Wondrous Box-Gum Grassy Woodlands – Teacher's Guide

The Wondrous Box-Gum Grassy Woodland teaching package has been created to engage students and increase public knowledge of the ACT's Box-Gum Grassy Woodlands, their inhabitants, and the threats they face. Aimed at interacting with students in a COVID-safe way, and without the need for in-school visits, our classroom and outdoor activities are designed to be a fun and engaging way to learn about the values of sustainability and protecting our local ecosystems.

Targeted at Years 4 to 6, The Wondrous Box-Gum Grassy Woodland teaching package includes a link to download a PDF of our colouring in book, three activities (two in-class, one outside), and entry to our Wondrous Box-Gum Grassy Woodland Colouring in competition (details below).

Australian Curriculum
Science (Version 8.4)

Year 4	(ACSSU073 - Scootle)	- Living things depend on each other and the environment to survive.
	(ACSHE061 - Scootle)	- Science involves making predictions and describing patterns and relationships.
	(ACSIS065 - Scootle)	- With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment.
	(ACSIS071 - Scootle)	- Represent and communicate observations, ideas and findings using formal and informal representations.
Year 5	(ACSHE081 - Scootle)	- Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions.
	(ACSHE083 - Scootle)	- Scientific knowledge is used to solve problems and inform personal and community decisions.
	(ACSIS231 - Scootle)	- With guidance, pose clarifying questions and make predictions about scientific investigations.
	(ACSIS218 - Scootle)	- Compare data with predictions and use as evidence in developing explanations.
Year 6	(ACSSU094 - Scootle)	- The growth and survival of living things are affected by physical conditions of their environment.
	(ACSHE100 - Scootle)	- Scientific knowledge is used to solve problems and inform personal and community decisions.
	(ACSIS103 - Scootle)	- Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks.

Background

Box-Gum Grassy Woodlands

'Australia's Box-Gum Grassy Woodlands are a plant community characterised by a canopy of large *Eucalyptus* trees, few mid-storey shrubs and a high diversity of plants in the ground layer with many grasses and herbs. Much more than just grass and trees, Box-Gum Grassy Woodlands also provide

habitat for a wondrous variety of mammal, bird, reptile, frog and invertebrate species. Tree hollows, fallen logs, branches and leaves, and seeding native grasses are just some of the elements that provide important microhabitats and food for fauna.

Once widespread through Queensland, New South Wales and Victoria, Box-Gum Grassy Woodlands have been extensively cleared for agriculture and modified for livestock grazing. Only small remnants which have escaped these impacts remain in near-original condition. In spring, as plants in the ground layer start to flower, visiting these special places provides a glimpse of the incredible natural beauty and diversity that can be found in this community. Box-Gum Grassy Woodlands still face threats. By encouraging landholders and the community to manage and care for what little remains, and restoring degraded areas, we can ensure that Box-Gum Grassy Woodlands and their inhabitants survive into the future.' – Dr Martin Henery (Ecologist).

Vegetational Layers

Ecologists categorise Box-Gum Grassy Woodland into three vegetational layers: overstorey (canopy), mid-storey (shrub layer), and understorey (groundcover). Animal species have adapted to use large trees, smaller shrubs, grasses and forbs, as well as rocks, fallen logs and fallen leaves as shelter and sources of food. Protecting all three vegetational layers is important for biodiversity. Each vegetational layer provides food and habitat for different groups of species.
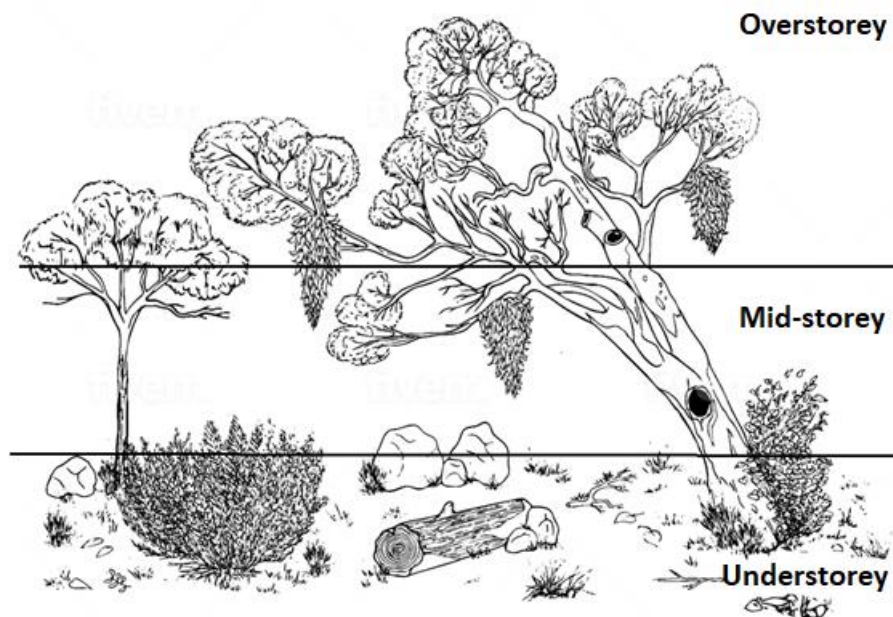
Overstorey – Tree canopies can provide shelter to bird and animal species by offering protection high up. Large amounts of foliage can provide cover for birds and animals and provide food for native insects, that in turn, act as a food source. Many canopy tree species also supply pollen, nectar or fruit. Large, old eucalyptus trees provide hollows and forks for birds and animals to make their nests. *Eucalyptus* trees generally start to form hollows when greater than fifty years old and can only develop large hollows suitable for large animals (like owls) when they are much older than that (>100 years).

Mid-storey– The mid-storey is made up of small trees and shrubs, and includes the trunk and bark found in the lower parts of large canopy trees. Native shrubs provide a refuge from predators for smaller bird species, and many produce seeds and fruits that native animals eat. Bark on the trunk of eucalyptus trees provide a home for many insects and spiders, which are also eaten by native birds and animals.

Understorey – In Box-gum Grassy Woodlands the vast majority of plant diversity is found in the ground-layer. This diversity supports a wealth of insect life. Grasses and herbaceous plants provide cover for small birds and animals, produce seeds that are eaten by many species and their flowers attract pollinating insects. Many of these plants and the insects that live on and around them are depicted in the book. Fallen logs, fallen leaves and rocks also play a vital role, providing habitat for many birds, reptiles, mammals and insects. Habitat is the environmental conditions a plant or animal species needs to survive.

What makes a good woodland habitat?

In the ACT and many other parts of Australia, loss of woodland habitat has meant that some plants and animals, notably birds, have become rare or threatened. The following features of a woodland area determine how important the habitat is for woodland animals, particularly threatened species:

- Large areas of habitat, the size of the patch of woodland and how close it is to other patches of woodland is very important, as some animals like small birds need lots of woodland, and enough connections to move between patches. Bigger birds do not always need as many connections between patches of woodland, but they still need stepping-stones like big old paddock tree to move from across the landscape.
- A woodland with big old trees is important for animals like possums, sugar gliders and honeyeaters that feed in tree canopies and for animals that need tree hollows. Trees with mistletoes provide extra food and habitat as well. Even if there are no big old trees, young trees can still be important for many bird species.
- A woodland that has plenty of native grasses or other small ground cover plants provides good habitat for invertebrates like insects and spiders. A diverse, healthy, ground cover is good habitat for reptiles and small native mammals.
- Although shrubs are not common in Box-gum Grassy Woodland, shrubs can provide important habitat particularly for birds that feed and nest in them.

A woodland with all or most of these different features is called a high conservation-value woodland. A woodland with just one or more of these features is also important and can be improved by planting local native trees, shrubs and grasses, managing grazing and controlling weeds.

Threatened woodland birds

Many woodland bird species have become threatened in just the last few decades. In the ACT and NSW, around 250 bird species live in woodlands. Nearly one quarter of these species are now 'threatened' which means that they could go extinct if we don't look after them. Another quarter of the woodland bird species are described as 'declining species' which means that their numbers have dropped sharply in the last 20 years. These species are at risk of becoming threatened in the near future without our help.

What is being done to help save our threatened woodland birds?

In the last 40 years many scientists have studied woodland birds, and we now know some of the reasons why woodland birds have become threatened. This information is now being used by land managers, including farmers to try and improve our woodlands to help save birds and other organisms that live in them. The planting of trees, shrubs and grasses, as well as the removal of weeds and reducing the amount of grazing, all help restore our woodlands. We are also starting to use fire as Indigenous Australians have done for thousands of years to manage woodlands. There is still much more to understand about our woodland birds and people of all backgrounds, including kids, are still learning about them today.

Wondrous Box-Gum Grassy Woodlands: A colouring exploration of a diverse ecosystem – colouring in book

Created by talented artist and ecologist Paula Peeters, this beautiful colouring in book is available to print or as a PDF for students to take home. Written by ecologist Martin Henery, the book gives fantastic insight into the ACT's Box-Gum Grassy Woodlands, the threats they face and what can be done to help restore them. Paula's wonderful illustrations include over 70 species of animals, 50 species of plants, all found in our local Box-Gum Grassy Woodlands, and a guide to find and identify each species.

Download ***Wondrous Box-Gum Grassy Woodlands: A colouring exploration of a diverse ecosystem*** here.
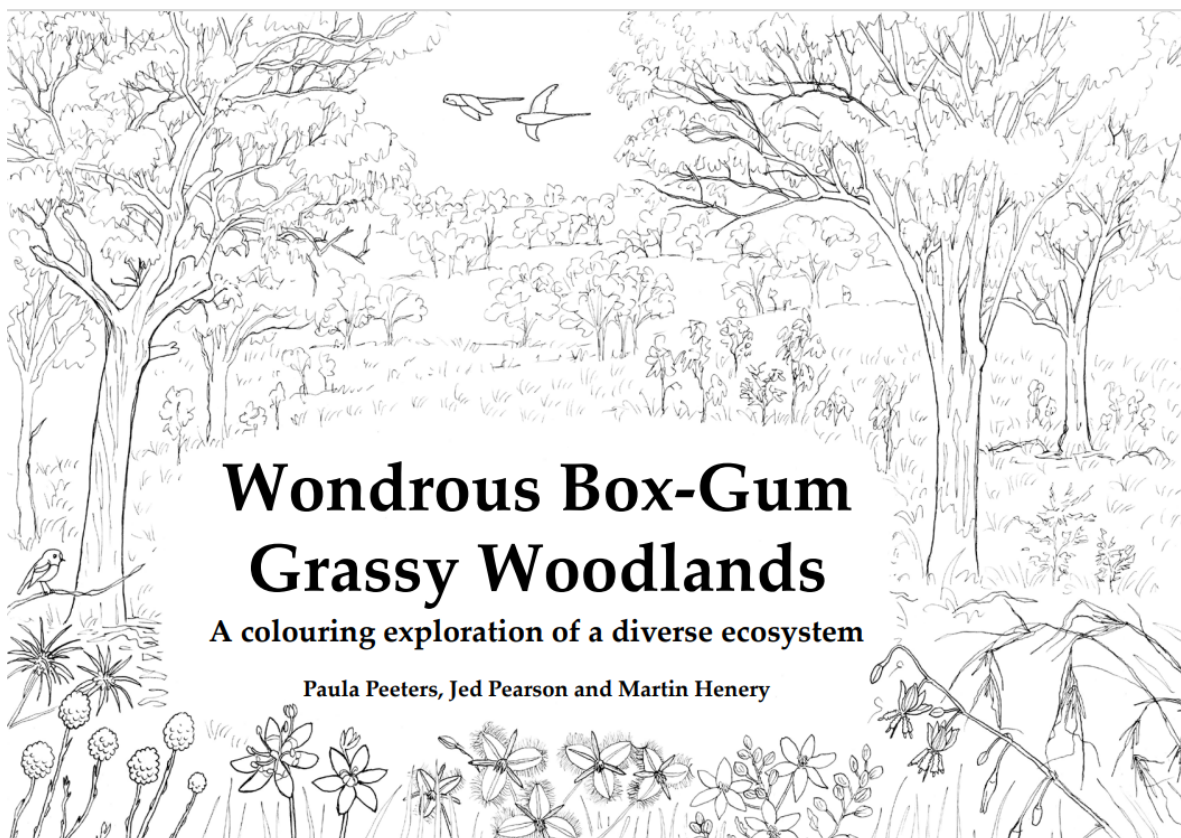
Activity Instructions

Activity 1 – Woodland Listening Sounds

Do you know what animals are living around you? Sometimes it can be hard to tell, but if we close our eyes and listen, nature reveals itself in ways that can't be seen.

Time – 30 – 40 mins

Instructions - Display slide with photo to class.

Get your class to close their eyes and listen to the sound. Sound will play when you click on the speaker image over photo. You may need to play the sound a few times to let them listen carefully and think about what they can hear.

Each slide and sound is a prompt for a class discussion.

While you can play slides in any order, the first is a suburban house which can prompt a discussion of the different plants and animals that students have living around them.

Slides 1 and 2: Creatures that live in our backyards.

Everyone close their eyes and listen. Play sound

Class discussion:
Slide 1: Ask students which creatures they heard.
How do you know?

Slide 2: Did you recognize any of these animals in the sound clip? (Cricket, Cockatoo, Willy Wagtail, Magpie Lark (Peewee), Corellas, Magpie). Which sound belongs to each?
What animals live around your house and school? How do you know? What do they sound like?
Have you seen them before? Where do they live?

Slides 3 and 4: Sounds recorded at dam near Reedy Creek, Bungendore NSW.

Everyone close their eyes and listen. Play sound.

Class discussion:
Slide 3: What animals or kinds of animals can you hear that live here?

Slide 4: These are the animals you could hear. All recorded and living not too far from your school.
Have you seen any of them before?

Slides 5 and 6: Sounds recorded at Reedy Creek

Everyone close their eyes and listen. Play sound.

Class discussion:
Slide 5: What animals or kinds of animals can you hear that live here?

Slide 6: These are the animals you could hear. All recorded and living not too far from your school.
Have you seen any of them before?

Molonglo Conservation Group 2022

Activity 2 – School Yard Safari

Schoolyard Safari is an on-school activity designed to provide students an understanding of the natural ecosystems that exist near where they live, and the living things and their habitat near where they live and go to school.

Time – 30 – 40 mins.

Instructions - Walking around the schoolyard, students search for each animal on the Schoolyard Safari Activity Sheet and record their habitat and behaviour.

Class discussion:
What animals did you see? What animals did no-one see? Why do you think that is?

This activity can be done multiple time throughout the year, and students can compare data on what animals are present and their activity throughout the different seasons.

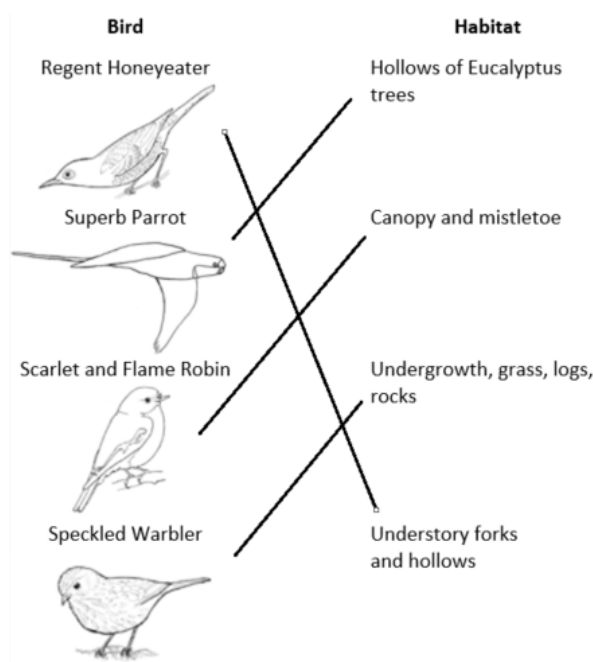**Activity 3** – **Wonderous Box-Gum Grassy woodland Activity Sheet**.

A fun activity sheet for ages 8 – 12.

Time – 40 – 60mins.

Instructions – Find-a-word.

- Draw a line to match each bird with its habitat.

Bird	Habitat
Regent Honeyeater	Hollows of Eucalyptus trees
Superb Parrot	Canopy and mistletoe
Scarlet and Flame Robin	Undergrowth, grass, logs, rocks
Speckled Warbler	Understory forks and hollows

- Finish the sentence.

Gang Gang cockatoos have a Red head and grey body.

Mistletoe grows off the branches of other trees.

Dusky wood swallows build a Cup-Shaped nest.

Firewood is Habitat so leave it alone.

The Canopy is the highest layer of vegetation.

The Speckled warbler build its nest amongst grass, Logs and rocks.

Activity 4 – Colouring activity or enter a colouring competition with your class

Wondrous Box-gum Grassy Woodlands: a colouring exploration of a diverse ecosystem colouring book is available to download and use with this package. The book is an opportunity to learn about the precious box-gum grassy woodlands through colouring. The pages in this book can be coloured in, and the key at the back will enable you to identify each species.

Molonglo Conservation Group is also running a competition. Open until Wednesday 24 March 2022 for ages 9 -12. The competition entry form is provided with this teaching package, and online. Twenty of the best entries will win a unique hand-printed t-shirt, featuring a local bird species. To enter, students choose and print which page of the colouring in book they'd like to colour. Entries can be scanned or photographed and emailed to communications@molonglo.org.au, or sent to 12 River St, Oaks estate, ACT 2620. More information available at www.molonglo.org.au.