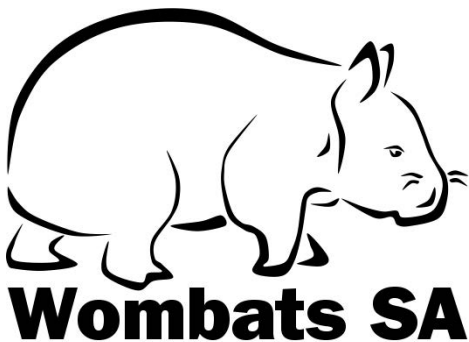


MOORUNDE NATURE TRAIL

GUIDE BOOK

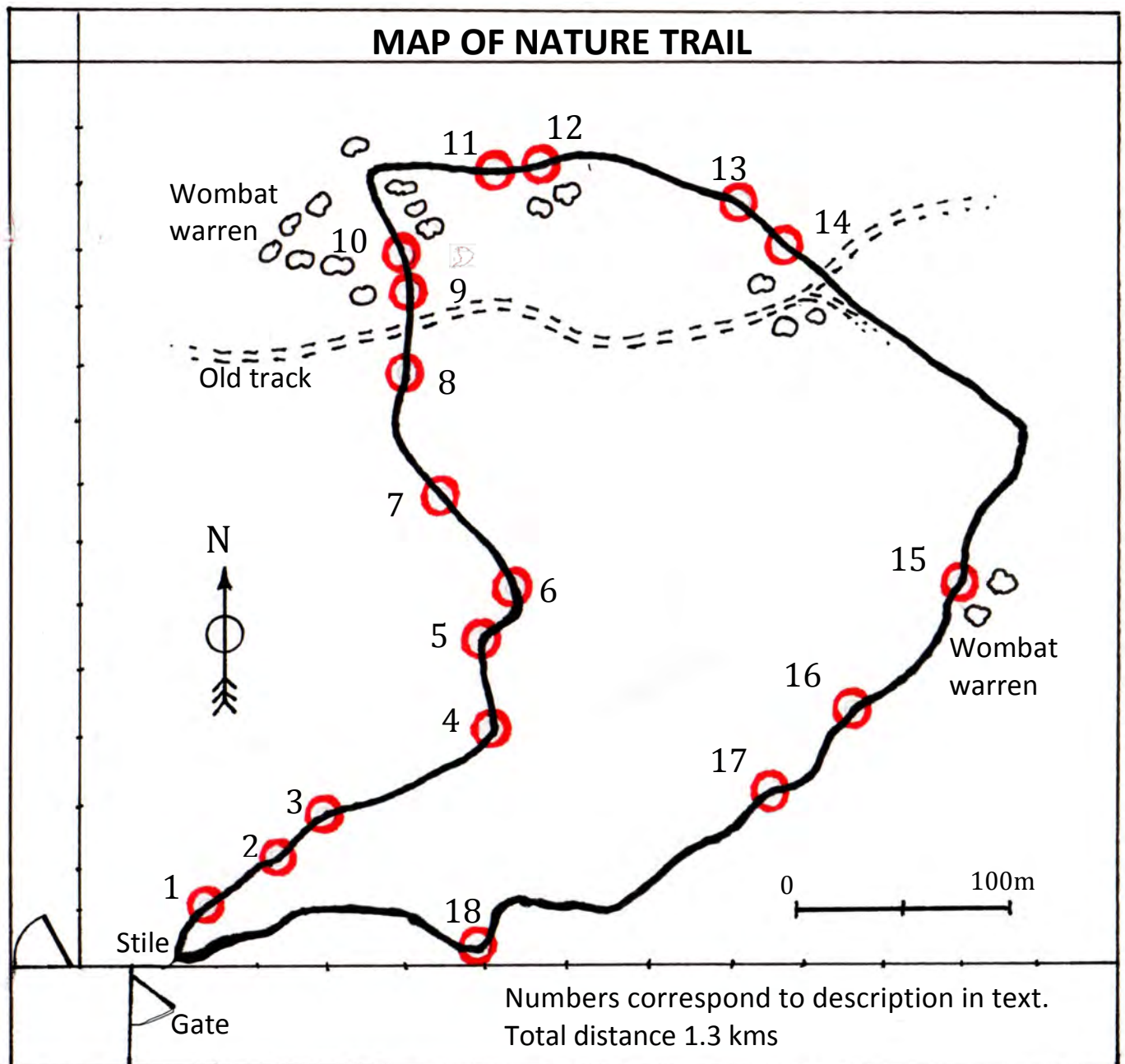


Natural History Society of
South Australia Inc
trading as
Wombats SA



KONICA MINOLTA

Wombats SA thanks Chris Lane and Konica Minolta for
generously printing this Moorunde Nature Trail Guide Book.



Welcome to Moorunde Wildlife Reserve, home to more than 2,000 Southern Hairy-nosed Wombats.

This land was purchased by the Natural History Society of South Australia to protect the habitat of Southern Hairy-nosed Wombats.

As you walk through the reserve you will see how well the native plants and animals have adapted to the semi-arid environment. Where there is no damaging interference from people, our plants and animals can thrive in a healthy ecosystem.

Please take a brochure and enjoy the 1.3 km trail around the open woodland and mallee habitat.

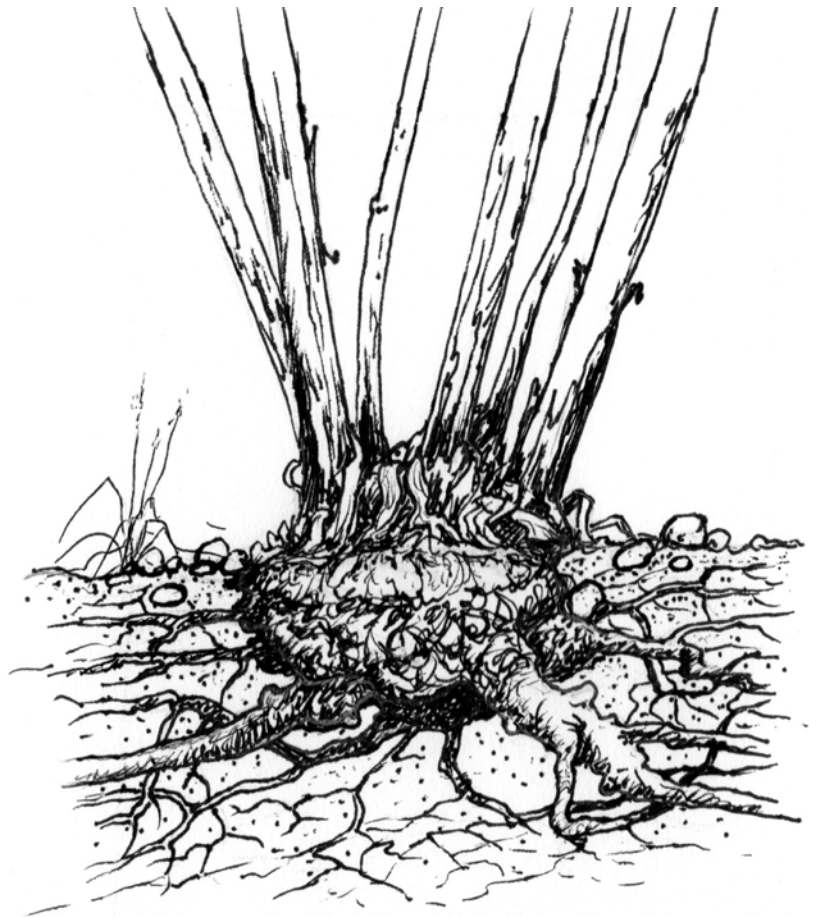
Wombats are mostly nocturnal. They spend most of the day underground in burrows, sometimes emerging in the late afternoon to sit at their burrow entrance.

While you may not see the wombats themselves, you will see where they live. You will also learn how plants and animals survive in this semi-arid habitat.

Marker 1

Mallees protect their assets in underground vaults

Mallees (multi-branched eucalypts) that you can see here and throughout the reserve grow a large root system called a lignotuber needed to survive in this harsh environment. This is the rounded mass you can see at the base of the tree. Should a fire burn the tree, it can quickly re-sprout from the lignotuber, and continue to grow, often resulting in many trunks.



Marker 2

Duricrust protects the soil from erosion and maintains nutrients

Have a look at the ground around you. The ground is covered by all sorts of different lichen forming a crust, called a 'biological duricrust', which protects the structure of the soil. Australian soils have low levels of nutrients needed by plants to grow. These nutrients are found in the top layer of soil which can be lost through wind erosion. The duricrust stabilises the soil and maintains the nutrients for the plants. The duricrust also helps to trap moisture in the soil. This delicate layer is essential to the ecosystem but is easily damaged by trampling feet so please stay on the path.

Mallee lignotuber



Marker 3

Small leaves save water

We know it is important to save water. Our native plants have evolved to do this.

Plants lose water to evaporation through the surface of their leaves. The bigger the surface area, the greater the water loss. Hence having smaller leaves helps to save water.

Have a look at the shrubs growing all around you – they all have small, narrow leaves. As you continue, have a look at the different sizes and shapes of leaves on the plants you encounter.



Marker 4

Mulch and shade save water

Look at the shape of this large bush and the ground underneath it. Plants such as this Sheep Bush drop leaves which accumulate around their base to form a layer of mulch.

The plant also grows down to the ground providing shade to the ground around its roots.



This combination of mulch and shade prevents water from evaporating from the soil. The dense growth also provides shelter to birds which feed on nectar and insects.

Marker 5

Using every last drop

Numerous wombat trails can be seen here – look for deep parallel scratches on the trail which indicate wombat use.

Another sign of wombats is their droppings or scats.

Animals which live in arid areas use every last drop of water. Their waste products are very dry because their bodies extract as much water as possible. This is the case for the wombat which produces very distinct scats. They are large cubes and are very dry. Wombats mark their territory with their scats so keep an eye out for this sign of wombats.



Marker 6

Birds use available resources

Have a look at this old mallee with numerous holes and hollows. Some birds use these hollows for nesting.

Galahs, Ringneck Parrots and Mulga Parrots nest in hollows such as these. Owlet Nightjars and bats shelter in hollows during the day. This is a very old tree indeed. We know that a tree must be at least 200 years old before hollows will begin to form. Young trees may provide food for birds but not nesting hollows.



Marker 7

What else do plants do to survive?

Stop and look down the path ahead. Can you see that there are fewer trees and shrubs providing shade through here? The plants here are more exposed to the sun and have adapted to save water.

What features can you notice that might help the plants to save water? Have a close look as you walk to the next point for the answers.



Marker 8

Plants stay cool and store water

Did you notice most of the plants here are grey, rather than green. This paler colour reflects the light and heat of the sun.

Some of the plants also have small hairs: they feel soft to touch. These hairs trap a cool layer of air around the leaf, reducing the temperature. Both of these strategies help to keep the plant cool which reduces the rate of evaporation and water loss. In addition, some of the plants have thick bulbous leaves. These are Blue Bushes and they store water in their leaves.



Marker 9

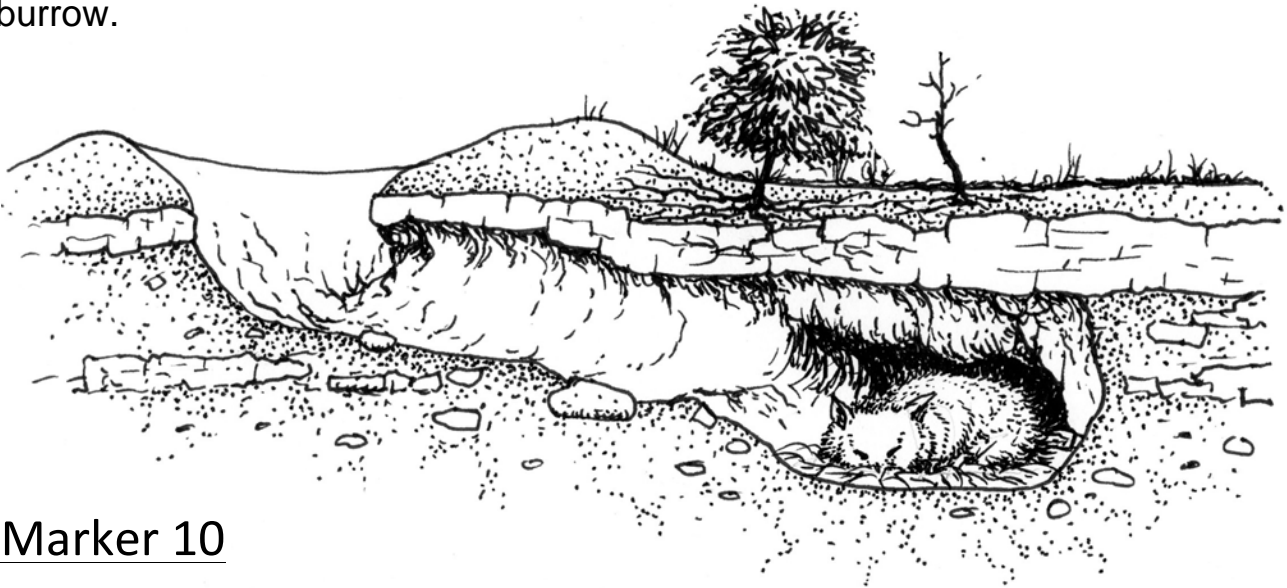
Wombats stay cool in burrows

Just like us, animals need to stay cool by staying out of the sun when they can.

Wombats stay cool by creating underground burrows where they shelter from the sun during the day. You are looking at a wombat warren made up of lots of burrows.

These can collapse; please be careful and walk around the warrens as you explore the reserve. Major burrows can be up to 30 m long.

Wombats often dig under a rocky shelf which serves as a roof for their burrow.



Marker 10

Wombats make use of available resources

Wombats use tree trunks and fallen logs to scratch against, providing relief from itches. With constant use, these scratching posts become smooth with wear.

Similar to koalas, wombats get most of their water from their food. However, they will drink from puddles after it has rained.



Marker 11

Seeking shade on the south side

Lichen can be seen growing on the ground around this tree, but notice how it is only growing mostly on the southern side. This is the side which is more often in shadow and remains moister for longer after rain or dew.



Marker 12

Trees collect as much water as possible

The shape of this *Melaleuca* is designed to collect as much water as possible.

The branches collect water in the deep grooves of their bark and direct it down towards the tree's roots.

Like the Sheep Bush, the branches also shade the roots to reduce the loss of water through evaporation.



Marker 13

Birds make use of available resources

This large Mallee tree is old and has several hollows suitable for nesting birds.

Most of the Mallees you have seen have multiple trunks; this is the result of about 70 years of regrowth after logging for charcoal. Those that have not been logged may grow with a single or double trunk like this one.

Sitting quietly in the shade, you may see some birds visit this tree.



Marker 14

Plants protect their assets from grazing animals

This Wattle Bush has sharp thorns to protect its leaves from animals which may eat them. The leaves are also shaped to reduce surface area and therefore evaporation. Plants use precious resources to grow leaves in this harsh environment and they cannot afford the resources to be wasted.



As you walk on, look around and see the adaptations we have discussed: duricrust; dry wombat scats; small, grey and hairy leaves; and plants shaped for shade and water collection.

Marker 15

Wombats have a low metabolism

Here is another wombat warren.

Wombats have a low metabolism which allows them to conserve energy and water. Very useful in this environment.

They can move very fast however and head for their burrow if they sense danger.



Marker 16

Narrow leaves save water

These *Eremophilas* have very narrow, cylindrical leaves.

Just like the small leaves you have already seen, this shape reduces the surface area of the leaf, hence reducing the amount of evaporation. The leaves are grey to reflect light keeping the leaves cool and reducing evaporation.



Marker 17

Hard leaves save water

We have learnt that small, grey leaves help plants to survive in the arid regions yet Eucalypts have larger, green leaves. So how do Eucalypts reduce water loss?

Eucalypts have a hard, waxy coating on their leaves which helps to trap water within the leaf.

As you walk through here, feel the gum leaves: they are much harder than the leaves of plants that belong in wet climates.



Marker 18

Quandongs use existing tree roots

Have a look at the Mallees at this point. Can you see the other trees growing with them?

These are *Quandong* trees which make good use of available resources in the arid environment.

Quandongs tap into the roots of existing trees to obtain water and nutrients, as well as growing their own. This helps them to get established in this harsh environment.

This behaviour is termed *saprophytic*.



Together, our native plants and animals thrive in Australia's dry environment.

You have seen some of the ways that our plants and animals make the most of limited resources in the arid environment. All of the aspects you have seen combine to provide a healthy ecosystem.

1. The duricrust traps nutrients in the soil so that plants can grow.
2. The plants provide food and shelter for many animals, birds and insects.
3. Many birds and insects in turn pollinate the plants, enabling them to reproduce. In this way, our plants and animals thrive together in a balanced ecosystem.



Thriving habitats such as that here at Moorunde are needed to support our Southern Hairy-nosed Wombats and the many thousands of plants, animals, birds and insects that contribute to a healthy environment. You can help by making a small donation to contribute to the maintenance of this and our other wildlife reserves within SA. Our volunteers check the box weekly, ensuring your contributions meet their intended use.

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