

# Biodiversity and habitat

Supporting biodiversity on productive land brings multiple benefits.



## Trees on farms support a range of ecological functions that underpin farm productivity and produce environmental outcomes.

Land-use change, overgrazing and weed infestation are some of the biggest threats to Tasmania's native flora and fauna. Farmers have an important role to play in preserving biodiversity and habitat, to deliver important ecosystem services, promote environmental conservation and improve landscape sustainability.

### Biodiversity

Biodiversity is the variety of life within a landscape, including plants, animals, fungi and microorganisms. It also refers to the diversity of the ecosystems in which they live.

As an important natural asset, biodiversity is an indicator of the environmental health and sustainability of a landscape. Protecting and improving biodiversity on farms brings multiple operational benefits, including increases to farm productivity and natural capital. It also supports environmental conservation and landscape resilience, which is essential in mitigating the impacts of climate change.

### Trees and biodiversity

Trees and vegetation on farms enhance biodiversity and, in turn, the health and resilience of landscapes.

#### WILDLIFE AND ECOSYSTEM SERVICES

Trees and vegetation provide the essential food, shelter and nesting habitat for wildlife to survive and thrive. By protecting or planting trees, farmers facilitate and attract a range of insects, spiders, birds and mammals; this both increases farm biodiversity values and provides essential ecosystem services.

There are many types of beneficial animals that support ecosystem functions on farms:

| Animal type   | Primary service    | Benefits   |
|---|--------------------|--|
| <b>Predators</b> (e.g., spiders, dragonflies and honeyeaters) | Pest control       | Prevents crop damage from pests and reduces need for insecticide use   |
| <b>Pollinators</b> (e.g., bees, moths, flies and wasps)       | Pollination        | Essential for crop production and genetic diversity                    |
| <b>Decomposers</b> (e.g., dung beetles)                       | Nutrient cycling   | Improves soil health and structure, reduces flies and animal parasites |
| <b>Scavengers</b> (e.g., quolls, bandicoots, devils)          | Carion consumption | Maintains farm hygiene and reduces risk of blowfly strike              |

Table mapping beneficial animals to their primary services and benefits.

## SOIL HEALTH

Biodiversity plays a critical role in soil health, and therefore farm productivity and environmental sustainability.

Billions of biodiverse organisms live in soil matter, including bacteria, fungi and invertebrates. They turn, eat, fertilise and decompose soil, which is essential for nutrient cycling and soil production. Trees are a key part of this process, as they input nutrients into soils (by dropping organic matter such as leaves, twigs and branches) and reduce nutrient loss (by mitigating the risk of erosion and salinity); this creates healthy, fertile soil.

Healthy soil is vital to enable plant growth, facilitate carbon sequestration, and reduce the risk of erosion, salinity and flooding.

Find more information on the soil benefits of trees on farms with **Tree Alliance's Fact Sheet 10 – Trees and soil health**.

## AMENITY AND WELLBEING

Biodiversity is an integral part of a healthy farm landscape, which in turn contributes to the health and wellbeing of farmers.

This is a traditionally understated benefit of biodiversity, yet many landholders report an increased sense of wellbeing following the restoration or protection of biodiverse plantings on their land. Early research on this topic has found links between farmer wellbeing and engagement with natural resource management practices; the presence of trees on farms also enhances working conditions for staff (e.g., through shade and wind shelter), while enhancing the value and scenic quality of agricultural land.

## PLANTING DESIGN FOR BIODIVERSITY

Trees on farms can be designed to improve and attract biodiversity. As a general approach, plantations that are densely populated with a wide range of plants – including native species – at varying heights will encourage biodiversity.

When designing plantations or considering revegetation programs on your land, consider:

- **Structure** – structural complexity in plantings is essential to provide habitat and resources for biodiverse communities; this includes plantings with grasses, native herbs, flowering plants, shrubs, small trees and canopy trees – as well as fallen timber and rocks
- **Age** – remnant vegetation, and old and fallen trees, provide essential habitat for many of Tasmania's threatened wildlife species; protecting or restoring areas of remnant vegetation can go a long way towards supporting biodiversity and habitat on farms. Species – including a range of plant species within a plantation or farm landscape increases resilience against threats such as disease and climate change; native species are generally preferred as they are most suited to the characteristics of the site and its natural wildlife

- **Connectivity** – habitat must be connected to enable animals to move and access food, shelter and mates; farm plantings can act as natural corridors and stepping stones across landscapes to support biodiversity of animal and plant populations.

## IMPROVING BIODIVERSITY AND HABITAT

Protecting and improving native vegetation on your farm will help to restore landscape ecosystems and improve farm biodiversity values. Consider the following steps:

### 1. Identify and assess remnant vegetation

Restoring existing vegetation is the easiest and cheapest way of improving your farm landscape. Start by locating remnant patches of native trees, shrubs and grasses on your property of any size and shape. Identify whether vegetation is healthy or degraded.

| Healthy habitat                                  | Degraded habitat  |
|--|---|
| Free of weeds                                    | Weed invasion   |
| Rich understory providing diversity of structure | Few or no understory / groundcover plants               |
| Old trees with hollows, fallen logs and timber   | No fallen logs and timber                               |
| Trees with healthy foliage and natural cover     | Trees showing signs of poor health with low or no cover |

Comparison of healthy and degraded habitat. Adapted from NSW National Parks & Wildlife, Protecting remnant bush on your land.

### 2. Determine issues and threats

Where habitat is degraded, identify the primary issues or threats, before designing an appropriate response. The two most common threats to remnant vegetation and their appropriate responses are:

- **Pressure from stock or wild animals** – requires the installation of fencing or tree guards appropriate to the specific animal of concern
- **Weed competition** – requires weed control (chemical or non-chemical), which should be carefully designed according to type of weed and severity of infestation.

In many cases, remnant vegetation will bounce back once threats are mitigated, creating significant improvements to farm biodiversity over a relatively short period of time.

### 3. Consider revegetation planting

If your property has little to no remnant vegetation, or where restoration efforts have not produced sufficient results, consider vegetation planting. This should be undertaken with careful planning and thorough site preparation.

Some guiding principles to maximise biodiversity value include:

- Select local native species – local species are more likely to provide the appropriate food, shelter and nesting habitat for wildlife in your area
- Suit local conditions – consider your site's soil type and topography and choose a species that suits the environmental conditions
- Include structural diversity – create a ground layer, understory, midstory and canopy level to maximise biodiversity and habitat
- Provide varied habitat – keep old trees, rocks and woody debris in your landscape to provide essential habitat for vulnerable species, and significantly speed up the process of beneficial wildlife moving in
- Create networks – plan your projects to create corridors and stepping stones that enhance connectivity across your farm and within your catchment.

### 4. Get support

Revegetation projects are most effective under the guidance of a forester, who can help to identify remnant vegetation, determine risks and opportunities, and plan required activities as part of a whole-farm plan.

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## Next Step



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