the track, most notably at Hamilton Hill and Beresford.

GAB water quality varies across the region but is generally slightly saline and neutral to slightly alkaline. The water typically contains high concentrations of dissolved solids which are mainly sulphates in the north and west and

carbonates in the east, with a clear transition in chemistry between Strangways and Beresford Springs.

When white pioneers set out to explore Australia's interior they thought they would find an inland sea. Early explorers were devastated to find an apparently 'impassable' horseshoe of salt lakes. What they didn't know was that beneath the surface lay an ancient water source that sustained wildlife, and now supports a significant pastoral industry; mining, gas and oil operations and a thriving tourism industry.

Emerald Springs and Blanche Cup were the first GAB springs located by white explorers, which opened the way for European settlement. By 1859 the first pastoral leases were established in the region.

CONSERVING GAB WATER

Conserving water and pressure is paramount. Since 1999, the Australian Government, in partnership with GAB states and territory, has developed and implemented the Great Artesian Basin Strategic Management Plan, running programs to cap and pipe free-flowing bores. The Improving Great Artesian Basin Drought Resilience (IGABDR) and the Great Artesian Basin Sustainability Initiative (GABSI) are just two programs that controlled the flow of water from the GAB.

WATER

There are many locations of interest along the Oodnadatta Track, including the springs, waterholes and pastoral interests that make up the *String of Springs*.

Hergott Spring Hergott Spring outside of Marree will be the first of hundreds that can be seen by south-north travelers. Once the northernmost railhead, Afghan cameleers based themselves in Marree, as it was the most reliable form of freight transport from the railway to remote properties. The town still has a strong Afghan heritage.

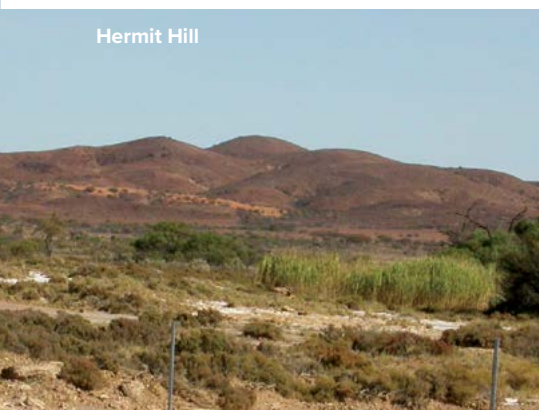


Finniss Springs/Hermit Hill (Wibma-malkara) Wibma-malkara (initiation ground) is an important Dreamtime story to the Arabana people. The spring complex and its surrounding vegetation were a site of men's business that remains very important to Arabana people today.

Stuart Creek, Strangways Springs, Mount Margaret and Finniss Springs were the first pastoral properties established along the Oodnadatta Track. Finniss Springs was home to a unique Aboriginal settlement, thanks to lessee Francis Dunbar Warren. By the 1930s, the station was home to a United Aboriginal Mission school, a church and a community of up to 200 people. Access is only available through agreement with the local Arabana people.

The Hermit Hill spring complex contains nine active spring groups and hosts a number of rare plants and organisms, including salt pipewort. Vegetation linked back to the Gondwanan rainforest era of 40 million years ago can be found here and includes Salt pipewort (*Eriocaulon carsonii* var. *carsonii*), Cutting Grass (*Gahnia trifida*) and sedge known as Bue or Bare Twig Rush (*Machaerina juncea*). The *Gahnia* and *Machaerina* are distinct from southern populations and are further evidence of Gondwana.

Hermit Hill



Fred Springs (Thinti-thintinha Spring)

The First Nations people of this area have a Dreamtime story about this spring. *The Thunti-thuntinha (Willy Wagtail) danced his circular dance to create this spring and the surrounding duplex soils, which are easily airborne in windy conditions.*

The moral to this story is that while it is easy to catch the skillful little Willy wagtail, you must never do so because of the terrible dust storm that may follow.

Curdimurka This stop shares the history of the Great Northern Railway.

Wabma Kadarbu Mound Springs

Conservation Park This set of springs is important to local Aboriginal groups, both for the water it provided in lean times and as a places of spiritual significance.

The park hosts a number of mound springs, notably The Bubbler, Blanche Cup and the now extinct Hamilton Hill spring. The springs support unique crustaceans and gastropods and are excellent examples of the mound springs of the Lake Eyre supergroup.



Coward Springs Pitha Kalti-kalti (Coward Springs) is named after the crooked box tree which once stood at the site. This spring complex has 12 active spring groups, including those in the neighboring conservation park. The springs were a resting spot for the Urumbula people as they travelled north for trade. The bore sunk at Pitha Kalti-kalti in 1886-87 was unsuccessfully capped in 1889. The artificial wetland that exists at the site today developed as a result.

Many date palms were planted in 1989 and are an example of early commercial diversification. Date palm plantations were also established at Oodnadatta, Marree and Lake Harry on the Birdsville Track.

Kewson Hill – The Camp of the Mankarra-kari – the Seven Sisters

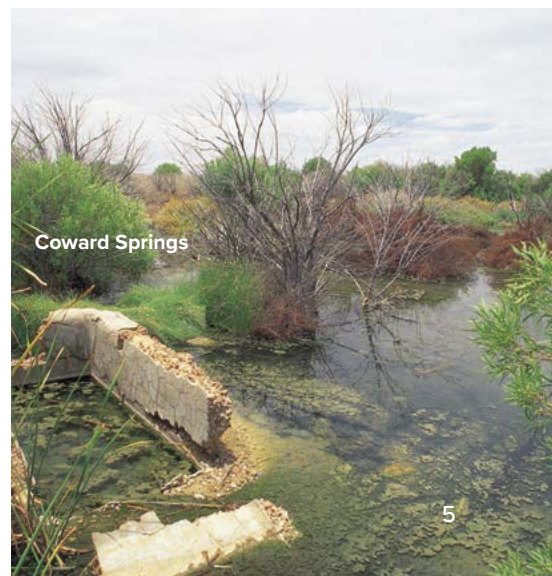
You will find Kewson Hill just past Coward Springs, and the Dreamtime story for this site explains how the mound springs got their colour.

The Seven Sisters came down here to dig for bush onions (yalka-pakanha). As they peeled the onions, they tossed the skins to one side creating the dark coloured extinct mound spring on the south western side of the track and the peeled bulbs to the north east, creating the light coloured hill (yalka-parlumarna), also an extinct mound spring.



Beresford Once an important railway siding, telegraph station and radar station, and the remains of these structures can be seen at Beresford Springs today. The site epitomises the clustering of settlements around water. Here you can see a natural GAB spring; an operating artesian bore; the Beresford dam, now used to water stock on Anna Creek Station; an elevated cast iron water tank used to re-water the early steam locomotives; and a Kennicott water softener, installed during World War II to treat mineralised bore water and prevent lime and gypsum building up in train engines. The softener became redundant when diesel locomotives commenced in 1954.

The permanent water also provides habitat for the lesser known Spike grass (*Elytrophorus spicatus*), which only occurs near bores, springs and in lower areas prone to inundation.





Strangways Springs

Strangways Springs As one of the earliest pastoral leases, Strangways was one of the first to learn the harsh realities of drought. Almost 6000 sheep died in the 1864-1866 drought – about two thirds of the total stock holding. Throughout the district, around 30,000 animals perished.

The secure spring water supply here resulted in the manager's house being used as one of the first repeater stations on the Overland Telegraph, in January 1871. The Peake, to the north, was built at the same time. Repeater stations were located every 200 miles and were exactly that – operators needed to listen to each message and repeat it down the line.

A massive engineering feat, the telegraph line comprised 36,000 poles used to cross the nation, with a pole placed every 100 yards. Construction teams worked out from Port Augusta, Darwin and in both directions from the MacDonnell Ranges. The line was completed on 22 August 1872. The repeater stations were closed in 1896 and replaced by automatic stations at Oodnadatta and William Creek. In 1876, the station homestead was moved to Anna Creek.

In this area you may see Swainsona minutiflora, listed as vulnerable in SA. You may also see Pigface Hemichroa (*Hemichroa mesembryanthera*), near the telegraph station, a vulnerable species that you may also see further north along the Dennison Range.

Kati Thanda–Lake Eyre (Halligan Bay)

For many years, white explorers thought Lake Eyre was connected to Lake Torrens, forming an impenetrable horseshoe. This myth was dispelled when Corporal Alfred Burt rode through the land corridor to meet Warburton's exploration party in 1858.

At 15.2m below sea level, Halligan Bay is the lowest point in Australia and provides a vantage point for viewing Lake Eyre North. It is also Australia's largest lake and the world's largest internally draining catchment. The rivers that feed the lake cover an area of 1.2million square kilometres.

Most of the time, Lake Eyre, including Lake Eyre South which is visible from the Oodnadatta Track, is a dry salt lake. Floods follow large monsoonal rains in Queensland, which flow south via the Cooper Creek or the Georgina-Diamantina river systems. When it fills, the influx of water, birds and life in general is a spectacular sight.



Lake Eyre South



The Lake Eyre Basin is considered one of the world's last unregulated wild river systems. These rivers sustain wildlife and pastoral enterprise throughout the Channel Country of south west Queensland and the north of South Australia.

The Oodnadatta Track crosses almost all of Lake Eyre's western rivers. While it is difficult to imagine the creek beds as watercourses, the reality of their swelling is shown by the many old railway bridges you can still see today. It was the flooded rivers that caused the Stuart Highway and the Adelaide to Darwin rail line to be relocated further west.

Although the 969,000ha lake floods infrequently, it is a haven for wildlife when it does. In flood, the lake supports major breeding events of the Australian pelican and Banded stilt. More than 40 species of waterbird have been recorded, including the threatened Freckled Duck (*Stictonetta naevosa*), Musk duck (*Biziura lobata*) and Australasian Shoveller (*Spatula rhynchotis*), as well as five species of fish, including an endemic ostracod and seven zooplankton species.

Why such a salty crust?

As the waters from past floods have evaporated, dissolved salts have remained behind. When the lake flooded in 1950, a 30cm layer of salt was left in its wake.

Ancient Lake Eyre Surface

The darker patches that can be seen on the top of small mounds near Lake Eyre South, or at Hermit Hill, are remnants of the ancient seabed. Look closely and you will see these sedimentary stones are distinctive in appearance and texture.

Anna Creek Australia's largest pastoral lease at around 24,000 square kilometres, Anna Creek Station is owned by the Williams Cattle Company. The station is the only property in the region that has been continuously occupied and never abandoned due to drought. It was also one of the first places in South Australia to drill for GAB water. Many of the early wells were failures, with only 27 of 84 wells sunk in 1898 able to keep stock.

Eringa Station, to the north, was purchased by Sir Sidney Kidman in 1899 and was the first property he owned in his own right. He went on to become the largest landholder in the country, focusing on establishing large pastoral runs that could withstand the harsh season changes of the outback.



Anna Creek Station

Grinding stone quarry For thousands of years, First Nations people quarried this site by hand to get slabs of sandstone to split and shape into grinding stones. Occasionally they would trade these stones for shields and spears, brought down by visitors from the north.

The northerners had no suitable stone for grinding, but plenty of wood for shield making, so the exchange suited both parties.

There is no public access here.

Old Peake This was an important site for First Nations people because the springs closest to the Peake are called *Yardiya Parnda* and *Yardiya Kupa*, meaning big and little spindle. The two ancestral snakes *Yurkunangku*, the red bellied black snake and *Kurkari*, the green snake camped at *Yardiya* and spent time sitting there making hair string with a spindle. To stop the wind blowing away the bits of hair they were using, they built a wind-break of rocks that are still there today.

Old Peake is one of the largest and best preserved pastoral homestead ruins, accessible by a public access route.

Taken up as a pastoral lease by Philip Levi in 1859 and was abandoned because of drought in the 1860s. An Overland Telegraph repeater station and copper mine were once located at Old Peake, partly because of the good waters from the numerous permanent springs.

Algebuckina Waterhole As the largest refuge waterhole in the Neales-Peake river systems, the Algebuckina Waterhole is crucial to the survival of both wildlife and stock.

Eight species of native fish such as the Bony Bream, Desert Goby's, Lake Eyre Hairyhead and the less common Welch's Grunter live in these waters, and if you're lucky, you may see the rare Australasian Darter blocking the sun's reflection and the vulnerable Australian Bustard may be spotted within the vicinity of the waters.

The Neales is one of the western rivers of the Lake Eyre Basin. The rivers and creeks of Lake Eyre are considered to be among the last wild river systems in the world. Capable of extreme variability in flow, they have generally short periods of high flow following rain and extended periods of no flow.

With small flows most years, the Neales experiences large catchment scale floods every 2.5 to three years. These floods generally contribute some flow into Lake Eyre North. Generally floods in the western rivers do not carry enough volume to fill Lake Eyre, with floods normally the result of flows from the northern rivers.

The enormous Algebuckina Bridge demonstrates the extent of flooding possible in this region and the engineering feats necessary to construct the railway around such conditions.



Algebuckina Waterhole

Oodnadatta Oodnadatta, on the Neales River, and the surrounding area is of immense cultural significance to the Arabana people. Here there is a spiritual account of rocks that can be seen from the plateau on the northern approach to Algebuckina.

A group of waterhole frogs set out from Utapuka (Hookey's waterhole at Oodnadatta) and headed down the Neales River to go to war with some frogs from further east. On the way, at Algebuckina, the frogs were teased by the people. "What have you come for, you with the big, wide mouths?" The angry frogs turned the people into stone. The jumbled rocks are now seen as the people, while the larger boulders are the frogs.



Rocks near Algebuckina

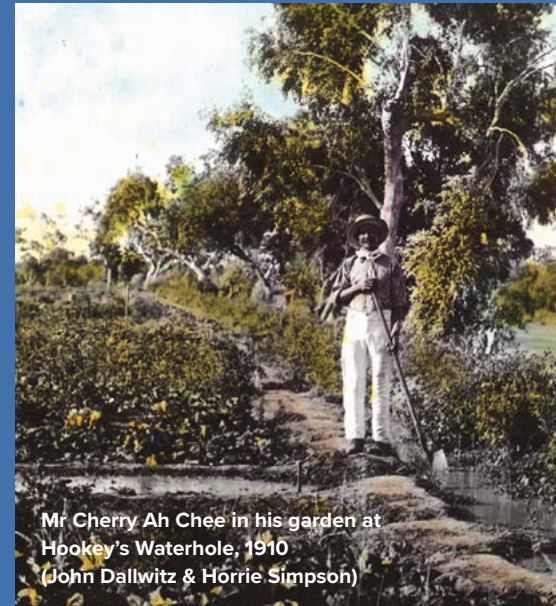
Dalhousie Springs The Dalhousie Spring Group consists of 13 active spring groups, representing some of the largest and finest examples of artesian springs in Australia. Ranging in size and composition, the largest pool is 160 metres long and 12 metres deep. This group accounts for about 40 per cent of the water naturally discharged from the Great Artesian Basin. Witjira National Park was created in 1985 to protect the springs, which are home to at least 13 crustaceans, three snails and five fish found only at Dalhousie Springs. There are several other species that only occur in single springs and more than 90 species of plants found within the springs. The springs are ringed by Inland Paper-bark (*Melaleuca glomerata*).



Dalhousie Springs

Once a terminus of the Great Northern Railway Oodnadatta was established in 1889. SA's most northerly railway town, it was the starting point for travelers heading to the Northern Territory, and a major railhead for cattle walked down the stock route from Charlotte Waters to the north, and from the Musgrave and Everard Ranges to the north-west. By 1893 there were some 50 Afghans based at Oodnadatta working 400 camels in every direction from the town.

A Chinese community also flourished, setting up market gardens at Hookey's Hole on the Neales River.



Mr Cherry Ah Chee in his garden at Hookey's Waterhole, 1910 (John Dallwitz & Horrie Simpson)

Murdarinna On the top end of the Oodnadatta Track about 65km from Oodnadatta, at Murdarinna you will see examples of early pastoral technology such as the remains of the above ground 'turkey nest' dam, the timber lined well and timber stockyards.

A walk through the vegetation here may reveal the Caustic vine, a wild tomato with purple flowers, Emu bushes with large striking red flowers against bright green foliage, contrasted by the late winter yellow flowers of the myriad of Desert Cassias and the grey blue foliage of Bladder Saltbush (*Atriplex vesicaria*). The young Mulgas here look more like pine trees and you will notice their foliage, it points upwards directing rain to the base of the plant.

Poached-egg daisies
(*Polycalymma stuartii*).
They will flower for
months in good years

PLANTS

Good rains can fall at any time of the year and these rains can change everything along the String of Springs.

In the late autumn and winter they turn enormous stretches of countryside into spectacular landscapes of colour. Dunes and sandy plains might be covered in carpets of annual flowers – yellow, white and pink daisies, or Blue Cattlebush (*Trichodesma zeylanicum*). Summer rains can produce brilliant spreads of Sturt's desert pea (*Swainsona Formosa*) and Swainsona peas of orange, white, pink and purple hues.

Showy groundsel, one of the larger yellow Senecio daisy bushes makes an unexpected splash of colour along drainage lines and in the sandy patches of road verges alongside lush stands of the Native Scurf Pea (*Cullen australasicum*) and pink Inland Austral Hollyhock (*Malva weinmanniana*).

Climate, landforms and soil types determine where and when plants will grow in the erratic climate of this country, plants have evolved in order to survive.

Soil types vary along the string of springs – ranging from clays to sandy loams, from sand plains to limestone and saline soils; from alluvial soils associated with swamps and watercourses to rocky ridges, hill slopes and hard gibber country. All are habitats for different plants where the distribution of nutrients varies greatly.

Germination

Plants in this area can be particular about when they germinate and grow. Grasses and some wildflowers will germinate after summer rains, while short-lived herbs and most wildflowers follow winter rains. Sturt's desert pea germinates only after summer rains when the ground is warm. It will not germinate in two consecutive years, even when the rainfall is apparently adequate and seed is in the ground.

Temperature also affects germination. Plants such as Bladder saltbush will not germinate in hot conditions. Timing can be very specific. For instance, you will see Button grass (*Dactyloctenium radulans*), a favourite of the

Budgerigar, following rains during February when optimum ground temperatures and rainfall are likely.

Five-minute Grass (*Tripogonella loliformis*) is another quick-growing opportunist that grows in small perennial rooted tufts in low lying clay pans. It is an important species in good numbers as a soil stabilizer and provides a quick bite for fauna.

Seeds can lie dormant, protected by their tough outer coverings, for many years until the right conditions trigger germination. One such plant is the pink flowered Small-flower Swainson-pea (*Swainsona minutiflora*) which only has a small number of location records and are generally seen in years that coincide with La Nina cycles.

How plants survive

Dry times are a normal part of the climate cycle out here and most plants are able to evade drought conditions.

Drought-resistant perennials are always present and tall shrubs and trees maximize their access to water by a combination of shallow roots to capitalize on light rains, and a deep tap root system to reach the deeper water reservoirs.

In exceptionally dry times, most arid-perennial plants will stop growing. Some will shed leaves to preserve nutrients and energy.

Chenopod shrubland

Chenopod shrublands are plant communities largely from the Chenopodiaceae family. It includes Saltbush (*Atriplex* spp.), Bluebush (*Maireana* spp.), Samphire (*Tecticornia* spp.) species, Bindyii (*Sclerolanea* spp.) and Buckbush, better known as Roly poly or Tumbleweed (*Salsola australis*). Much of the low vegetation you see along the track is from this family. They are all plants that have adapted to South Australian arid zone conditions.



Regal birdflower
(*Crotalaria
cunninghamii*)



Frankenia
(*Frankenia
serpyllifolia*)
A hardy sea-
heath. Look
for it on gibber
plains and
around salt
pans and
mound springs

What do animals eat out here?

Pastoral country stock have a greater choice of feed than those in more settled areas. They find a range of grasses, shrubs, herbs, forbs and trees that are palatable to varying degrees. Most grasses, especially the dominant native Mitchell grasses, which grow after summer rains, are excellent cattle fodder and provide good cover in boom periods for native animals such as the Plains mouse (*Pseudomys australis*). Good seasons can also produce an abundance of the fleshy-leaved plants Munyeroo and Native spinach (also known as New Zealand spinach). These are particularly useful because on a diet of these moisture-laden plants, stock can spend extended periods of time away from their watering points. In drier times, cattle graze on nearly all of the chenopods with the exception of the Samphires. However, a diet high in saltbush requires a supply of reasonable water to counteract the salt.

These native species are under threat from buffel grass, an aggressive introduced species that form dense patches along disturbed sandier roadsides. This species, which is outcompeting native grasses, provides less nutritional value than native species and provides a heightened fire risk. Be sure to not drive through infestations of buffel – it may damage your radiator or worse, lead you to become a super spreader.

Why did so many pastoral leases fail in the early days?

Early white settlers were attracted by the presence of permanent waters in the springs, however they failed to recognise that the surrounding vegetation was insufficient and quickly eaten out. This led to early failures until bores were sunk into the GAB and water distributed via open bore drains to more distant grazing areas.

Here are some of the most common and more interesting plants you will see along the track, along with the Traditional uses.

Mulga wattle (*Acacia aneura*) Mulga trees occur as singles along watercourses on gibber plains, or they grow in communities on the sand dunes with Sandhill wattles (*Acacia ligulata*), a myriad of Desert Cassia's (*Senna* spp.), Emubushes (*Eremophila* spp.) and Dead finish (*Acacia tetragonophylla*) trees or as denser plantations, as at Hermit Hill.

First Nations people used the timber to make digging sticks, boomerangs, shields and spears. It was also an important food source, with seeds collected, roasted and ground into a nutritious paste similar in texture and taste to peanut butter. They also cooked the paste in the coals as 'damper'. The lerp scale makes a tasty honey-like substance and edible insect galls (Mulga 'apples') on the trees contain nutritious edible grubs.

Early pastoralists used the timber for fence posts and Europeans find the colourful timber excellent for timbercraft.

Mulga survives the harshest of climatic conditions, but not fire. Rabbits strip the bark seeking moisture in dry times and cattle graze it when there is little else offering.

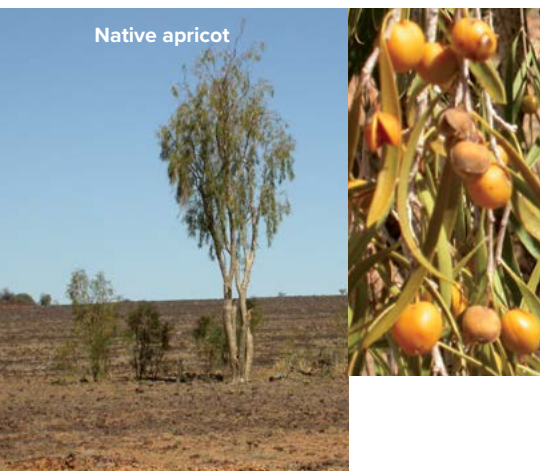
Sandhill wattle (*Acacia ligulata*) A bright green shrub that grows in dense stands on dunes, swales, sandy plains and also around salt lakes. Sandhill wattle has a fairly short lifespan (10-25 years). Whole populations die within a few years of each other and are replaced following the next major rainfall event. Stock rarely graze this plant.

Native apricot (*Pittosporum angustifolium*) Often recognized by its drooping habit, the Native apricot either stands alone or as a parent plant surrounded by a number of young plants on the plains or along smaller watercourses in gibber country. Hardy and drought resistant it produces bitter, inedible orange, olive-shaped fruits.

First Nations people ground the seeds into a poultice that they applied externally to relieve stomach pains or cramps. The seed's oil coating is said to be useful for rubbing into sore muscles and sprains.

Similar to the Native plum, you will find good examples at Poole Creek.

Native apricot



Mulga wattle



Sandhill wattle



Dead finish



Sandhill canegrass



Caustic vine



Native plum

Native plum (*Santalum lanceolatum*)

Distinguished by its dark rough bark, the Native plum is related to the Quandong and Sandalwood, and all three are root parasites. It is not unusual to see Native plum growing together with another shrub. They sucker readily, so look for them growing in small clusters along the track. The ripe fruits are small, deep-purple and are sweet and juicy, but have little flesh.

Aside from being an important food, First Nations people roasted and ground the kernels into a paste or they used the ground fresh kernels as a medical linament. They also boiled the bark and used it to help fight coughs and colds.

Dead finish (*Acacia tetragonophylla*)

An extremely slow growing spiny tree you will see scattered along the Oodnadatta Track, often close to the road. It has one of the hardest of Australian native timbers, after the endangered Waddy tree (*Acacia peuce*) and the Red mulga or Mineritchie (*Acacia cypherophylla*) found further north.

The seeds of this tree were ground and eaten by First Nations people, who also used its colourful timber for artefacts.

Except in extremely dry times, stock generally avoid the spiny foliage, whereas camels and goats are less fussy.

Its common name is thought to come from when it defoliates in dry times, it looks dead, although it is one of the longer lasting plants in a drought. The dense nature of its prickly branches makes it an excellent refuge for small birds, such as nesting Zebra finches. One Dead finish bush might host up to 20 separate Zebra finch nests. Look for the bush and these little birds in the Algebuckina Bridge area.

Sandhill canegrass (*Zygochloa paradoxa*)

In the swales of sandhill country, look for large clumps of perennial Sandhill canegrass on the sides of the dunes. Very drought-resistant and a valuable sandhill stabilizer, in dry times, the grass above-ground dies right back, taking on a blue-grey hue. They become dormant and can stay this way for years while the root systems survive underground.

Caustic vine (*Sarcostemma viminalis*)

Known to First Nations people as Medicine Bush, the milky sap of the Caustic Vine was applied to burns, sores and warts forming a skin over the affected area that would then heal after four to five days. It is poisonous and is not grazed by animals.



Pop saltbush



Old man saltbush

Saltbush (*Atriplex species*) There are many saltbushes, both perennial and annual which get their name because they can grow in saline soils. Found in a variety of habitats from dunes to clay soils, gibber plains or along watercourses and flood plains, the small and colourful annual Pop saltbush with pink fruits grows along the verges of the track after good rain.

Bladder saltbush (*Atriplex vesicaria*) Bladder saltbush gets its name from the tiny bladders seen on the leaves under a microscope. Very drought resistant, it can live for 20-30 years and sheds its leaves in dry conditions. A very useful indicator of rangeland condition, it is also a useful fodder plant. Early pastoral pioneers ate bladder saltbush in extremely dry times when there was no water to grow vegetables.

Old man saltbush (*Atriplex nummularia ssp. nummularia*) Old man saltbush has a deep root system spread over a large volume of soil. It is very resilient and defoliates to tolerate extended droughts and can also cope with long periods of shallow flooding. Livestock graze this plant. It has been cultivated for a variety of purposes including hedges, wind and fire breaks.

Oodnadatta Saltbush (*Atriplex incrassata*) Nearly all of the saltbush you can see on the gibber plains around Oodnadatta is a variety of Old Man Saltbush known as Oodnadatta Saltbush. The endangered Thick-billed Grasswren (*Amytornis modestus*) favours habitats dominated by Oodnadatta Saltbush. Cinnamon Quail Thrushes are also seen around these shrubs and are identified by their tail fan whip to ground movements.



Oodnadatta saltbush



Gidgee

Gidgee (*Acacia cambagei*) One of the larger trees that line watercourses and creek crossings along the northern parts of the Track, you will often see the Gidgee alongside the Coolabah. Also known as 'Stinking wattle', it gives off a very strong smell in wet or humid weather.

Coolabah (*Eucalyptus coolabah*) Growing along watercourses and flood plains, the Coolabah has a bark that is rough and flaky in the lower parts and smooth and white higher up.

First Nations people stripped the bark of certain Coolabahs, dried it out and burnt it. The ashes were mixed with the leaves of the Native tobacco plant, brought down from the north, to produce a gum that was chewed and enjoyed for its narcotic effect.

The termite resistant timber was used by early pastoralists for fencing and stockyards.

It is very resilient, being fire, flood and drought tolerant. Birds, especially Galahs and Little corellas love the Coolabah because of its ideal hollows for nesting.

Bluebush (*Maireana ssp.*) Getting its name from its attractive blue/grey or blue/white succulent foliage, you will find Bluebush on rocky rises, mesa slopes, growing in duplex soils (a mix of sand over clay) in the swales between dunes and on the plains. All are perennial, some living for hundreds of years.



Bluebush

Coolabah



Nitrebush (*Nitaria billardierei*) Nitrebush often grows in chenopod communities, although it is not one itself. It is an extremely drought-resistant shrub you will see growing on large soil mounds along the Track. Look for it around salt lakes, mound springs, on flood plains, dam banks and on sandy soils and plains. In a good year, the fruit can be made into jam.



Nitrebush



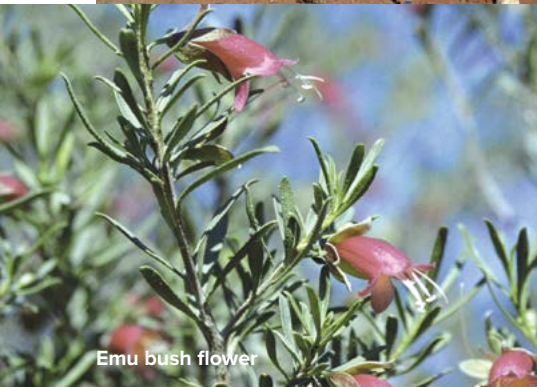
Samphire

Samphire (*Tecticornia species*) The most saline of all the chenopods, Samphires are a salt-loving succulent shrub with nodule-like branch tips that function as leaves. Growing in saline soils and country that is prone to flooding, they are widespread across the arid region. Livestock seldom graze samphire, but humans have been known to eat it.

Look for them at the many watercourses and salty areas along the track, where they will vary in colour from rusty pink to green.



Emu bush



Emu bush flower

Emu bush (*Eremophila species*) The botanical name *Eremophila* means desert-loving, with most found in regions of rainfall up to 300mm. One of the common names, Emu bush, comes from the idea that seeds germinate after passing through the digestive system of emus which like to feed on the fruits.

First Nations people use some Emu bushes for food and some for treating colds, headaches or body sores.

Flowers vary in form and colour depending on whether pollination is by bird or insect. Birds pollinate yellow-red/pink flowers that are usually long and tubular. Insects pollinate lavender, white and purple and blue flowers that are flatter in form.

They grow in almost all soils with the exception of saline ones; from rocky, gravelly and clay loams to kopi rises. Most are found in regions with harsh climatic conditions where day temperatures are high or there may be light frosts. Some arid areas Emu bushes can survive up to two years without rain.

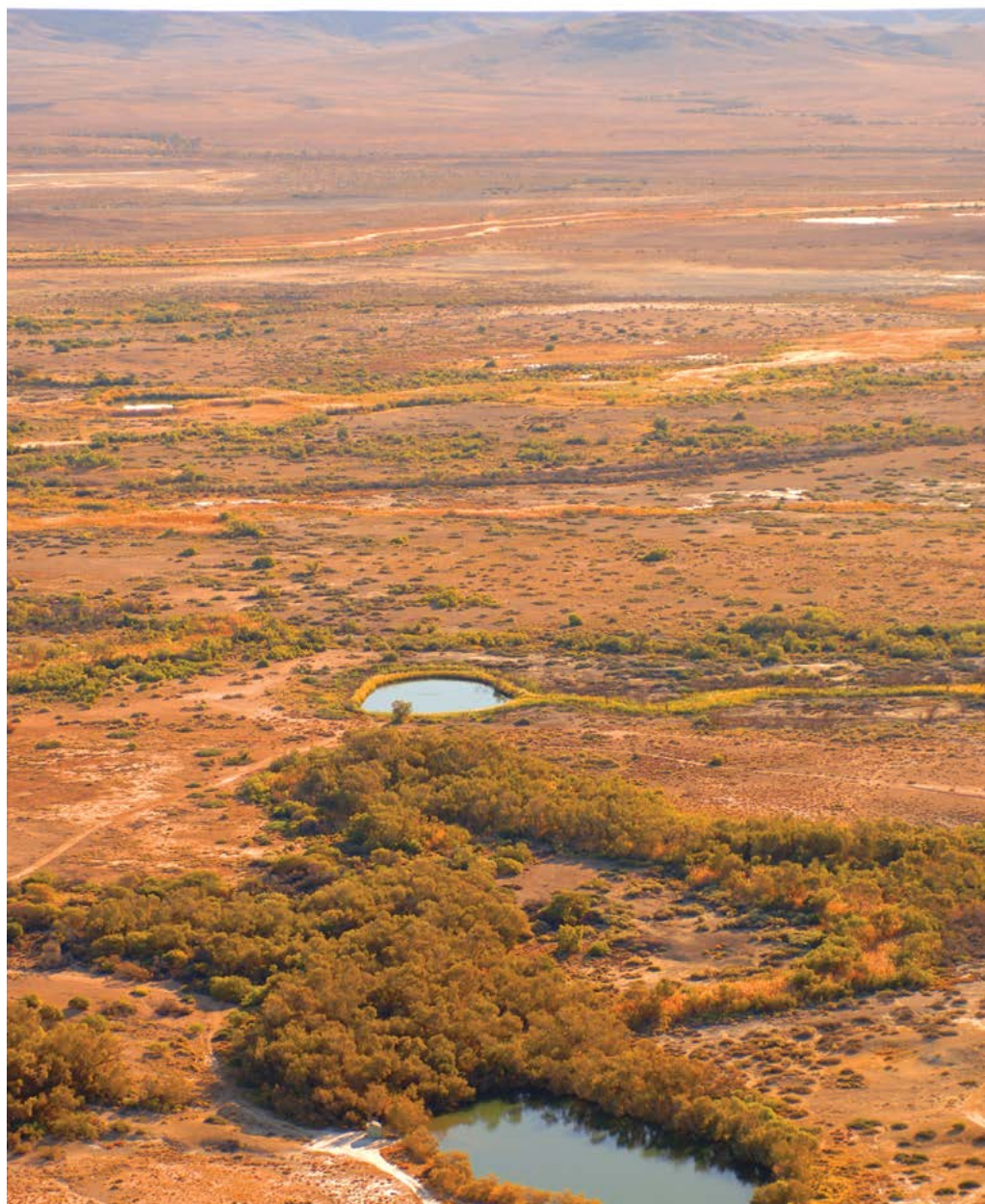
In the rangelands they often grow as understorey shrubs in low woodlands and Mulga scrub or they are dominant in open situations south of the Neales River. Some grow as solitary bushes in stony country.

Mitchell grass (*Astrebula species*)

An iconic rangeland plant, Mitchell grass has enormous value for the pastoral industry. It has an ability to respond rapidly to a good rain after extended dry periods. Barley Mitchell grass (*Astrebula pectinata*) is the most common variety. Widespread, you will see tufts of it on gibber plains, around gilgais, in watercourses and floodouts.



Mitchell grass



LANDFORMS

You will see many different landforms along the Oodnadatta Track. Floodouts and watercourses are common with vast sand and gibber plains and tablelands dotted with mesas in between.

The Oodnadatta Track passes through sand dune country where the dominant features are dunes and flat areas between them, known as swales. There are salt lakes like Kati-Thanda Lake Eyre and Lake William. The Peake and Denison Ranges in the north, Willouran Ranges close to Marree, the rocky outcrops at intervals along the track and the dramatic shapes of Hermit and Pigeon Hill at Bopeechee provide further variations to the landscape. Each land type supports different vegetation.

You may also notice small depressions where the ground cover is dense and more diverse because water and nutrients accumulate there and are held for extended periods. These are gilgas (crab holes) ranging from a few metres in diameter to up to 10 metres in the gibber plain.

A dry creek bed where the soil has been nourished regularly by the nutrients washed down after rain will offer a greater variety of plants than on the surrounding plains. You will notice this if you stop and take a short walk along some of the larger watercourses you cross as you travel the track.

You will also find Gidgee Gidgee in the northern part of the track and Coolabah, two of the larger trees that need the deep moisture that accumulate along these watercourses. By contrast, there is very little vegetation on the sides of most mesas (flat topped hills).



Sand dunes and swales – the soft country

the conversion of much of central Australia into sand dunes has been the product of low elevations, widespread sediment deposition, acidity and the extremes of a wildly-fluctuating climate over the past million years. Some geologists believe the dunes were formed in the past 8000 to 10,000 years, others suggest 200,000 years.

For First Nations people, the dunes provided comfortable and sheltered campsites as well as timber and food at numerous locations along the track. Cadna-Owie, which translates to in the Plantation sandhills', is one of the larger ones.

Dunes are largely stable, with movement restricted to the crests. The vegetation you see on them, in particular the Sandhill Canegrass (*Zygochloa paradoxa*), Sandhill Wattle (*Acacia ligulata*) and Horse mulga (*Acacia ramulosa*) helps to prevent movement of the sand.

The sand reveals a multitude of tracks and burrows of the wildlife that live in this country.

You will notice the Oodnadatta Track follows the swales, crossing a dune to move into and along the next swale.

Salt lakes and claypans From the top of a mesa on the western side of the track you can see how the dunes are separated by flat areas known as swales. Some of these are covered in gibbers. Others contain salt pans or claypans.

Claypans fill with water following rains, providing fresh water which is often the right habitat for Swamp canegrass (*Eragrostis australasica*) a very hardy tall perennial grass that can survive long periods of dry conditions, as well as long periods of inundation, after which it will respond with a flush of green. It can grow in dense stands over large areas, providing protection and habitat for many water birds species and is very important for trapping nutrients and soil stabilisation. Early settlers used it to line meat houses and for thatching on other buildings.

Tablelands and mesas The stony tablelands and isolated mesas found on the plains are the remnants of ancient plains and indicate its original level.

Why do dunes vary so much in colour?

Most dunes are brownish-pink or brick red, some are yellow-brown or even grey-brown and others near Lake Eyre are much lighter.

Lighter-coloured dunes are generally found closer to the source areas of the sand. Where they have blown in from flood plains along Eyre's Creek and Goyder's Lagoon, they are white or light yellow.

Generally dunes a long way from the primary source are red to dark red in colour and more stable. The longer the sands remain in the windblown environment, the redder they become as a result of oxidization and the release of iron oxide from within the small clay fraction in the sands. The lighter coloured dunes support less vegetation because of their instability and lack of nutrients.



Clay pan under water after rain, with swamp canegrass



Gibber plains on Allandale Station

Gibber plains – the hard country

Gibber plains are stretches of country covered in small polished rocks or pebbles called gibbers. These are polished fragments of the original duricrust (a layer of silica formed by the deposition of silica, iron oxides or calcium carbonate) that capped the plain some 65 million years ago. Fine abrasive material has swept past, wearing them down and rounding them off during rain and wind scour.

Today they remain as a surface lag, protecting the underlying soils from water and wind erosion. Pick up a few to appreciate their smoothness and the intensity of their wonderful colours. Gibber plains are common along the track. On Algebuckina Waterhole, the gibbers are black rather than red-brown, the colour being derived from the type of iron mineral (goethite) they contain.



Goethite gibber pavement

IMPORTANT TELEPHONE NUMBERS

POLICE CONTACT NUMBERS

Cooper Pedy (08) 8672 5056
Marree (08) 8675 8346
Marla (08) 8670 7020
Oodnadatta (08) 8670 7805
Port Augusta (08) 8648 5040
www.sapolice.sa.gov.au

ROYAL FLYING DOCTOR SERVICE MEDICAL EMERGENCY

(08) 8648 9555
yourhealth.flyingdoctor.org.au

REGIONAL HOSPITALS – FOR ALL EMERGENCIES CALL ‘000’

Cooper Pedy (08) 8672 5009
Oodnadatta (08) 8670 7803
Port Augusta (08) 8648 5500
Roxby Downs (08) 8671 9020
www.countryhealthsa.sa.gov.au

ROAD CONDITIONS

Department of Planning, Transport and Infrastructure
1300 361 033
www.dpti.sa.gov.au

DESERT PARKS HOTLINE

1800 816 078
www.environment.sa.gov.au

COUNTRY FIRE SERVICE (CFS) HOTLINE

1300 362 361
www.cfs.sa.gov.au

ARABANA ABORIGINAL CORPORATION

8641 1583
www.arabana.com.au

SAAL LANDSCAPE SOUTH AUSTRALIA SA ARID LANDS

VISIT US

The **SAAL Landscape Board** office at 1 Jervois Street, Port Augusta can provide information about land and water.
(08) 8429 9666
Saal.landscapeboard@sa.gov.au
www.landscape.sa.gov.au/saal
Access services and information on **National Parks** at Level One, 9 Mackay Street, Port Augusta.
(08) 8648 5300

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NATIONAL PARKS ENTRY AND CAMPING

Entry and camping fees for most parks in the region are now booked online; visit www.parks.sa.gov.au to book. Many of the outlets listed under ‘Visitor information’ are booking agents.



Book online
before you go
parks.sa.gov.au

VISITOR INFORMATION

FLINDERS RANGES AND OUTBACK VISITOR GUIDE

flindersrangesandoutbackvisitorguide.realviewdigital.com
flindersandoutback.com.au/plan/tools/#preparation
flindersandoutback.com.au/

WADLATA OUTBACK CENTRE

Port Augusta 1800 633 060
www.wadlata.sa.gov.au

COOPER PEDY

Cooper Pedy Visitor Information Centre
1800 637 076
www.cooperpedy.sa.gov.au

FRIENDS OF MOUND SPRINGS

www.friendsofmoundsprings.org.au

MARREE

Marree Hotel (08) 8675 8344
www.marreehotel.com.au
Marree Roadhouse & General Store
(08) 8675 8352
Oasis Motel, Caravan Park & Campground
(08) 8675 8352

MARLA

Marla Roadhouse 08 8670 7001
www.marla.com.au

ODNADATTA

The Pink Roadhouse 1800 802 074
www.pinkroadhouse.com.au

ROXBY DOWNS

Roxby Downs Visitor Information Centre
(08) 8671 2001
www.roxbyleisure.com/VisitorInformationCentre/Intro.html

WILLIAM CREEK

William Creek Hotel (08) 8670 7880
www.williamcreekhotel.net.au

ACKNOWLEDGEMENTS

FURTHER READING

- Allocating Water and Maintaining Springs of the Great Artesian Basin Report Series, edited by Andy Love and Travis Gotch, NWC Canberra.
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- Westprint Maps, Tel: (03) 5391 1466, www.westprint.com.au
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- Parks South Australia, www.parks.com.au
- South Australian Tourism Commission, www.southaustralia.com

PHOTOGRAPHY CREDITS

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This brochure has been compiled with all interests in mind by using non-technical terms.

Top 10 Travel Tips

Arid landscapes are incredibly fragile. They support a wide range of truly unique and amazing plants and animals. Every step off the path and every wheel off the track will have a lasting impact.

If you are not travelling through a national park or reserve, you may be travelling through a pastoral property – someone else's backyard – where people manage the landscape to make a living.

Here are **10 top tips** to help enjoy your stay, and look after the landscape.

1 Check Road Conditions



Outback road conditions can change quickly depending on the weather. Plan for your trip and check road conditions at: www.dpti.sa.gov.au/OutbackRoads or call **1300 361 033**. Be sure to book ahead for your campsite or accommodation. Visitor Information Centres can also help with road information and bookings.



2 Keep on the Track

For the safety of this fragile landscape and your vehicle, please keep to designated tracks. It is an offence to drive off established tracks. Soils are fragile and prone to erosion, and plants can be very slow growing. Driving off track can also damage cultural sites.



4 Camp Away From Waterpoints

Camping close to stock watering points disturbs grazing stock and could result in you having a few dozen noisy neighbours joining you at your campsite. Camp more than 500 metres away from these areas. Always seek permission from the land manager before camping on their property.



5 Bring your own Firewood

Do not collect wood in outback areas – it is in limited supply and used by wildlife for shelter. Always check fire restrictions and be aware that some National Parks do not allow wood fires.



3 Camp in Designated Areas

Camp only in designated areas or where you have obtained permission by the land manager. Please respect all signs and directions and remember that pastoral properties and buildings are people's homes and businesses. Please respect their backyard and camp more than a kilometre away from any buildings.



6 Be Mindful of Waste Disposal

Use designated dump points for RV and caravan waste and take your rubbish to the nearest town facilities for disposal.



7 Use Public Toilets

When possible plan your toilet stops by checking the distance to the next amenities. If toilets are unavailable, dig a deep hole, burn any toilet paper and fill in the hole.



8 Keep our Water Clean

Water is scarce and our unique plants and animals depend on it. Please do not use soap or detergents in or near waterholes, stock watering points or artesian springs.



9 Watch for Animals on the Road

Kangaroos and emus can come out of nowhere! Avoid a repair bill or getting stranded by keeping your eyes peeled, especially after dusk or before dawn. Be mindful of sheep and cattle grazing near roads.



10 Stay in Contact

Many areas of the Flinders and Outback do not have mobile phone coverage so UHF radios can be a great way to stay in contact with your convoy. UHF radios are also used by people living and working in the outback. Channels **11-30** are best to use, and in an emergency, Channels **1 to 8** or **31-38**.



**AUSSIE
TRAVEL
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OUTBACK**

