BANDICOOT SUPERHIGHWAY PROJECT

MOUNT LOFTY RANGES REGION
SOUTH AUSTRALIA

Bandicoot habitat management

A practical guide to helping bandicoots in your patch

We acknowledge and respect the ongoing cultural and spiritual connection that First Nations People have with their country, and their ongoing commitment to its stewardship for current and future generations.

These guidelines provide information about Southern Brown Bandicoots and their habitat requirements.

They intend to guide landholders and the community on best practice land management to improve habitat value for bandicoots, in the Mount Lofty Ranges region.

These guidelines were produced by the Nature Conservation Society of South Australia, with input from project partners, on behalf of the Bandicoot Superhighway Project November 2023. Green Adelaide generously funded the printing of these guidelines.

About the Bandicoot Superhighway Project

Our goal is to **implement a community-led project that reduces the extinction risk of the Southern Brown Bandicoot.** We aim to foster a "highway" of interconnected bandicoot populations and habitat throughout the Mount Lofty Ranges (Adelaide Hills and Fleurieu) in South Australia.

Our work includes community education and upskilling, monitoring and surveys, updating knowledge and prioritising and implementing restoration activities. The project is overseen by seven organisations and groups who meet regularly to set strategic direction and make decisions, while also supporting each other and the work that we do.

About our logo

Our logo was designed by Allan Sumner, a talented visual artist, musician and graphic designer, and director of Aboriginal Contemporary Arts (ACA Studios). Allan is a descendant of the Ngarrindjeri people of the lower Murray and lakes of the Murray River along the Coorong, the Kaurna people of the Adelaide plains and the Yankunytjatjara people of central Australia. For more information about Allan and his art, please email sumnerarts@bigpond.com.

Bandicoot Superhighway Project

The Bandicoot Superhighway Project partners:
The Sturt Upper Reaches Landcare Group, The Nature Conservation Society of SA, Landscapes Hills and Fleurieu, Green Adelaide, National Parks and Wildlife SA, The University of Adelaide and Friends of Parks Groups.

Funding for this project: Sturt Upper Reaches Landcare Group was funded by an Australian Government program. Landscapes Hills and Fleurieu was funded by The Foundation for National Parks & Wildlife and the Landscapes Levy. Green Adelaide funded the printing of these guidelines and the Bandicoot Superhighway Impact Report.

About these guidelines

THE BANDICOOT BASICS

Part A: Introducing bandicoots

Why they are so important and the current threats to their survival.

Part B: Bandicoot habitat and distribution

An overview about good bandicoot habitat and where they typically occur in the Mount Lofty Ranges region.

A CRASH COURSE IN MANAGING BANDICOOT HABITAT

Part C: Managing habitat for bandicoots

An overview of the range of strategies for managing, improving and expanding bandicoot habitat.

Part D: Photopoint monitoring and checklist

Some guidance on setting up and undertaking photopoint monitoring is provided and a check list to ensure that you have considered key habitat management strategies for bandicoots.

Part E: More information

Additional useful resources to help you with improving your knowledge and making decisions.

Contents

Part A: Introducing bandicoots

Photo: Jason Cullen

Why are bandicoots important?

The Southern Brown Bandicoot (scientifically known as *Isoodon obesulus obesulus)*, is a pint-sized marsupial that's a real landscape hero!
As an ecosystem engineer, this little digger turns over soil and litter as it goes about its business, **improving soil quality** and kick-starting seed germination. But that's not all! The bandicoot also spreads fungal spores, giving a boost to fungi that break down organic matter and create a more diverse ecosystem.

Sadly, these bandicoots are the **last species of the bilby and bandicoot clan** in South Australia's Mount Lofty Ranges (MLR), which is a major biodiversity hotspot.

With an endangered conservation status, they're at risk of disappearing forever. Officially, the bandicoots are listed as Endangered nationally (under the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999) and in the MLR region, and are also protected under the state legislation (National Parks and Wildlife Act 1972).

Habitat loss and fragmentation are the main threats facing these furry friends, making their conservation a priority for everyone, from government and conservation organisations, to community members. **Let's work together to save these little superheroes!**

Did you know?

- Bandicoots can **dig up to 13 kilograms of soil each day/night** - this is incredible as it is about 14 times their body weight.
- They can **breed all year round**, and the pattern is typically linked with local rainfall patterns.
- They have the **shortest pregnancy** of any marsupial (about 2 weeks).
- Their distinctive diggings are also called **"nose pokes"**.
- In the Telugu Indian language, bandicoot means **"pig-rat"** due to the **grunting sounds** they can make and their rat like features (but of course they are cuter!).
- They can be a **gardener's ally** as they eat pest insects.
- Their **pouch faces backwards**, so dirt doesn't enter the pouch when they are digging.
- They can sometimes **hop into the air** when threatened or frightened - this is known as a "**gallop**".

"Bandicoots are an important part of our ecosystems, but they are in danger of extinction so we must act now to ensure their survival"

Photo: factanimal.com

Threats to bandicoots and how you can help

What is pushing bandicoots towards the brink of extinction?

Bandicoots are battling a host of threats including:

- **Habitat destruction**
- **Habitat becoming degraded**
- **Habitat areas becoming fragmented (broken up and separated)**
- **Being killed by introduced predators (like foxes, cats and dogs)**
- **Fires that are too frequent or intense, or happen at the wrong time.**
- **Habitat being destroyed or degraded by:**
  - **domestic stock (like sheep and cows)**
  - **feral herbivores (like rabbits and deer)**
  - **too many native kangaroos**

Due to these threats to bandicoots it is critical that their remaining habitat (and any potential future habitat) is well managed. Much of this remaining habitat is made up of small patches of vegetation on private land. **Bandicoots require dense vegetation** to stay safe, forage and breed, so improving and connecting patches of their habitat is vital.

The good news is that we can all help to improve and reconnect patches of bandicoot habitat. This will give them the best chance of on-going survival in our region.

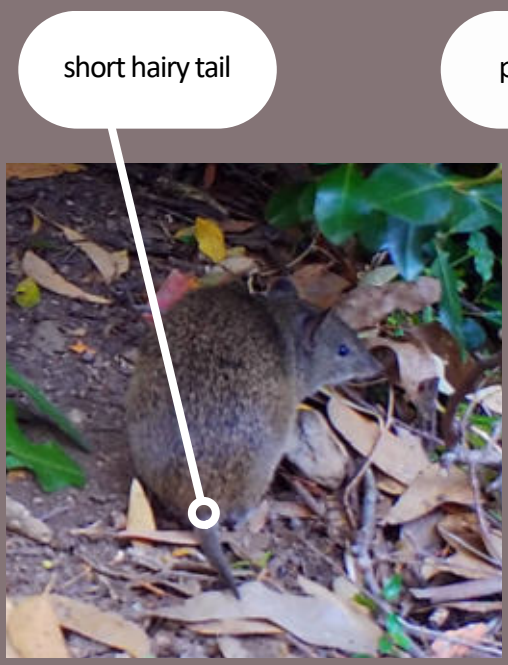
How you can help bandicoots

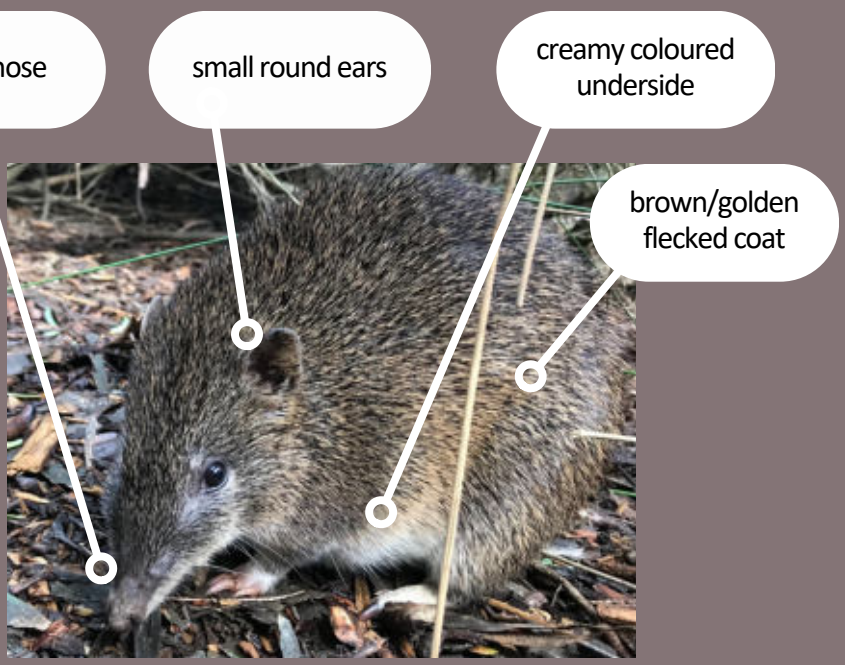
- **Protect and restore existing native vegetation** on your property, by helping natural bush regrow, controlling weeds and planting local native seedlings. See Managing weeds p. 24 and Improving existing native habitat p. 16.
- **Only use herbicides when absolutely necessary** to control weeds that are degrading bandicoot habitat, or prior to restoration.
- **Avoid using pesticides** as they can poison bandicoots' food. Bandicoots can be good for pest control, as they love to eat insects.
- **Get involved with your local bush/land care group** or work with your neighbours to restore habitat. More hands make lighter work and a combined effort increases your effect on bandicoots and other native fauna and flora.
- If you see a bandicoot, **upload bandicoot sightings** to bsh.org.au or iNaturalist.
- Set up **wildlife cameras** on your property to capture bandicoots (and upload sightings to bsh.org.au or iNaturalist). Contact any of the Bandicoot Superhighway Project partners (see inside cover).
- **Drive cautiously near where bandicoots live** – look out for wildlife crossing roads and slow down when you see them.
- If you have remnant native bush (and/or good quality re-vegetated bush) on your property, you can ensure it is protected into the future by obtaining a **Heritage Agreement**.
- **Be a responsible pet owner** by keeping your pets indoors (especially at night) or under constant supervision and out of native vegetation. Desex your pets - desexing is compulsory for all dogs and cats born after 1 July 2018 (exemptions exist for working dogs, registered breeders etc). Check your local council website for more info.
- Create an **artificial refuge** where there is an absence of suitable habitat, such as a "Bandicoot Bungalow". See Creating new habitat p.19.

Identifying Bandicoots

Southern Brown Bandicoots

Southern Brown Bandicoots are a native marsupial that lives on the ground. As a marsupial, bandicoots have a pouch which is used to carry their undeveloped young in. Bandicoots are typically nocturnal but are known to forage during daylight hours. They have brown fur with golden-flecks, a pointy nose, high back, short hairy tail and small round ears. They have a big rear, relative to their head size. Juveniles can be the size of a small rat and adults can be around the size of a rabbit. The average adult weight is 700 g for females and 850 g for males.

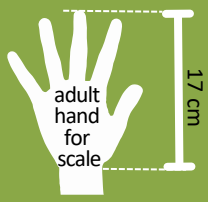




How to tell the difference between a bandicoot and other small mammals in the Mount Lofty Ranges?

The hand is provided as a scale, and is an average adult woman's hand.

NATIVE - Southern Brown Bandicoot



- Brown fur with golden-flecks
- Pointy nose
- High back of body (relative to the front)
- Small round ears
- Short hairy tail
- Body 30-33 cm long and tail 11-12 cm long

NON-NATIVE - Brown Rat (*Rattus norvegicus*)*

- Tail shorter than body
- Blunt muzzle
- Long whiskers
- Shaggy, bristly fur
- Grey-brown above, white-grey belly
- Body 18 - 25 cm

NATIVE - Yellow-footed Antechinus (*Antechinus flavipes*)

- Grey head and shoulders
- Yellowish-brown to reddish-orange body
- Pale ring of fur around eye
- Tail brown and hairy
- Body up to 16 cm long, tail shorter up to 14 cm
- Notch in the ear that looks like two lobes

NON-NATIVE - Black Rat (*Rattus rattus*)*

- Scaly tail, much longer than the body
- Charcoal grey-black or grey-brown above, cream-white belly
- Sleek smooth coat
- Body up to 20 cm, tail up to 25 cm
- Large thin ears

NATIVE - Bush Rat (*Rattus fuscipes*)

- Round head, blunt nose
- Round ears
- Tail same length or slightly shorter than body, pale grey and almost hairless
- Pink-grey feet
- Grey-brown or reddish fur, cream-white belly
- Smooth coat, soft dense fur
- Body up to 20 cm long

NON-NATIVE - House Mouse (*Mus musculus*)*

- Large bulging eyes in small head
- Large round ears
- Brown-grey above, white-grey belly
- Soft dense fur
- Scaly tail, similar length as body
- Body up to 10 cm, tail up to 10 cm

NATIVE - Swamp Rat (*Rattus lutreolus*)

- Tail shorter than body
- Thick hairless tail
- Feet, ears, tail dark brown
- Blunter nose than Bush Rat
- Dark brown fur, lighter belly
- Make tunnels through vegetation
- Body up to 20 cm long

NATIVE - Rakali (*Hydromys chrysogaster*)

- Very dense fur
- Swims in water
- Thick dark tail with white tip
- Webbed, wide back feet
- Long whiskers
- Black-grey above, white-orange belly
- Body up to 39 cm long

Additional information

Diggings

Bandicoots are prolific diggers and their presence can be identified from their distinctive diggings. Their diggings can be distinguished from other animal diggings if they have **all 3 of the following features:**

1. **Cone-shape (pointy dig)**
2. **Angled under the soil surface**
3. **A neat soil pile behind the dig**

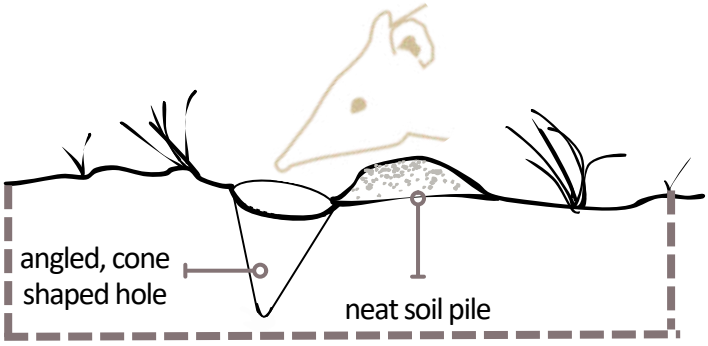
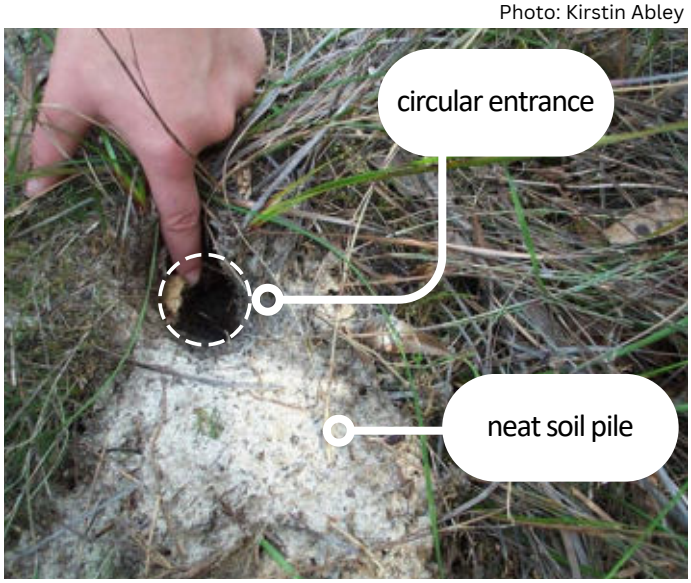


Photo: Kirstin Abley



What do bandicoots eat?

Bandicoots are omnivorous and eat a range of foods that they forage for on the ground including **insects** and **other invertebrates**, **bulbs** and **tubers**, **berries** (e.g. native Pink Ground-berry *Acrotriche fasciculiflora* fruit), **grasses** and **fungi**.

Please don't feed wild bandicoots, even if they approach you. Bandicoots have a diverse diet and an ability to utilise a wide range of food resources, so there is no need to feed bandicoots. In fact, feeding bandicoots may cause them harm in ways such as:

- They can become dependent on you for food
- Introducing disease
- Exposing them to predators like foxes and cats particularly when fed close to roads and tracks
- Health related impacts depending on the food
- What you feed them is likely an incomplete diet.

Beetle larvae

Pink Ground-Berry.
Photo: Seeds of South Australia

MOUNT LOFTY RANGES REGION
SOUTH AUSTRALIA

Part B: Bandicoot habitat and distribution

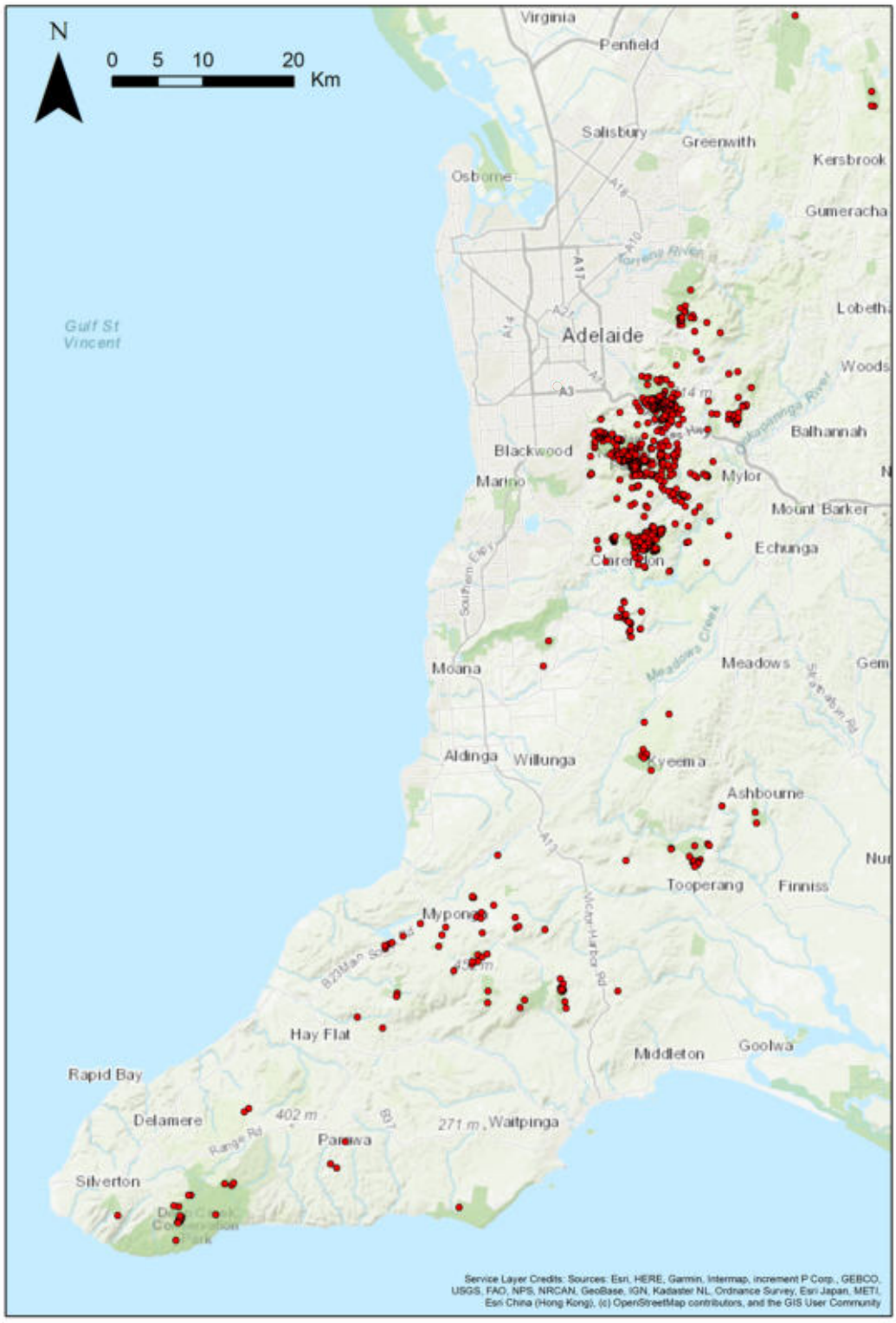
Bandicoot distribution

Am I likely to have bandicoots near me?

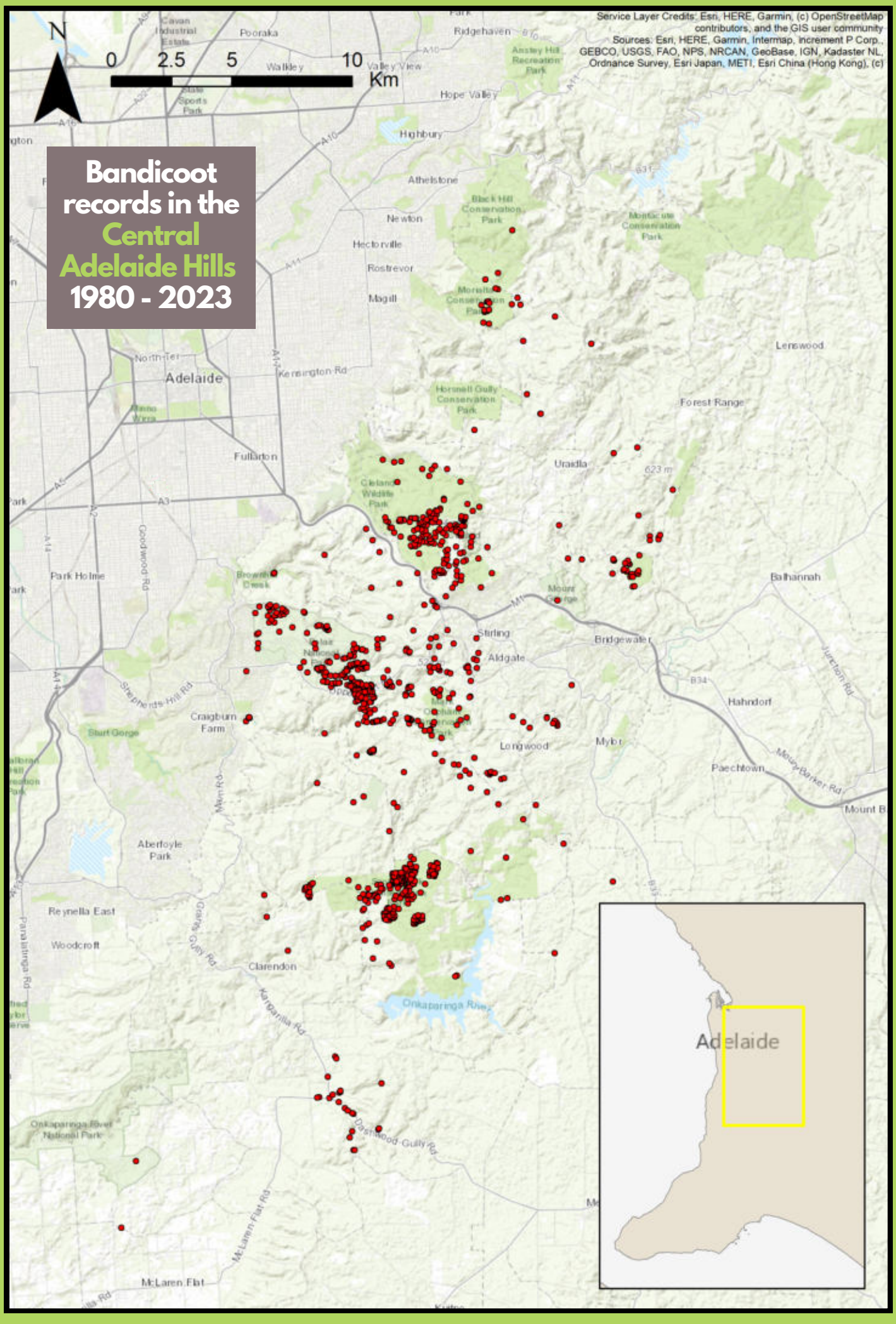
Take a closer look at the Central Hills and Fleurieu Peninsula maps over the page to see if any have been recorded near your patch, then read on to find out if your habitat is suitable for bandicoots. If you are near a past sighting and have suitable bandicoot habitat then there might be bandicoots about!

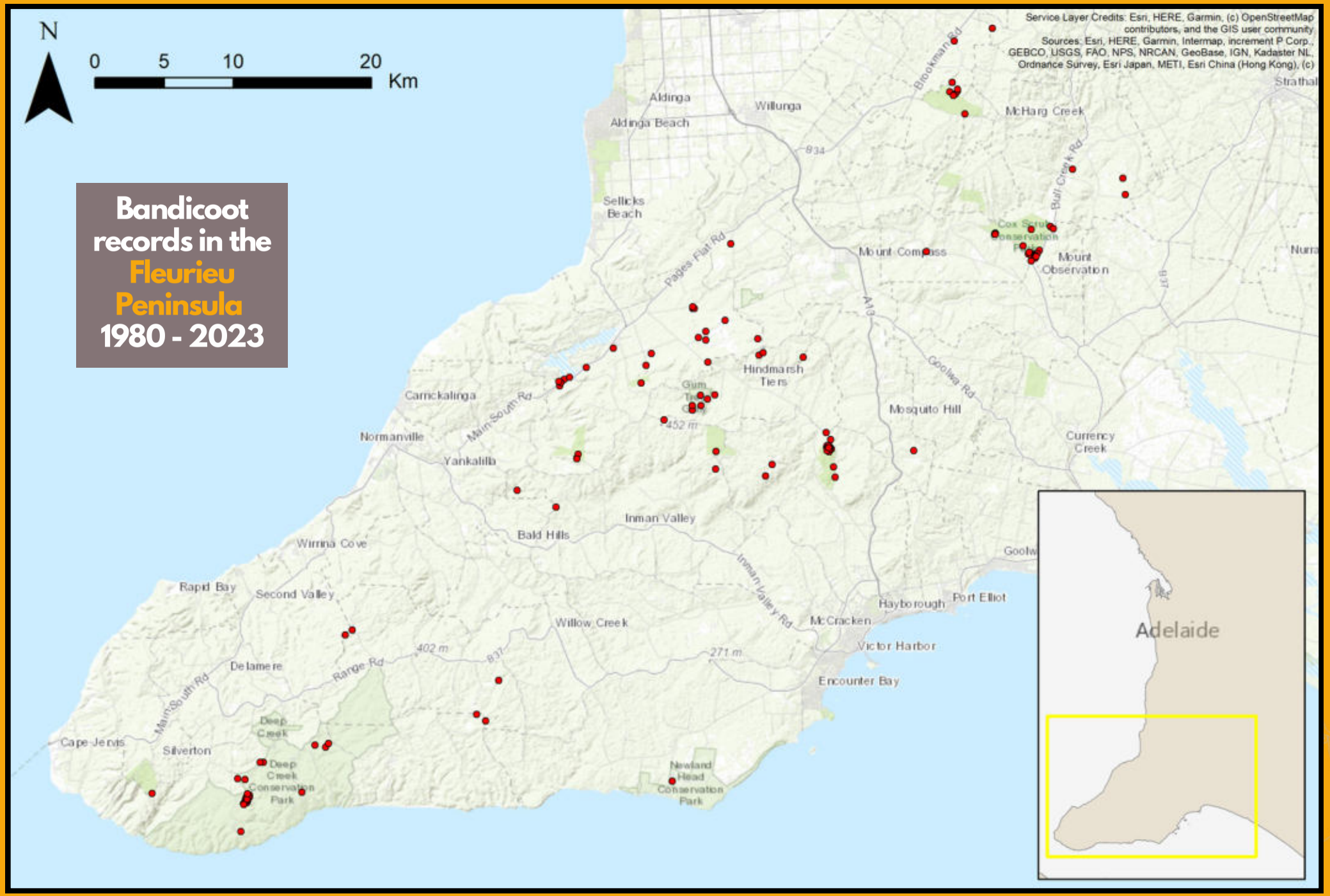
Even if you're not near a current sighting, it's possible you may have a bandicoot nearby as we're continually getting new information about their whereabouts.

Bandicoot records in the Mount Lofty Ranges 1980 - 2023



If you see a bandicoot share this information by recording your sighting at www.bsh.org.au


Bandicoot records in the Central Adelaide Hills 1980 - 2023
N
0 2.5 5 10
Km
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)
Adelaide
Ridgehaven
Hope Valley
Highbury
Athelstone
Newton
Hectorville
Rostrevor
Magill
Lenswood
Forest Range
Uraidla
Adelaide
Fullarton
Park Holme
Balhannah
Stirling
Aldgate
Bridgewater
Hahndorf
Craigburn Farm
Longwood
Mylor
Paechtown
Aberfoyle Park
Reynella East
Woodcroft
Clarendon
McLaren Flat
Onkaparinga River National Park
Adelaide


Bandicoot records in the Fleurieu Peninsula 1980 - 2023
N
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Km
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)
Aldinga
Aldinga Beach
Willunga
Brookman Rd
McHarg Creek
Bull Creek Rd
Sellicks Beach
Pages Flat Rd
Mount Compass
Mount Observation
A13
Goolwa Rd
Hindmarsh Tiers
Gum Tree Gully
452 m
Mosquito Hill
Currency Creek
Main South Rd
Carrickalinga
Normanville
Yankalilla
Inman Valley
Bald Hills
Inman Valley Rd
Wirrina Cove
Rapid Bay
Second Valley
Willow Creek
Hayborough
Port Elliot
McCracken
Victor Harbor
Encounter Bay
402 m
271 m
Range Rd
Delamere
Cape Jervis
Silverton
Deep Creek
Deep Creek Conservation Park
Newland Head Conservation Park
Adelaide

Identifying bandicoot habitat

Where do bandicoots live?

Low, dense vegetation allows bandicoots to survive despite the threat of predators such as foxes and cats. For this reason, it is critical to provide a dense understorey of plants for bandicoots and improve existing native vegetation.

Native habitat is best, but where it is missing, or degraded, bandicoots can use weedy habitat, such as dense thickets of blackberry for food and protection. In the Mount Lofty Ranges region, bandicoots typically live in areas that contain gullies, creek lines and drainage lines. That is because these kinds of places usually have dense vegetation for shelter, and provide a link between patches of habitat in the landscape.

"If vegetation is dense below knee height and you can't comfortably walk through it in shorts, then it is probably good bandicoot habitat!"

Good bandicoot habitat:

- **Is very dense up to 1 m high**
- **Is too thick to easily walk through**
- **Has lots of different native understorey plant species (although weeds will do if good-quality native habitat is lacking)**

Could a bandicoot live in this habitat?

What is good bandicoot habitat?

As bandicoots are found in different types of habitats, it is risky to be too prescriptive about what constitutes "good habitat". However, there are key features that typically provides the type of habitat that bandicoots need to ensure protection from predators, nesting areas and food resources.

Thick and dense cover

Understorey plants (under 1 metre tall) that cover more than 70% of the ground surface. This dense cover is the most important thing, no matter what the species of plants, even weeds!

Different types of plants*

A high diversity of plant species with **different heights and growth forms** is ideal. *Note that bandicoots will also live in thickets of weeds, even if there's only one species, if there's enough cover and food for them. **Having a collection of small ground layer plants, tussocks, and shrubs (below knee height) is important.**

The importance of remnants

Plants of varying ages and sizes are important, therefore retaining and managing remnant vegetation is sometimes critical for bandicoots and other native species. **If there are gaps between remnant patches, then revegetating these areas is ideal.**

Trees are less important

Bandicoot habitat doesn't necessarily need lots of trees, it's the understorey that counts. In fact, if the tree canopy is too dense, the understorey can be too sparse, and therefore not suitable.

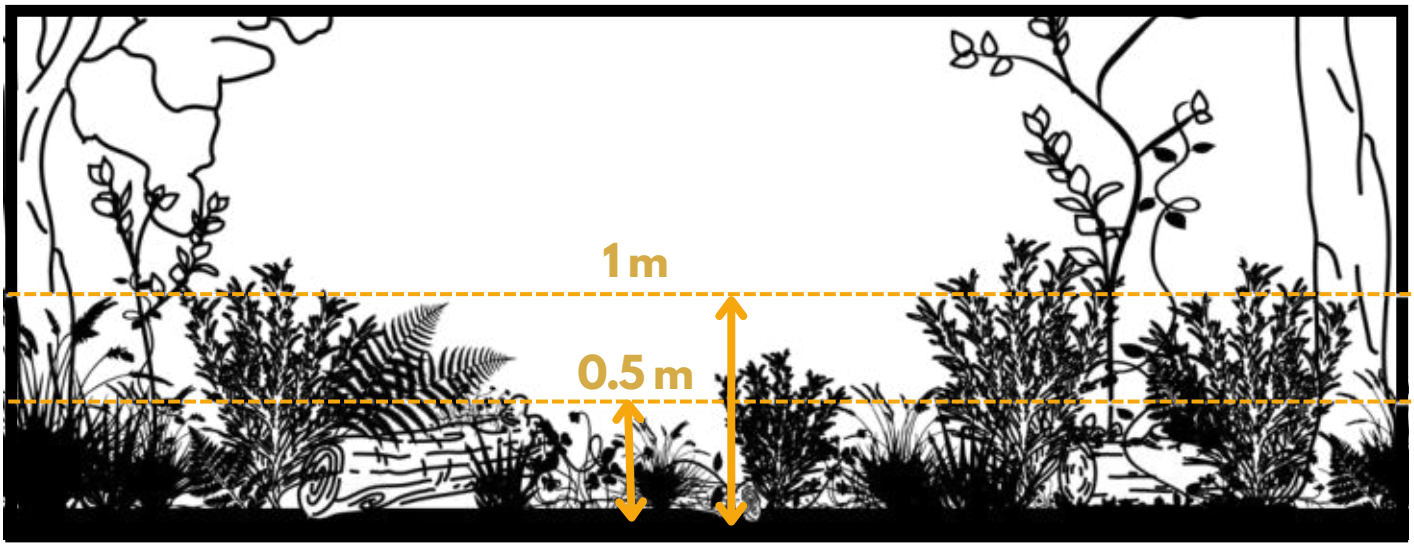
Non-living things

Dead or fallen plants/logs retained in the landscape or on the ground as these provide cover for bandicoots.

Not uniform

Irregularly spaced shrubs (between 1 - 3 m tall). Where there are few shrubs, understorey species <1 metre tall are much denser.

Ideal bandicoot habitat



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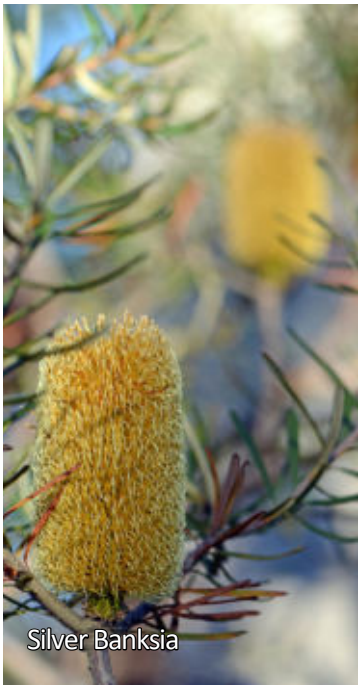
Part C: Managing habitat for bandicoots

Why manage habitat for bandicoots?

Helping bandicoots also helps other animals. The focus of this booklet is on bandicoots, providing them with habitat and improving their habitat. However, it is important to acknowledge that **providing low, dense habitat has co-benefits for many other animal species** including small birds such as Superb Fairy-wrens, Brown Thornbills (see picture below), and White-browed Scrub-wrens.

The benefits of improving habitat also extends to native plants. Controlling weeds reduces the competition for space, light, water and nutrients for native plants, and preventing overgrazing by herbivores allows plants to grow to maturity, produce flowers and seeds to self-sustain/spread (more info. in Managing weeds p.24 and Improving existing native habitat p. 17).


Bandicoot in good quality native habitat in Ironbank, SA


Silver Banksia


Brown Thornbill, photo: Chris Wiley


Ringtail Possum


Superb Fairywren


Native Blue Banded Bee

Why manage habitat for bandicoots?

So what do I need to do?

Each site will be different depending on many factors. To decide on the next steps to improve your patch of habitat for bandicoots there are a few things to consider. Generally a combination of actions will need to be undertaken.

The first step is to identify what kind of vegetation you have:

- **Cleared land:** mostly pasture grasses, maybe a few scattered trees
- **A weedy area:** mostly bushy/woody weeds, not much native vegetation if any
- **Novel/in-between area:** Native overstorey with a combination of weeds and natives underneath
- **High-quality native vegetation:** Native overstorey and mostly (if not all) native understorey.

Prioritise!

Management actions should be tackled in the following order. Read on as each of these is discussed in more detail.

1. **Improve native habitat**
2. **Expand habitat patches**
3. **Create new habitat in-between patches**

You can also protect your bandicoot habitat forever by putting it under a **Heritage Agreement**.
For information search 'Heritage Agreements' at www.environment.sa.gov.au

It is likely your patch will be a combination. The image below gives you options of what to do for each type:

Improving existing native habitat

Do you have an area of native vegetation on your property? You might be able to help it to regenerate naturally! Conserving remaining native vegetation is vital for the survival of biodiversity in the Mount Lofty Ranges. Native vegetation should be protected from threats like weed invasion, mowing, grazing, storm-water and rubbish/garden waste dumping. Where any of these threats have degraded the area, it it best to manage these and then allow native vegetation to naturally regenerate.

Bush regeneration

Degraded bushland is still very valuable, and can regenerate if given the right kind of help. '**Bush Regeneration**' is a term used to describe the **ecological restoration** of remnant (remaining/not cleared nor replanted) native vegetation. The method was originally designed by the Bradley sisters in the 1960s and 1970s.

How to regenerate native bushland

If your area of native vegetation is of reasonable quality, with some native groundcovers, trees and shrubs, regeneration is probably possible. If the area is very poor quality (lots of weeds and not many natives left) regeneration can be used in conjunction with re-vegetation, if the capacity of the area to regenerate is very low. The Australian Association of Bush Regenerators at www.aabr.org.au has some good information on the topic of bush regeneration.

Some basic principles of bush regeneration are:

1. **Always work from the best quality areas first**, then move progressively to poorer quality areas.
2. **Remove the threats** that are causing the area to degrade (e.g. weeds or grazing).
3. **Use minimal disturbance methods** of weed removal (disturbed soil = more weeds).
4. **Allow natural regeneration** to occur, this could take several seasons and years - please be patient.
5. **Follow-up with weed control** to allow regenerating native plants to grow and thrive.

"work outwards from healthier cores, helping them strengthen and expand."

Australian Association of Bush Regenerators

Credit: Australian Association of Bush Regenerators www.aabr.org.au

Improving existing native habitat

Controlling grazing pressure

Bandicoots rely on dense understorey vegetation to hide from predators, find food and raise their young. Grazing pressures such as trampling, eating new seedlings, and grazing on mature plants before they can set seed, can impact on bandicoot habitat. Too much grazing or trampling can make habitat too open for bandicoots and degrade its quality, so it's no longer safe for them to live there.

Stock management

Removing or reducing grazing and trampling from stock can allow native vegetation to recover through regrowth and natural regeneration through existing seed left in the soil. Restricting stock access to areas of native vegetation or revegetation through fencing can encourage native vegetation to recover and re-establish.

Native and introduced herbivores

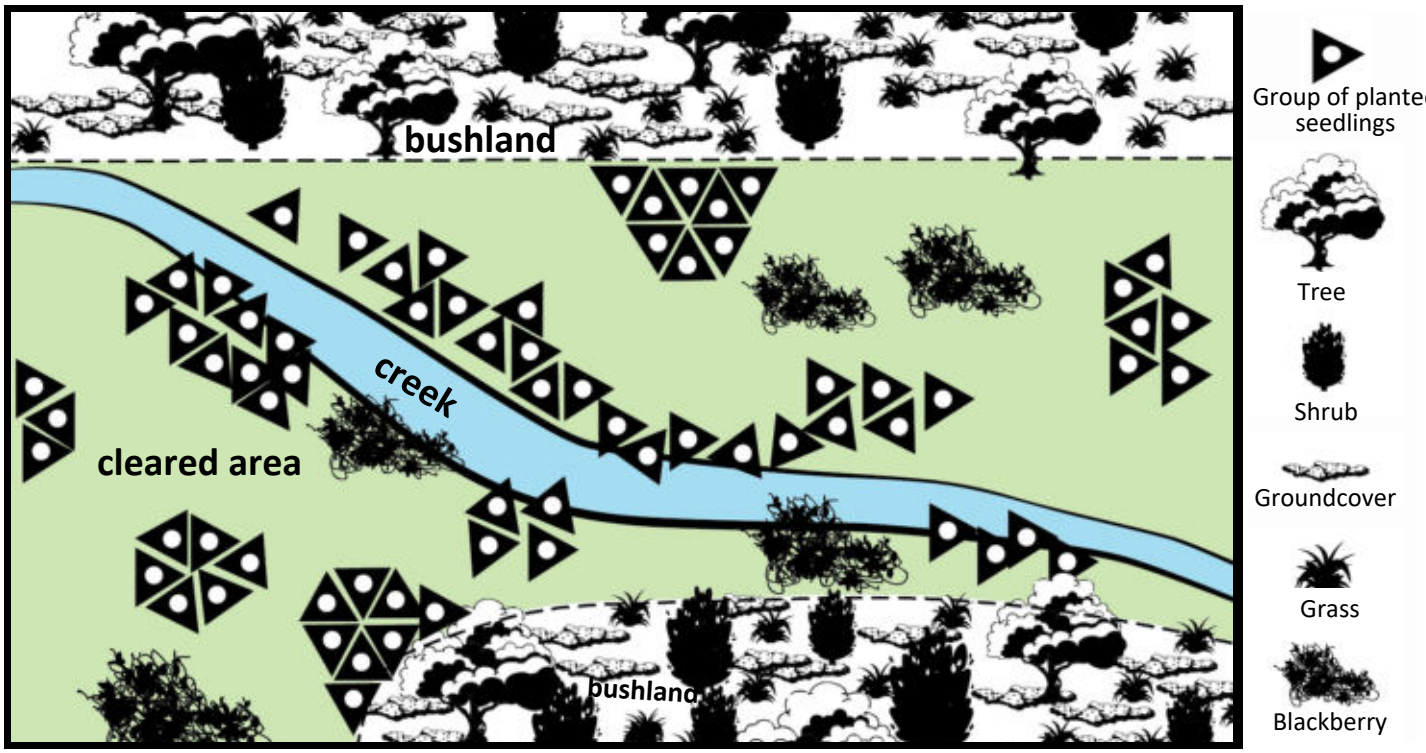
Sometimes grazing pressure is coming from another uncontrolled source such as over abundant native kangaroos or wild feral deer. In this case, fencing a patch could be an option. There are many things to consider with fencing such as the type of material, the best area to fence, gaps (to allow small mammals to move within the landscape) and height of fencing. The fencing should be constructed so it minimises injury to wildlife. Do your own research and talk to your local Landscape SA Office staff for advice.

Controlling feral or overabundant herbivores is another option and it might require a permit. Your local Landscape SA office can provide advice on this.

Photo: Anthony Abley

Expanding habitat patches

Below is an example of a landscape that comprises some good quality native habitat patches, an area of cleared land in the middle, and a creek or drainage line running though it. There are scattered blackberry patches which bandicoots could be using. You can improve this area for bandicoots by expanding and connecting the native habitat patches with revegetation and allowing them to move through the landscape safely.



Here are some tips on how to expand and connect existing patches of habitat, based on the above example:

Revegetate in small dense groups

Undertake work along a creek/drainage line, and in clumps throughout the cleared land. Rather than spreading the revegetation out, **planting in smaller, denser groups will help suppress weeds and create little habitat 'nodes' in the landscape** to link the other habitat patches.

Leave blackberry patches in place

Until the revegetation has grown large and dense, retain blackberry patches that are being used by bandicoots. In the meantime, just contain the spread of the blackberry patches. Refer to Bandicoots and blackberry p. 27 to help you decide what to do about blackberry.

Maintain existing native habitat patches

Good quality native vegetation patches are critical for bandicoots and the broader environment, but are vulnerable to invasion by weeds. **Regularly check for weeds and get on top of them as soon as possible**, as a weed problem left alone will be harder to tackle later on. See Managing weeds p. 24.

Work with neighbours to connect and expand habitat across the landscape

To ensure the survival of bandicoots in our region we need to **expand, improve and connect habitat** across the whole landscape. Start by looking at aerial imagery (like Google Maps satellite image view) to see where your patch fits in the landscape. Identify nearby patches that could be connected or improved, then talk to neighbours, the local council and/or community groups managing land (such as local Friends of Parks or landcare groups). **Bandicoots need more people to value and understand their habitat needs, and take action.**

Plant along creeks and drainage lines

These can act as little 'highways' for bandicoots, so revegetating along here is a good place to start. Protect creeks from stock by fencing, and managing weeds carefully, noting if they are habitat for bandicoots. **Improving/increasing vegetation along creeks and drainage lines will benefit the whole environment**, by improving water quality, reducing erosion and creating habitat for other small fauna.

Creating new habitat

REVEGETATION

Revegetation means planting new plants to create habitat 'from scratch'. When undertaking revegetation, you should aim to create a low, dense structure that will provide bandicoots with a suitable habitat to live, shelter and forage (see What is good bandicoot habitat p. 12)**. Revegetation of habitat for bandicoots can take several years to create the desired structure and density - but it will be worth the wait! Following suitable site preparation and planting of seedlings, weed control is required to maintain the site. Summer watering in the first year or two and in-fill planting to replace plants that have died may also be needed.**

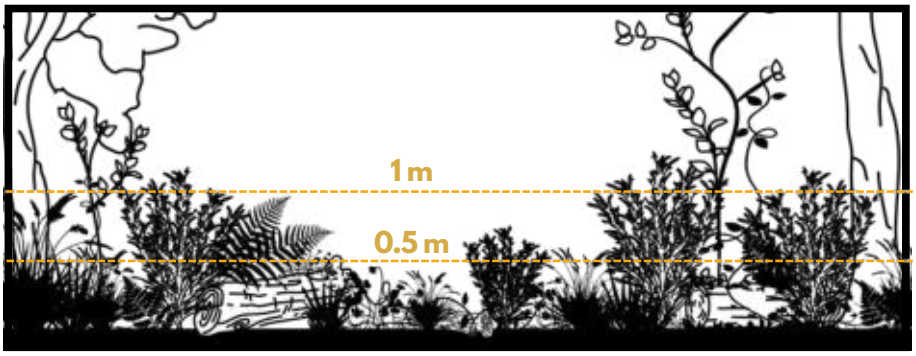
When would you revegetate?

See Why manage habitat for bandicoots p. 14 section to determine your options. You could use revegetation as a tool for:

- **Creating new bandicoot habitat in a cleared area** (like an old paddock or lawn)
- **Adding density** to an area with sparse understorey (see Improving existing native habitat p. 16)
- **Connecting habitat patches** together
- **Expanding an area of native vegetation** (into a cleared area)
- Creating a bandicoot habitat patch **adjacent to a weedy patch**, so you can later remove the weeds.

How to create good habitat with revegetation

Your bandicoot habitat will need to be dense at 'below knee level' and diverse in species and structure (see p. 12). **It's best to expand on existing native vegetation before creating new small patches,** as one large patch is better than many small patches. Look at aerial images of your site, take photos, walk through the site and plan out what you will do and where. The next stage is site preparation. Depending on your specific site, you may need to undertake weed control. Sometimes it's best to do this a few times before planting to give the seedlings the best chance of survival.



Creating new habitat

REVEGETATION continued

1 Plan

Developing a clear plan is crucial to the success of revegetation projects – especially in larger projects! Before planning what you will do on the site, do a site assessment first:

- How big is the site?
- What native plant species are there already?
- Are there any rare or threatened plant species?
- What weed species are present?
- What features are there at the site? (e.g., waterways)
- Are there any other threats present? (e.g., grazing from either wild or managed animals, signs of Phytophthora).

After assessing the site, you can begin to create a plan for your revegetation project. As discussed in What is good bandicoot habitat p. 12, **bandicoots require a thick and dense understorey**, with a diversity of plants forms, plant species, and plant ages.

It may be beneficial to create a planting schematic that includes:

- Existing native vegetation and the plant types (e.g., grasses, shrubs, trees)
- Site features (e.g., waterways)
- Proposed revegetation areas
- Indication of project times (planting is generally best done in cooler, wetter months but this may include a multi-year plan to develop a range of plant ages)
- Identification of appropriate plant types (e.g., grasses, groundcovers) and plant species.

Share your plan with others who have successfully undertaken revegetation and ask for their feedback.

2 Identify suitable plant species

Find out what species are native to your area, and where possible, source plants grown with local provenance seed, i.e., seed that has been collected locally. This ensures your plants will have the best chance of survival as plants grown from local seed are more adapted to the conditions of your area.

For where to source plants see Native plant nurseries p. 34 and for what to plant, see Plant species lists for revegetation p. 33.

Creating new habitat

REVEGETATION continued

3 Site preparation

Site preparation is an extremely important part of revegetation and is well worth the time and effort. As part of the site assessment, you will have identified any weed incursions and other threats such as livestock or other herbivores. These threats should be managed prior to planting. Specific actions may include:

- Weeding: spraying, mattocking, cut and swab, hand-pulling (see Managing weeds p. 24 and Bandicoots and blackberry p. 27)

  Weed management takes time and patience.
- Fencing out livestock
- Fencing out native species such as kangaroos or feral species such as deer and rabbits.

Phytophthora hygiene:

Phytophthora cinnamomi is a microscopic fungus-like organism that can cause disease and death in a variety of plant species, including native plants. There is no cure to Phytophthora and therefore practicing good Phytophthora hygiene is necessary. Avoid the transfer of soils and plant material from infested soils - brush down and spray planting equipment and footwear with undiluted Methylated Spirits. Check with Landscapes Hills and Fleurieu for further advice.

4 Best practice planting

Step 1: Soak tubestock in water for approximately 15 minutes before planting, or overhead water them just before planting.

Step 2: Dig a hole using a mattock, auger, or shovel, at least 1.5 times the depth of the plant tube. The holes should have reasonably loose soil that is easy to dig into. You don't want the hole to be filled with rocks as they can impact root growth and reduce the health of the plant.

Step 3: Remove the plant from its pot by holding the plant upright and tapping on the top of the pot with a hand trowel (to loosen the soil) and then gently remove the plant. Check that all of the potting mix is wet.

Step 4: Place the plant in the prepared hole and back-fill with natural soil, ensuring the natural soil completely covers the potting mix. In drier, more exposed areas, it is especially important to create "bowls" for the plants to grow in. When the soil is back-filled around the plant, the soil should be pressed down firmly (without pressing down on the plant itself) and the surface should sit slightly lower than the "edge", allowing water to pool around the plant.

Step 5: If herbivore fencing is not in place, guard each of your plants with a tree guard to stop them from getting eaten (mostly by wild animals - it is best to exclude livestock from revegetation areas all together). Where possible water your plant directly after planting. There are many types of guards available, and ideally you will use those that naturally break down over time.

Creating new habitat

5 Revegetation maintenance

Following revegetation plantings, a number of follow-up actions are required. These may include:

- Regularly identifying existing threats and manage accordingly (e.g., weeds, grazing pressure)
- Removal of tree guards if they are not biodegradable (remove once plants are growing out of the guards - reuse if in good condition)
- Watering plants (this is particularly important in the first summer after planting)
- If you have fenced the revegetation area, regularly check that the fencing is still in good condition.

6 Revegetation monitoring

Monitoring is an important aspect of any revegetation project. **Assess and reassess your revegetation every year to monitor the success of your project.** This will be a similar process to the initial site assessment but should additionally include consideration of seedling and plant survival, and assess whether in-fill planting is required.

Photopoint monitoring is a quick and easy way to evaluate the success of your revegetation and the changes that are occurring. See Part D Photopoint monitoring and checklist pp. 29 - 31.

Monitoring should also include **looking for signs of bandicoots** using the habitat you've created! See Identifying bandicoots p. 4 for how to identify bandicoots and their signs. This can be done through regular surveying of your patch, or setting up wildlife cameras.

Creating new habitat

PROVIDING ARTIFICIAL SHELTER

Protection from predators is key to bandicoot survival in the Mount Lofty Ranges. As well as dense natural understorey vegetation, bandicoots may use logs, branches, leaf litter and piles of weeds in the landscape for shelter.

An artificial shelter can be useful where vegetation cover is lacking, whilst waiting for revegetation to grow, or as 'nodes' linking patches of habitat together. You can place piles about 1 square metre in size, and use a combination of items including wood to build an artificial shelter.

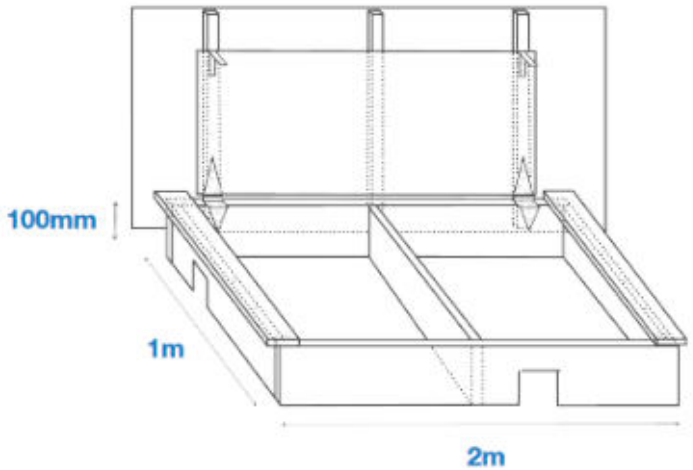
There are several examples of groups constructing artificial shelter for bandicoots. For example instructional videos can be found online about building Bandicoot Bungalows at: www.abc.net.au/gardening/how-to/bandicoot-bungalow/10970806.

Note that to prepare for bushfires, flammable materials should not be too close to houses or other structures like sheds. Refer to the CFS website www.cfs.sa.gov.au for bushfire preparation information.

Providing artificial shelter or habitat does not replace the need to improve or expand bandicoot habitat. Instead it can be used to add-value to other strategies, and can help with:

- Protecting bandicoots from predators such as foxes and cats
- Providing an area for nesting if other habitat is not available
- Acting as "stepping stones", allowing bandicoots to move throughout the landscape in the absence of habitat connectivity.

"As well as dense natural understorey vegetation, bandicoots may use logs, branches, leaf litter and piles of weeds in the landscape for shelter."



A bandicoot 'hide' example (Source: Guidelines for best-practice management of modified habitats for Southern Brown Bandicoots, 2019)

A bandicoot bungalow example (Facebook.com/bandicootbungalow)

Managing weeds

"If done regularly, weed control will be a smaller and more manageable task"

Weeds displace native plants

Weeds are invasive, foreign plant species and are one of the most serious conservation threats to native bushland ecosystems.

The weeds we have in the Mount Lofty Ranges arrived as a result of them being:

- Used as ornamentals in gardens for their attractive appearance ('garden escapees', e.g. Watsonia)
- Grown for food (e.g. Olive trees)
- Sown as pastures for livestock (e.g. Phalaris)
- Introduced by accident such as attached to the wool/fur of livestock (e.g. Bathurst Burr).

Weeds negatively impact native ecosystems, by:

- Creating monocultures (just one or very few weedy species) that lack diversity
- Crowding out native plants, preventing them from regenerating
- Displacing native animals through loss of native habitat
- Changing ecosystems by altering natural physical and ecological processes (e.g. nutrient cycles)
- Causing soil erosion (e.g. annual weeds have shallow roots and die off in summer, leaving soil exposed).

How to control weeds

It is important to **carefully and consistently manage and control weeds** to maintain the habitat quality in existing bushland and revegetated areas. **Weed control** is not a once-off task but a **long-term commitment** to protect biodiversity. Tackle areas in stages/small chunks at a time - you can accomplish a lot with consistent weed control. Read on for some basic guidelines on the best way to tackle weeds in your patch of bandicoot habitat.

Manual weed control

Hand weeding

- Do hand weeding when the soil is moist
- Avoid disturbing the soil (if you do, pat it back down and replace leaf litter)
- Place your feet either side of a plant's stem, to hold soil down (or hold your hand flat against soil with the weed between your fingers), and then pull
- Use tools (e.g. knife or screwdriver) to pry bulbs and roots.

Slashing

- Slashing or hand-cutting is good for weedy grasses
- Cut in late-winter to early-spring, before seed heads start to develop and cut again in 4 - 6 weeks. You may need to cut again depending on the season.

Some common weeds in the Mount Lofty Ranges:

GRASSES

- Kikuyu
- African Feather Grass*
- Fountain Grass*
- Pampas Grass
- Couch grass
- Giant reed (*Arundo donax*)

HERBS/BULBS/CORMS

- African/Wild Iris (*Dietes* spp.)
- Agapanthus (*Agapanthus* spp.)
- Arum Lily (*Zantedeschia aethiopica*)*
- Bulbil Watsonia (*Watsonia meriana*)*
- Gazania (*Gazania* spp.)*
- Sparaxis (*Sparaxis* spp.)
- Sand Rocket *(Diplotaxis tenuifolia)**

CREEPERS/CLIMBERS

- Asparagus Fern *(Asparagus scandens)**
- Blackberry *(Rubus* spp.)
  see Bandicoots and blackberry p. 27*
- Bridal Creeper *(Asparagus asparagoides)**
- Bridal Veil *(Asparagus declinatus)**
- Blue Periwinkle *(Vinca major)*
- English Ivy *(Hedera helix)*
- Bluebell Creeper *(Billardia heterophylla)**

SHRUBS

- African Boxthorn (*Lycium ferocissimum*)*
- Boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*)*
- English/Scotch Broom (*Cytisus scoparius*)*
- Gorse (*Ulex europaeus*)*
- Montpellier Broom *(Genista monspessulana)**
- Spanish Heath *(Erica lusitanica)*
- Prickly Pear *(Opuntia* spp.*)**

TREES

- Athel Pine (*Tamarix aphylla*)*
- Azzarola Hawthorn (*Crataegus* spp.)*
- Desert Ash (*Fraxinus angustifolia*)*
- Olive (*Olea europaea*)*
- Swamp Sheoak (*Casuarina glauca*)*
- Sweet Pittosporum (*Pittosporum undulatum*)*

* = declared plant that SA landowners have a legal responsibility to manage


Fountain Grass


Spanish Heath

Managing weeds

Chemical weed control

- See Landscapes Hills and Fleurieu for advice on the the right technique to use for your weed species
- Spray when conditions are still and dry to prevent spray drift and off-target damage
- Always follow the directions on the label; many people use more herbicide than is necessary
- Avoid walking over areas where you have sprayed so as not to spread the herbicide to native plants
- Training in the safe use of chemicals is recommended and always use safety equipment.

A summary of some chemical weed control methods:

- **Slash and spray** - for tall herbaceous plants/grasses, slash, then spray the new growth after 3 - 4 weeks
- **Cut and swab** - cut stem close to ground and quickly apply herbicide to cut parts (better with two people)
- **Stem/tree injection methods** - best for woody plants, as the dead plant stays in place for habitat:
  - **Drill and fill** - drill 45 degree holes into layer of sap below bark every 2.5 - 5 cm around the base, and quickly fill each with herbicide. Watch out for weed seedlings under the dead plant
  - **Chipping/frilling** - chip using hatchet or chisel into the layer of sap below bark, every 5cm to circle the trunk. Quickly fill each with herbicide
- **Wiping** - wipe herbicide mix onto broadleaf weeds with a weedbrush, or tongs with a sponge.

Remember: Bandicoots need dense undergrowth to shelter from predators.
Could they be using your weed patch?
Think first, contain weed spread, use a staged approach to removing dense weed patches and provide dense native habitat nearby.

Effectively manage weeds the 'minimal-disturbance bush regeneration' way!

These techniques remove weeds more effectively whilst preserving the native ecosystem and its processes.

Some important weed control principles include:

- **Weed control is usually most effective when weeds are actively growing** and before they set seed
- **Begin removing weeds from the least weedy or scattered weed areas** where weeds are fewest and work towards larger patches of weeds
- **Minimise trampling of native plants** when walking and working through the bush
- **Patrol weed-free areas to keep them weed free.** Annually check weeded areas for follow up removal before starting on new weed fronts
- **Prevent weeds setting seed** as a high priority. This is done by removing weed seedlings that are flowering, or if time does not allow, only remove flowers or seed heads and dispose of them appropriately
- **Minimise soil disturbance** when hand pulling as weeds love disturbance. With larger plants (with larger roots), cutting and swabbing may be better
- **Adapt your methods to coincide with seasonal and weather conditions.** When the soil is dry many weeds can be harder to pull out and their stems can snap leaving the roots and/or lignotubers in the soil
- **Prevent the spread of *Phytophthora cinnamomi***, a mould which causes root rot and dieback in vegetation, by spraying your shoes and tools with methylated spirits before and after doing work in a bushland area, and removing soil from shoes and tyres. Plants that appear to be highly susceptible and show signs of damage and dieback are Yakkas (*Xanthorrhoea* sp.), Banksias and Stringybark gums (*Eucalyptus obliqua* and *Eucalyptus baxteri*)
- **Take photographs and keep records** of weed control activity; timing, methods, herbicide type and concentration, and wetter type and concentration.

Always communicate your work with others so people can learn from one another!

Managing weeds

BANDICOOTS AND BLACKBERRY

Small mammals, like bandicoots, thrive in dense and 'structurally complex' vegetation (with a variety of different nooks and crannies). **This kind of habitat is ideal for them because it provides protection from predators, a place for nesting and a food source** (see What is good bandicoot habitat p.12). Blackberry can provide this particular kind of dense, 'structurally complex' habitat needed by bandicoots, especially when it grows in dense thickets, and in degraded landscapes where dense native habitat is lacking.

While blackberry is a declared 'Weed of National Significance' in Australia, research has shown that **native birds and mammals, especially bandicoots, use blackberry as habitat in highly degraded environments and fragmented landscapes such as the Mount Lofty Ranges**. It is therefore important to assess how and when to control blackberry when considering bandicoot conservation (Packer 2016).

- **Blackberry can provide important habitat for native animals where good-quality dense native habitat is lacking.**
- **Where bandicoots are present, blackberry should be managed very carefully.**
- **Stop blackberry from spreading any further and remove new seedlings as they pop up, whilst you restore native habitat nearby.**
- **Before tackling larger patches read the chart over the page and contact Landscapes Hills and Fleurieu for help and advice.**

Bandicoots and blackberry

Going through the chart below can help you to learn how bandicoots might be using blackberry on your site.
It is important to contact Landscapes Hills and Fleurieu for advice before undertaking blackberry control.

Note: This is chart has been adapted from a tool developed by the Department for Environment and Water in 2013. It is an indicative guide only, for use in the Mount Lofty Ranges Region. Future research may result in changes to this flowchart and we recommend talking to Landscapes Hills and Fleurieu for advice on controlling blackberry. Blackberry is a declared weed in South Australia. Other species as well as bandicoots may rely on blackberry.

1 Are bandicoots present?

Have you seen evidence of bandicoots such as diggings, or animals that look like bandicoots?

- Yes
- No → STOP: Refer to part A and B of this guide to determine if bandicoots have been seen nearby, or if you have suitable habitat. If so, they may still be present.

2 Blackberry patch type?

Bandicoots may rely on dense patches of blackberry that provide shelter from predators. Bandicoots may also use scattered canes among other native vegetation.

Is the blackberry a dense patch, or sparse but growing among native/mixed vegetation?

- Yes

- Yes

- No → Scattered canes in an open paddock

OK to carefully control blackberry.

3 Identify nearby habitat

If there is a lot of dense native bush nearby bandicoots will be less reliant on blackberry patches, but may still use them to move through the landscape and shelter from predators.

Is the patch among or close to native bush?

- Yes → Is the understorey of the bush suitable bandicoot habitat (at least knee high and too thick to walk through easily)?
  - No
  - Yes
- No

4 Are bandicoots likely to be using the blackberry?

- Bandicoots in the area are likely to be reliant on this blackberry because of the shelter it provides (protection from predators).
- Bandicoots may be using this blackberry patch as well as native bush.
- Bandicoots are likely to be relying on this blackberry if the patch is large (protection from predators) and it may be important for moving between habitat patches.

5 What to do next

- Consider improving the quality of the native bush and expanding native habitat patches.
- Try creating new native habitat patches nearby, by planting native plants close together. Include lots of dense understorey.

AND

STOP

- First speak to Landscapes Hills and Fleurieu for help and advice.
- Prevent blackberry from spreading.
- When considering bandicoot habitat, do the following in order:
  1. improve existing habitat,
  2. expand habitat patches,
  3. create new habitat.

BANDICOOT SUPERHIGHWAY PROJECT

MOUNT LOFTY RANGES REGION
SOUTH AUSTRALIA

Part D: Photopoint monitoring and checklist

Photo: Tessa Roberts

Photopoint monitoring

What is the purpose?

Photopoint monitoring is a quick and effective way to assess the visual changes on your property over time. It is simple and inexpensive and if carried out regularly over several years, it can provide a meaningful insight into how your bandicoot habitat is improving or identify any threats that need to be addressed.

There are some limitations with photopoint monitoring that you should be aware of, including:

- It only detects what can be seen with the camera (and position)
- It does not provide information on the cause of the change
- Weather, time of day, season and camera type could distort images and result in misinterpretation
- If there is very thick vegetation, it can be hard to detect other changes.

Preparation

- **Firstly, consider what you want to get out of the monitoring.** This can be as simple as a paragraph that describes the changes you hope to see or a monitoring data sheet that is reviewed frequently. This gives you a benchmark that you compare with the changes you observe.
- **Identify the site that matches your objective for monitoring** (i.e. the location where you want to record and assess change). When setting up a photopoint, its location should ensure a meaningful photograph. As an example, if a weed front is being monitored, the photopoint should be set up to give the best coverage of the weed front.
- **There should be an unobstructed line of site between the markers.** Avoid having a tree or shrub between the markers, as it will obscure the image over time. If this occurs, do not abandon the photopoint as it could eventually become useful if the tree or shrubs thins out or dies.

Materials

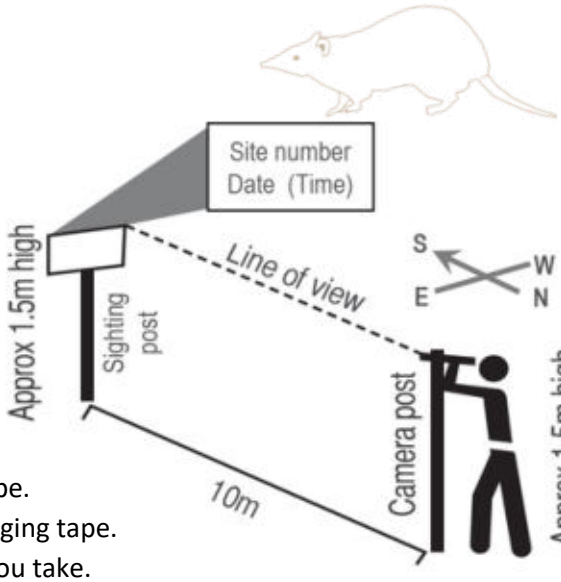
One of the benefits of photopoint monitoring is the basic equipment that is required, such as:

- A camera (or if not available, a mobile phone that takes clear images)
- Two markers such as star droppers that are tall enough to be seen (e.g. 1.8m long)
- A hammer or post driver for driving in the markers
- Marker caps or coloured flagging tape
- A tape measure to calculate the distance between the photopoint markers
- A GPS, or if not available, a mud map of your property
- Paper and pen for recording any information
- A4 white board or cardboard for recording site information
- Labelling tag and wire (preferrably something that is weather resistent) for attaching to the photopoint marker.


Before weed control


After weed control

Photopoint monitoring

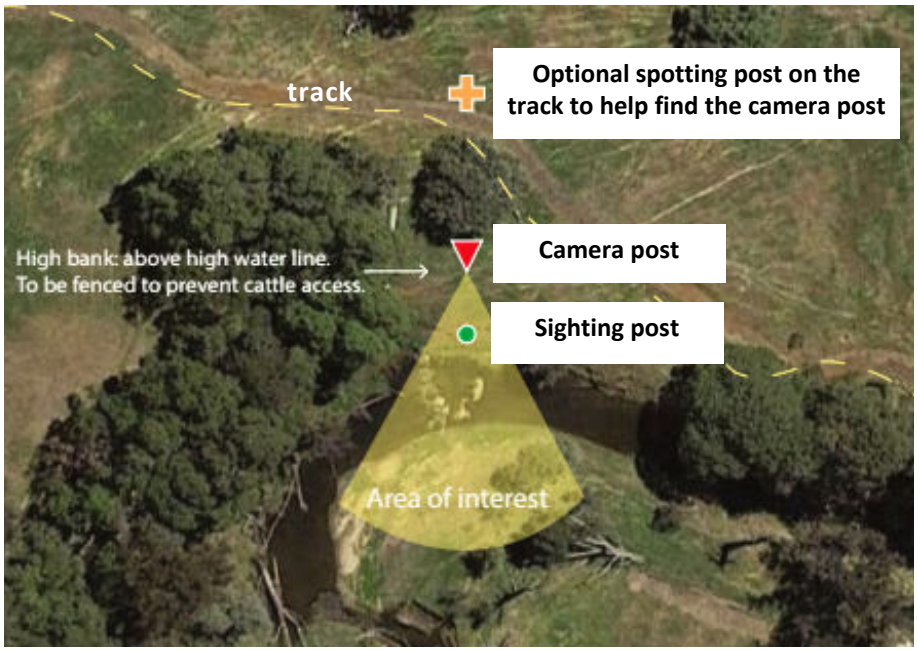


Setting up your photopoint

1. **Two permanent markers (such as star droppers) should be driven into the ground at your selected location.** This provides you with a spot where you take the photograph (the camera post) and the direction you take the photo (the sighting post) - see diagram on the right.
2. **Ensure the markers are 10 metres apart** by using a measuring tape.
3. **If possible put a coloured cap onto each marker**, or tie some flagging tape.
4. **Create a photopoint data board** that will be in each image that you take.
   The photopoint data board should be an A4 size that details the site/location, photopoint number (some areas might have more than one photopoint) and the date when the photo is being taken.
5. **Place the data board near or attached to the sighting post.** If this is not possible, record the details of your photo including the photo number, the location and the date. Ensure that the text on the photo board is large enough that it can be easily interpreted via the photograph.
6. **Take approximately 3-4 photos and if possible, record the GPS reading.** If this is not possible, draw a mud map of your property and mark the approximate location of your photopoint. You can take photographs from each direction. If you do this, make sure you record the direction of each photograph.

Hints

- Before driving your markers into the ground, stand at the proposed site (photograph marker) and look towards where you would take the photo to make sure this view is what you intended. If not, modify and test it again
- The best images are with the sun behind you
- If you do not have a GPS unit, there are many phone apps (such as GPS Tracks) that will give you your location
- Try not to be over ambitious as your monitoring should be something that you enjoy and is achievable
- Consider picking a monitoring time which corresponds with a date that is easy to remember, e.g. a long weekend or birthday
- Always take photos as landscape orientation and avoid zooming in
- Try to manage and store your images, and make copies if possible
- Have a look at the last photo you took when you take the next one to try and get the angle the same
- Take some notes about any relevant changes during each visit to help interpret photos over time



What to look for?

When comparing the different photos at different times, consider the following changes:

- Emergence of new seedlings?
- Changes in the bare ground, leaf litter and other surface material?
- Changed health of plant species (e.g. flowering, fruiting or dieback)?
- Reduced or increased grazing impacts?
- Change in the vegetation community (e.g. from a shrubland to a woodland)?
- Increase or decrease of plant density and plant diversity?

Checklist

Use this checklist to work through what you need to do to help bandicoots on your site.
It is a quick guide to actions, and references page numbers in the guide for specific information.

Do you have bandicoots?

Have you seen evidence of a bandicoot?	☐ bandicoot ☐ cone-shaped digging ☐ word-of-mouth	
Is your site located near any current bandicoot sightings?	☐ yes - great, you can manage your habitat for bandicoots - they might be there!	☐ no - continue to look for signs (you never know) and still protect and manage your property for other native species. Speak to Landscapes Hills and Fleurieu
Have you seen any bandicoot predators on the site (foxes/cats/dogs)?	☐ yes - ensure you have thick vegetation and/or other habitats (see p.23) and manage pets responsibly. Contact local experts to discuss control options	☐ no - continue to monitor for signs of predators and then discuss with local experts

Your habitat

Have you identified the type of habitat/s that you have (native, weedy or mixed)?	☐ yes - continue to find out how to manage it to improve it for bandicoots	☐ no - refer to p.16 to find out
Do you have habitat that is dense below knee level (too dense to easily walk through)?	☐ yes - excellent, this is what bandicoots need to shelter from predators. Continue to watch for threats/weeds	☐ no - consider making the understorey denser to give bandicoots adequate protection

Your management options

unsure? ask Landscapes Hills and Fleurieu for advice

Have you carefully considered what weed control is needed on your site?	☐ yes - remember to manage weeds starting from the least weedy area	☐ no - refer to pp.24-27
Do you know how to control weeds using techniques that minimise disturbance?	☐ yes - this method is the most effective, especially in native bush	☐ no - refer to p.25. Still unsure? - ask Landscapes Hills and Fleurieu or a reputable weed contractor
Do you need to improve the condition of your habitat for bandicoots?	☐ yes - follow these guidelines. Refer p.15 onwards	☐ no - continue to monitor for new threats
Do you need to expand your habitat patch/patches?	☐ yes - follow these guidelines. Refer p.18. Consider working with neighbouring properties	☐ no - encourage your neighbours to expand habitat that will connect with your patch
Do you need to create more habitat with revegetation?	☐ yes - refer to pp.19-22 and ensure appropriate species selection and densities for bandicoots	☐ no - encourage your neighbours to expand habitat that will connect with your patch
Have you set up a photopoint monitoring station?	☐ yes - excellent, please share your observations with us and others!	☐ no - we recommend doing this so you can see the changes on your property
Have you considered reaching out to your neighbours to improve the habitat quality and connectivity across the landscape?	☐ yes - fantastic. This scale of collaboration has the biggest impact for bandicoots	☐ no - have a look at satellite photos and maps, and talk with your neighbours. If you are interested but need help, contact Landscapes Hills and Fleurieu

Part E: More information

Photo: Bush Heritage Australia

Plant species lists for revegetation

Find out what species are locally native to your area and use locally native species where possible. Check with Landscapes Hills and Fleurieu, use the Botanic Gardens SA Plant Selector, or head to a State Flora nursery to find out what vegetation community your area falls into. Otherwise, below is a list of some suggested plant species and genera that are appropriate for bandicoot revegetation. You can use this list as a guide but refer to the above resources for more detailed recommendations for your particular site.

Understorey (0-1 m)

- *Acrotriche serrulata* ^
- *Carex appressa* *
- *Carex pumila* *
- *Dianella revoluta*
- *Ficinia nodosa* *
- *Gahnia* spp.*
- *Gonocarpus tetragynus*
- *Isopogon ceratophyllus*
- *Juncus* spp.
- *Lepidosperma carphoides* ^
- *Lepidosperma semiteres* ^
- *Lomandra densiflora*
- *Lomandra fibrata* ^
- *Lomandra multifora* ssp. *dura*
- *Poa* spp.
- *Rhytidosperma* spp.
- *Rubus parvifolius*
- *Themeda triandra*

Understorey (1-2 m)

- *Acrotriche fasciculiflora* ^
- *Calytrix tetragona* #
- *Correa* spp.
- *Epacris impressa* ^
- *Goodenia ovata*
- *Hibbertia* spp.
- *Leucopogon* spp.
- *Platylobium obtusangulum*
- *Pultenaea involucrata* ^
- *Tetratheca pilosa*

Midstorey (2-4 m)

- *Acacia myrtifolia*
- *Allocasuarina muelleriana* #
- *Dodonaea viscosa*
- *Hakea carinata*
- *Hakea rostrata*
- *Leptospermum continentale**
- *Leptospermum myrsinoides* #
- *Pteridium esculentum* *^
- *Pultenaea daphnoides*
- *Spyridium parvifolium*
- *Stenanthera conostephioides (formerly Astroloma)* ^
- *Xanthorrhoea semiplana* ssp. *semiplana*

Overstorey (>4 m)

- *Acacia melanoxylon*
- *Acacia pycnantha*
- *Allocasaurina verticillata*
- *Banksia marginata*
- *Bursaria spinosa*

Note that the **underlined species above** may shade important understorey vegetation as they mature, and so may reduce the density of the habitat in the future, making it less suitable for bandicoots.

^ = difficult to purchase/grow species
*** = grows primarily near creeks or seasonally wet areas**
 # = grows in dry, exposed areas with poorer soils

Difficult to purchase/grow species ^
These species provide valuable habitat for bandicoots but are more difficult to find at nurseries. If you are able to identify them on your property - this is great! These species may naturally regenerate if you keep weeds at bay and reduce grazing by herbivores such as kangaroos and rabbits, if they are an issue on your property.

Native plant nurseries

There are many great nurseries that stock local native plants. Below are a few suggestions that have been provided to us.

State Flora Nursery

Belair National Park, Upper Sturt Road, Belair
(08) 8278 7777 https://www.stateflora.sa.gov.au/

Coromandel Native Nursery

28 Star and Arrow Road, Coromandel East
(08) 8388 2777 https://natives.net.au/

Provenance Indigenous Plants

Carisbrook Park Reserve, Sandy Crescent, Salisbury Park
0409 675 477 https://www.provenance.net.au/

Lists of other plant nurseries

https://cdn.environment.sa.gov.au/landscape/docs/hf/Local-growers_native_nursery_list_HF_June-2023.pdf

https://www.greenadelaide.sa.gov.au/discover/gardening/native-plant-nurseries-adelaide

Fleurieu Natives

Waterfall Drive, Nangkita
0407 183 295

Indigeflora Nursery

43 Chapman Road, Hackham
0404 130 053

Westwood Nursery - Trees For Life

Corner May Terrace and, Sir Donald Bradman Dr, Lockleys
(08) 8406 0500 https://treesforlife.org.au/

Wollemi Natives

Willunga South
0422 582 903 https://www.wolleminatives.com/

Other useful references & contacts

Landscapes Hills and Fleurieu

Mount Barker Office
Corner of Mann and Walker Streets, Mount Barker
(08) 8391 7500 https://landscape.sa.gov.au/hf

Feral Scan

Mobile phone application to record feral animal activity
Apple App Store or Google Play https://feralscan.org.au

Landcare groups

Find a local landcare or Friends of Parks group
Friends of Parks:
https://friendsofparkssa.org.au/join-a-group/
Landcare groups:
https://landcareaustralia.org.au/landcare-get-involved/findagroup/

Managing weeds

- Contact your local Landscape SA Office.
- *Weed Control Handbook for Declared Plants in South Australia* by PIRSA
- *Stop Bushland Weeds: A Guide to Successful Weeding in South Australia's Bushland* by Meg Robertson
- Primary Industries South Australia https://pir.sa.gov.au/biosecurity/weeds

Green Adelaide

Adelaide's central Landscape Board covering Adelaide suburban councils inc. City of Mitcham, Burnside, Tea Tree Gully and Onkaparinga (north of of Onkaparinga River only).
dew.greenadelaide@sa.gov.au
(08) 7424 5760 https://greenadelaide.sa.gov.au

Flora and fauna identification and information

- *Focus on Flora: Native Plants of the Adelaide Hills & Barossa* by Kersbrook Landcare Group
- *It's Blue with Five Petals: Wildflowers of the Adelaide Region* by Ann Prescott
- *A Field Guide to the Mammals of Australia* by Peter Menkhorst and Frank Knight
- *Tracks, Scats and Other Traces* by Barbara Triggs
- See above contact for Landscape South Australia - can provide information on flora and fauna identification
- **Botanic Gardens of South Australia Plant Selector** https://plantselector.botanicgardens.sa.gov.au/

Bibliography

Compiled by N. Masters, R. Taylor and S. Maclagan 2019. **Guidelines for best-practice management of modified habitats for Southern Brown Bandicoot**s, 2019
https://www.rbg.vic.gov.au/media/elkfnks5/guidelines-for-best-practice-management-of-modified-habitats-for-southern-brown-Bandicoots.pdf

Basnett and Ezis 2010. **Briefing note on the principles of minimal disturbance techniques and how they benefit biodiversity conservation**. South Australia Department of Environment and Natural Resources.
https://www.yumpu.com/en/document/read/24850632/briefing-note-on-the-principles-of-minimum-disturbance-techniques-

Australian Association of Bush Regenerators (AABR): General principles of bush regeneration
https://www.aabr.org.au/learn/what-i-bush-regeneration/general-principles/

Improving Bandicoot Habitat in the Mount Lofty Ranges: A guide to weed removal, regeneration and revegetation
https://www.aldgatekgn.sa.edu.au/uploads/files/bandicoot-habitat-restoration-fact_1.pdf

Landscape South Australia Hills and Fleurieu: **Native vegetation management**
https://www.landscape.sa.gov.au/hf/our-priorities/nature/native-plants-animals-and-biodiversity/native-vegetation-management

Landscape South Australia Hills and Fleurieu: **Managing Livestock**
https://www.landscape.sa.gov.au/hf/our-priorities/land/landholder-services/managing-livestock

Landscape South Australia Hills and Fleurieu: **How to plant like a pro**
https://www.landscape.sa.gov.au/hf/our-priorities/land/landholder-services/reveg-planning-for-success/how-to-plant

Arrive Clean, Leave Clean, Commonwealth of Australia 2015. Guidelines to help prevent the spread of invasive plant diseases and weeds threatening our native plants, animals and ecosystems
https://www.agriculture.gov.au/sites/default/files/documents/arrive-clean-leave-clean.pdf

Landscape South Australia Hills and Fleurieu: **Have you seen a southern brown bandicoot?**
https://cdn.environment.sa.gov.au/landscape/docs/hf/Have-you-seen-a-bandicoot.pdf

Packer J 2016. **Blackberry Control and Bandicoots**. When and how to control blackberry if bandicoots live in your area. A guide for environmental practitioners. Unpublished.

Photo: Luke Price

Find out more

Bandicoot Superhighway

bandisuperhighway

www.surlg.org.au

www.ncssa.asn.au

www.landscape.sa.gov.au/hf/Bandicootsuperhighway

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