

Improving Bandicoot Habitat in the Mount Lofty Ranges

A guide to weed removal, regeneration and revegetation

The Southern Brown Bandicoot is a nationally endangered species found in the Mount Lofty Ranges. Its survival relies on protecting and restoring habitat.

Why do bandicoots struggle to survive?

Over 85% of natural habitats in the Mount Lofty Ranges have been cleared. Much of the remaining vegetation occurs in very small patches and is in poor condition.

A single bandicoot typically requires between one and six hectares of habitat. Many habitat patches in the Mount Lofty Ranges are not large enough, or of sufficient quality, to support populations of bandicoots.

It is therefore critically important that we:

1. protect all remaining habitat,
2. improve the quality of existing habitat, and
3. increase the amount of habitat by enlarging existing patches.

What is ideal habitat for bandicoots?

Southern Brown Bandicoots are typically found in Stringybark Eucalypt woodlands or forests. Their habitat must have very thick shrubby understorey vegetation to about thigh high. Bandicoots rely on this understorey for protection from predators.

If the understorey is cleared, slashed, burnt, or grazed then it may become unsuitable for bandicoots.

When good quality habitat is scarce bandicoots may rely on dense patches of weeds, particularly blackberry, to provide the shelter they need.



Southern Brown Bandicoot (*Isoodon obesulus*)
Artists: Alicia Haby and Belinda Cale



Dense, low understorey, about thigh high, is ideal habitat for bandicoots.

Key characteristics of bandicoot habitat

Using natural bandicoot habitat as a guide can help us to plan restoration activities. Surveys have shown some of the main features of good bandicoot habitat are:

- A very diverse layer of understorey plants (up to 1m in height). In a 1m² area up to 7 different species are often found.
- In areas occupied by bandicoots, these understorey plants usually cover more than 70% of the ground surface.
- Shrubs (between 1 and 3 m tall) are irregularly spaced. Dense patches often occur beside areas with little shrub cover.
- Not all shrubs are big and bushy.
- Trees vary greatly in age and therefore size.
- The spacing of trees varies from about 3m apart up to 15m apart (in forest or woodland habitat).
- Plants that die or fall provide lots of cover and fallen timber is a common feature in good habitat.
- For every tree in bandicoot habitat you can expect to find up to 35 shrubs (from at least six species) and 500 smaller understorey plants (from at least 10 species).

Getting Back the Best Bandicoot Habitat

It is important that any activities designed to get back the best bandicoot habitat are planned and carried out wisely.

Step 1 – Protect all existing habitat

We need to protect **all** existing habitat if bandicoots are to survive in the Mount Lofty Ranges.

Protect existing habitat remnants from damage by stock grazing, clearing and slashing. Fence if necessary.

Step 2 – Improve quality of existing habitat

It is much harder and more time consuming to re-create habitat than to improve the quality of existing habitat

Encourage understorey to regenerate naturally. Assist this process by carefully controlling weeds. Revegetate only where necessary.

Step 3 – Increase size of existing patches

Increasing the size of existing habitat patches will improve the likelihood they will support a healthy bandicoot population. Bandicoots are more likely to use regenerating or revegetated areas if these are next to mature bush that they can feed and shelter in.

Increase the size of existing habitat patches by encouraging natural regeneration around the edges of existing patches. You may consider speeding this up with some planned understorey revegetation.

Step 4 – Create new habitat between existing patches of habitat

Re-creating habitat is a lower priority than protecting and improving existing habitat. However habitat connections that are created between larger patches of bush may help bandicoots to move through degraded landscapes. Revegetated habitat must provide similar shelter to natural habitat if it is to be used by bandicoots. Be aware that this can be very difficult to achieve!

Plan revegetation so that it connects existing patches of habitat.

Control Weeds to Improve Habitat

A successful approach to improving weed infested areas is to start weeding in the best areas of bush and work towards more degraded areas. This will keep the best habitat in great condition so bandicoots can continue to use it.

Remove any large woody weed infestations in small stages at the same rate as natural habitat is regenerated or replanted. This will allow wildlife that has come to rely on the dense weedy shelter to keep using the area.

Regeneration or Revegetation?

Many people enjoy revegetating areas because they immediately see the results of their hard work. However, less hard work and a little patience can often lead to better results!

Many native species will often regenerate naturally in recently cleared areas or in areas next to existing bush. Regeneration can be promoted by removing weeds and protecting the area from grazing and trampling by stock.

Trees and shrubs that regenerate naturally provide better quality, more resilient habitat...and it is cheaper!

You can always plant species that don't regenerate naturally at a later stage.



When planning revegetation, use mostly small shrubs and understorey plants from a wide number of species.



An example of staged weed control that has allowed natural regeneration. ABOVE: The Friends of Scott Creek Conservation Park carefully removed the blackberry from a small section of this creekline. BELOW: Plants in this creekline then naturally regenerated producing fantastic, high quality bandicoot habitat (photos by: Tom Hands, Friends of Scott Creek Conservation Park).



Revegetation – Getting the Recipe Right!

If revegetation is the only option to restore habitat in an area, then plan to re-create a natural habitat as much as possible.

Plant more small understorey plants than shrubs and only a few trees. In fact, try planting understorey plants first and adding trees later to maintain your focus on the understorey and to get tree spacing right.

Vary plant spacings to replicate natural patchiness. Don't be afraid to later thin plantings if they are too dense.

Plant a diverse range of indigenous species.

Stage your revegetation over a number of years so that your plants are not all the same age and size. Hopefully your plants will eventually regenerate naturally.

Make sure the species you plant are those that grow naturally in your area. These species are adapted to local conditions and soil types.

A healthy habitat is not always a neat one! Dead plants, broken branches and logs all help to create the complex habitat structure needed for bandicoots and other fauna to thrive.

Common Revegetation Mistakes

Planting too many trees and shrubs and too few small understorey plants.

Trees and shrubs provide habitat for some wildlife but bandicoots rely on a diversity of small plants for food and shelter. Remember that the habitat needs to be dense close to the ground, at bandicoot height – not at our height!

Planting trees and shrubs too close together.

Next time you're in the bush have a close look at the variation in distances between trees. Note how many understorey plants are found between the trees. If trees and large shrubs are too close the understorey plants don't get enough light to grow.

Points to Remember

- It's cheaper and easier to protect existing bush than to try and re-create it later.
- Increase the size and quality of existing remnants before connecting habitat patches
- When removing weeds that provide habitat for bandicoots, the rate of removal should equal the rate of replacement of suitable habitat through regeneration and / or revegetation.
- Natural regeneration provides better quality habitat than revegetation. Protect recently cleared areas from heavy grazing and wait – patience is the key.
- If you do revegetate, use plant species native to the area and choose the right mix of low understorey (most), shrubs (some) and trees (few).
- Encourage patchiness in your revegetation by planting over multiple years and at different densities.

Shrubs and understorey to consider planting in the Adelaide Hills to create bandicoot habitat:

Key Shrubs

Heath wattle, *Acacia myrtifolia*
Dwarf Sheoak, *Allocasuarina muelleriana*[#]
Silver Banksia, *Banksia marginata*
Hakea, *Hakea carinata*
Beaked Hakea, *Hakea rostrata*
Prickly Tea-tree, *Leptospermum continentale**
Heath Tea-tree, *Leptospermum myrsinoides*[#]
Large-leaved Bush-pea, *Pultenaea daphnoides*

Key Understorey

Common Fringe-myrtle, *Calytrix tetragona*[#]
Strand Sedge, *Carex pumila**
Saw Sedge, *Gahnia sieberiana**

Key Understorey cont.

Hop Goodenia, *Goodenia ovata**
Erect Guinea-flower, *Hibbertia riparia*
Guinea-flower, *Hibbertia exutiacies*[#]
Silky Guinea-flower, *Hibbertia sericea*
Shrub Violet, *Hybanthus floribundus*
Cone Bush, *Isopogon ceratophyllus*
Black Rapier-sedge, *Lepidosperma carphoides*
Wire Rapier-sedge, *Lepidosperma semiteres*
Bearded Heath, *Leucopogon concurvus*
Mount Lofty Matt-rush, *Lomandra fibrata*
Common Flat-pea, *Platylobium obtusangulum*
Mount Lofty Bush-pea, *Pultenaea involucreta*
Grass-tree, *Xanthorrhoea semiplana*

* grows primarily near creeks or seasonally wet areas # grows in dry, exposed areas with poorer soils

This is not a comprehensive list of all species you can plant to create bandicoot habitat (i.e. Stringybark woodland with a dense shrubby understorey). However these species often provide good vegetation cover in the wild and therefore will help create good habitat. Check which ones grow in your area and what conditions they require.

Shop around to find a native plant nursery that will supply what you need. Give them plenty of time to propagate and grow your plants. Some understorey plants are difficult to grow so don't expect them to be available 'off the shelf'. Ask what other understorey species are available and suitable for your area so you can create diverse habitat. Start planting on a small-scale because keeping on top of the weeds is likely to be challenging!

Getting Advice

For more information on Southern Brown Bandicoot conservation visit <http://www.environment.sa.gov.au/biodiversity/threatened.html>. For free advice about how best to protect bush on private land, encourage natural regeneration and when you should consider revegetation, contact the DEH Bush Management Advisors Ph: 8336 0901

This information was compiled by Kirstin Long, Threatened Fauna Ecologist, Department for Environment and Heritage with funding from the Adelaide and Mount Lofty Ranges Natural Resources Management Board. The information is based on the best available bandicoot habitat management knowledge, but this may be updated with future research.