

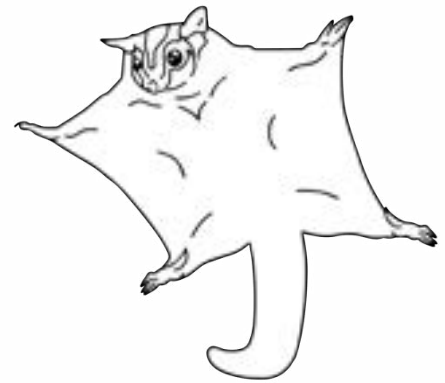


Canberra's Amazing Nature School Kit

- Student Booklet
for years 4-6



This Student Booklet has been designed to provide information required by students to do some of the activities in the 'Nature's Treasures Travelling Activity Kit'. It can also be used as an introduction to these treasures; by using the information to answer the questions on each page. This will give students a taste of what can be learned by doing activities in the Kit.



This project was initially assisted through funding made available by the ACT Government under the ACT Heritage Grants Program. The ACT Heritage Grants program provided further funding to update the school kit.

© Conservation Council of ACT Region 2020.

This material can be used, copied or adapted for non-commercial educational purposes with source acknowledgement. Commercial use is subject to copyright

Text by Erika Steller, Brydie Hill, Jenny Bounds, Benj Whitworth and Meg Walker. Layout by Anne Rawson, Caitlin Johns, and Grace Miller.

Additional bird pictures taken from Simpson and Day *Field guide to the birds of Australia*. Penguin Books 1996. Bat wing (by TWright) and wombat poo taken from Barbara Triggs *Tracks, scats and other traces*. Oxford University Press 1997. Flying Sugar Glider taken from the Readers' Digest Complete book of Australian mammals. Gum nuts from *Field guide to the native trees of the ACT* National Parks Assoc. of ACT 1983. Snake in grass from *Australia's reptiles Volume 1: Snakes and monitors*. A CD from Natural Learning Pty Ltd 1994. Tortoise and frog from the Web.



Hello!



You are about to embark on a journey that will take you through the special environments here in the ACT. This is our natural heritage.

From the forests to woodlands, to the grasslands, rivers, wetlands and to our urban environment, your home and your school.

You can discover the treasures that are found in these places. These are 'nature's treasures' - all the different plants and animals that live in these different environments.

Imagine you are a Super Detective!

Look for clues in the information to uncover the secrets of these treasures, AND answer the questions on each page.

Make a list of the words that you don't know on the next page. You can use the 'Nature's Treasures Travelling Activity Kit' to learn the meanings of many of these words and to discover more about natural treasures in the ACT.

Make a list
from the g
can. If stud

[illegible]

FOREST

Photo courtesy of Environment ACT



Much of the forest closest to the Canberra suburbs is called Brittle Gum (or Scribbly Gum) Dry Forest.

Special features of this ecological community

This forest type is an open forest - there is more space between the trees than other more densely treed forest types. It is found on the steeper and higher slopes of hills in the ACT where soils are rocky and dry. Tall trees up to about 30 metres dominate. The canopies of the trees overlap, so if you look down from above, the canopy cover is between 30-70% of the area. The understorey contains smaller trees, shrubs, grasses and other herbs (small flowering plants).

Dominant (most common) plant species

Red Stringybark (*Eucalyptus macrorhyncha*), Scribbly Gum (*E. rossii*) and Brittle Gum (*E. mannifera*) (these are the tall trees).

What types of animals live there?

Many different birds, such as the Red Wattlebird, the White-winged Chough or the Southern Boobook. Mammals, such as the Echidna and the Brush-tailed Possum. Reptiles such as small skinks and the Eastern blue-tongued lizard, and various invertebrates.

Where is it found in the ACT?

This type of forest can be found on Black Mountain, Bruce Ridge. Aranda Bushland, Mount Ainslie and Majura and Wanniassa Hills.

Threats

About 30 per cent of this ecological community remains in the ACT. It is fairly well protected in the ACT in areas of Canberra Nature Park.

Particular areas of this community type are still sometimes threatened. For example, by clearing for development, such as the road, which has resulted in the loss of an important area in part of Canberra Nature Park on Black Mountain and Bruce Ridge

Photo courtesy HM Rawson



Imagine you are a bird flying over the forest and looking down from above. What can you see, hear, smell? Make a list.

Or draw a picture of the view from above

Scribbly Gum

(*Eucalyptus rossii*)



Brittle Gum

(*Eucalyptus mannifera*)



Photo courtesy HM Rawson

What are they?

Small to medium sized eucalypt trees (up to 25 m) with smooth, white bark that is shed in summer.

Where are they found?

In Brittle Gum Dry Forest in the ACT

Physical requirements

Producers, occurring mainly on ridges and dry hill slopes in sunny positions, often in rocky, shallow and infertile soils.

Status

Common-about 30 per cent of this ecological community remains and is protected and regenerating on ridges in Canberra Nature Park.

Threats

Clearing for development, agriculture and wood. Fire.

Shelter

This open forest provides shelter for a well-developed shrub layer and herbs. Scribbly Gum provides hollows for nesting animals.



Photo courtesy HM Rawson

Pollination

Flowers December to February. Flowers are pollinated by insects and birds. Seeds are dispersed by wind.

Fun facts

Scribbly Gum often has 'scribbles' on its bark made by a tiny moth called *Ogmograptis scribula* whose larvae eat their way along under the old bark. These tunnels are only revealed when the old bark is shed from the tree. This tree has 'wrinkled armpits' where its branches grow out from its trunk.

Pollination

Flowers February to April. Flowers are pollinated by insects and birds. Seeds are dispersed by wind.

Fun facts

If you rub your hand on the bark of a Brittle Gum, you will find there is a white powder. It doesn't have 'pressure folds' or 'wrinkled armpits' where its branches grow from its trunk and this helps to distinguish it from Scribbly Gum. There are many places in Canberra where you can see Brittle Gums lining the streets, as they are a commonly planted street tree.

Photo courtesy HM Rawson



Explain what the 'scribbles' on the bark of Scribbly Gum are and how they get there

Explain what you think is meant by 'wrinkled armpits'

List two things that would help you to identify a Brittle Gum

Green-comb Spider Orchid (*Caladenia tentaculata*)

What is it? Spider Orchids are a small but spectacular spider-shaped native orchid.

Where is it found?

In forests and woodlands, including the Brittle Gum Dry Forest in the Aranda Bushland Forest Reserve.

Shelter

Often grows under shrubs and in small colonies. Spends most of the year as an underground tuber.

Physical requirements

Producer, grows in dry forest.

Pollination

Flowers October to November. Flowers are pollinated by Thinnid Wasps.

Status Rare, and restricted in distribution.

Threats

Loss of pollinators through over-use of insecticide. Destruction of habitat through clearing for forestry. Collection (being picked) by humans.

Fun facts

For most of the year these special plants are only present as a tuber (like a potato) under the ground, so you wouldn't even know they exist! These tubers are traditional bush tucker for Aboriginal peoples. In spring, small leaves grow out of the tuber, followed by the spectacular spider orchid flower. There is no mistaking where this orchid gets its name, with long petals looking like a spider's legs! Spider orchids live in forest and woodland. October is the best time to see one.



Spider orchids give off a scent that smells like female Thinnid wasps (a pheromone). The orchid's smell tricks male wasps which attempt to mate with the flower and get covered with pollen. When the wasp lands and tries to mate with the next orchid the pollen is transferred to the new orchid flower.

How do these orchids attract Thinnid wasps?

Why do they do this?

Echidna (*Tachyglossus aculeatus*)

What is it?

An unusual mammal., belonging to a group called monotremes. Echidnas are covered in hair and long white spines that protect them from predators.

Where is it found?

In forests in the ACT and in many different habitats in Australia, including hot deserts with winter snow (including Canberra).

Shelter

To get away from very hot or very cold conditions they will shelter in burrows and may even take over burrows of other animals, including wombats.

Physical requirements

Insectivorous - specialist feeders eating ants and termites. They have big long claws for digging up ant nests, no teeth and their tongue has special sticky saliva to help them pick up their tiny morsels of food.

Breeding

The Echidna is a monotreme, which means it is a mammal that lays eggs. The eggs are incubated in the pouch and when they hatch the babies attach to a teat in the mother's pouch and suckle milk.

Status

Common - Specialist feeder with general living conditions - sparsely distributed over a broad geographic area, in a range of habitats.

Threats

Cars, use of insecticide to kill ants and termites.

What is unusual about this mammal that makes it a monotreme?

Photo courtesy J Linder



Southern Boobook (*Ninox strenua*)

What is it?

A small brown owl with a familiar 'boo-book' or 'mopoke' call heard at night.

Where is it found?

Found across Australia in forested habitats, including rainforest and woodland.

Shelter

Roosts during the day in pairs, or on its own, in thick foliage of trees.

Physical requirements

Top level carnivore, hunting at night for insects such as moths and beetles, small birds and house mice.

Breeding

Breeds in pairs laying one to four eggs in a nest inside a tree hollow. They can use artificial structures such as nest boxes. Young owls remain with their parents for a period of time.

Status

Common-fairly widespread, can thrive in changed environments such as parklands and farmlands where there are trees or other cover.

Threats

Clearance of habitat, especially old growth trees with hollows.

Fact file

Boobook Owls have managed to endure the changes in the landscape due to human settlement. They can thrive in the new environments and habitats created by farmland and parklands or around urban areas where there is enough dense bushland.

Pairs or individuals roost quietly through the day in thick foliage in trees, but sometimes can be disturbed and mobbed by other birds which recognise the owl as a threat. Sometimes a whole family of owls, with young ones, roost together at night.



What does this owl need to breed?

What do you think might happen if these were not available?



WOODLAND



Much of the woodland in the ACT is Yellow Box/Red Gum Grassy Woodland, an **endangered ecological community**.

Special features of this ecological community

Woodlands are found on the lower slopes of hills in the ACT (600-900 m). Trees of medium height of about 10-30 m dominate. The tree canopies have open space between them, so if you look down from above, the cover is less than 30 per cent of the area. The crowns of woodland trees are usually more rounded than forest trees and have a greater depth, as they branch low from the main trunk. The understorey is made up of grasses and shrubs.

Dominant (most common) plant species

The medium sized trees, Yellow Box (*Eucalyptus melliodora*) and Blakely's Red Gum (*Eucalyptus blakelyi*) dominate Yellow Box/Red Gum Grassy Woodland.

What types of animals live there?

About 50 different species of birds can be found in woodlands in the ACT. A number of birds such as the Southern Whiteface and the threatened Brown Treecreeper are only found in woodland habitat. Mammals such as the Sugar Glider, Swamp Wallaby and ten bat species, reptiles such as the Eastern Blue-tongued Lizard and the Olive Legless Lizard, frogs such as Peron's Tree Frog, Eastern Banjo Frog, and many invertebrates may be found in woodlands.

Where is it found in the ACT?

Woodland can be found at Mulligans Flat, Goorooyarroo, Wanniassa Hills, and Cooleman Ridge Nature Reserves and on the lower slopes of Mount Majura and Mount Ainslie Reserves.

Threats

The ACT has lost over two thirds of its Yellow Box/Red Gum Grassy Woodland. It is a declared endangered ecological community in the ACT. Although much of this ecological community is protected in Canberra Nature Park there are areas outside of reserves that are under threat from clearing for agriculture or development and heavy grazing. Dieback, weeds and firewood collection also threaten woodlands in the ACT.

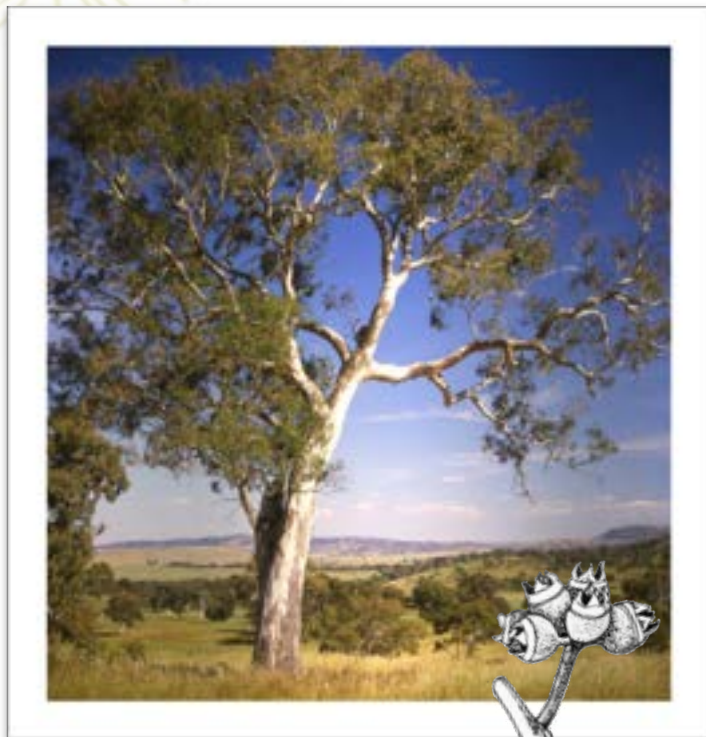


Imagine you are a bird or a sugar glider flying over the forest and looking down from above. What can you see, hear, smell? Make a list.



Or draw a picture of the view from above

Blakely's Red Gum (*Eucalyptus blakelyi*)



Yellow Box (*Eucalyptus melliodora*)



What is it?

A eucalypt that sheds its bark in summer every year giving it a smooth bark, with patches of grey and red.

What is it?

A eucalypt with rough bark on its trunk and smooth bark on the higher branches.

Where are they found? In Yellow Box/Red Gum Grassy Woodland.

Shelter

These trees occur on undulating plains and slopes above the frost line of the valley floor. Woodland provides shelter (10-30 per cent shade or cover) for native grasses, herbs (small flowering plants) and scattered shrubs.

Physical requirements

Producers, they occur in areas where annual rainfall is 400-800 mm in moderately fertile soils. Do not grow in dry rocky soils.

Pollination

Flowers October to December. Flowers are pollinated by birds and insects. Seeds are dispersed by wind.

Pollination

Flowers November to January. Flowers are pollinated by insects and birds. Seeds are dispersed by wind.

Threatened-Yellow Box/Red Gum Grassy Woodland is an endangered ecological community. Lowland woodlands provide habitat for two endangered plant species and eight threatened bird species.

Threats

Clearing for agriculture or development, inappropriate grazing, weeds and firewood collection. Blakely's Red Gum is prone to dieback and lerps.

Blakely's Red Gum (*Eucalyptus blakelyi*)

Fact file

Blakely's Red Gum is a medium sized tree (up to 24 m). It provides hollows and nesting sites for birds, possums and gliders. The crown of this tree often looks thin and quite sick due to Christmas beetles feeding on the leaves in summer, and lerps (an insect) sucking sap from the tree later in the year. Blakely's Red Gum is an essential habitat tree for threatened woodland birds including the Brown Treecreeper *Climacteris picumnus*, White-winged Triller *Lalage sueurii*, Varied Sittella *Daphoenositta chrysoptera*, and Regent Honeyeater *Xanthomyza phrygia*.

Why does this tree sometimes look sick? What causes this?

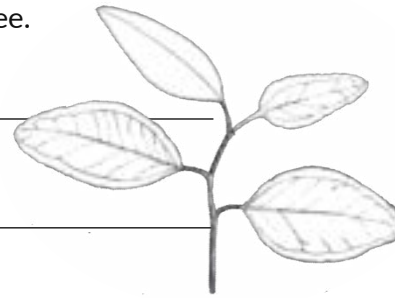


Yellow box (*Eucalyptus melliodora*)

Fact file

Yellow Box is a large tree (up to 30 m). It provides hollows and nesting sites for many birds and animals and daytime shelter sites for possums. 'Melliodora' means 'honey-scented' and the flowers have a sweet smell. Rosellas eat its seeds, sugar gliders eat the flowers and honeyeaters feed on the nectar. Mistletoes may grow on Yellow Box trees providing fruit for the Painted Honeyeater *Grantiella picta*. It is an essential habitat tree for threatened woodland birds such as the Brown Treecreeper *Climacteris picumnus*, White-winged Triller *Lalage sueurii*, Varied Sittella *Daphoenositta chrysoptera*, and Regent Honeyeater *Xanthomyza phrygia*. Yellow Box is also a commonly planted street tree.

What are the different animals that depend on this tree?



What do they use it for?

Eastern Rosella (*Platycercus eximius*)

What is it?

A bright, colourful parrot.

Where is it found?

Open forests, woodlands, paddocks and gardens in the south-east of Australia, including Tasmania.

Shelter

Often feeds on the ground but requires trees to escape predators and for night-time roosting (sleeping).

Physical requirements

Omnivorous – eats seeds, nuts, fruits, leaves and stems found on the ground, eucalypt flowers, insects and insect larvae. Needs to drink regularly.

Breeding

Eastern Rosellas breed in pairs and mate for life. They nest in tree hollows but will also use nest boxes. They lay up to six eggs, and may produce more than one lot of young per year. The female alone incubates the eggs, but both parents feed and care for the young.

Status

Common-appear to be common and widespread, but may be declining.

Threats

Disturbance to the ground layer where they feed, loss of nesting hollows from clearance of old eucalypts, competition with aggressive, introduced species of birds such as the Common Myna. Look for a Common Myna in the Urban Areas section.

Fact file

Eastern Rosellas are well adapted to urban areas in the 'Bush Capital' which provide food sources and water. They can usually be seen around our parks and gardens. Eastern Rosellas don't wander too far from their home site unless food is in short supply.



What do you think these birds might find to eat in our urban areas?

Hooded Robin (*Melanodryas cucullate*)

What is it?

Hooded Robins are small, shy birds. They often occur in pairs. Males are black and white and appear to be wearing a black hood. Females are more grey-brown than black.

Where is it found?

In woodlands mostly in the same territory all year round. Found in the ACT's large nature reserves, such as Mulligan's Flat and Gorooyarroo.

Shelter

Hooded Robins need large areas of undisturbed woodland, well connected to other woodland patches. They shelter in shrubs or small trees.

Physical requirements

Insectivorous-forages for insect food using the 'perch and pounce' method; they perch on a dead stump or a branch of a tree, spot an insect or grub on the ground and dart down to catch it.

Breeding

Breed communally and in pairs. Builds a nest from bark strips, grass and spider web, usually one to two metres off the ground. Females incubate the eggs and the male feeds the females and young.

Status

Threatened in the ACT, declining in other areas.

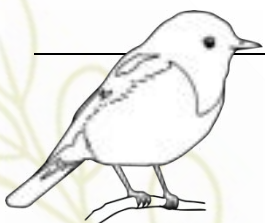
Threats

Loss and fragmentation of habitat, roaming dogs and cats, loss of food through disturbance to the ground layer through the collection of firewood and removal of plant litter.



What are these birds doing when they 'perch and pounce'?

Describe the 'perch and pounce' method.



Sugar Glider (*Petaurus breviceps*)

What is it?

A possum that has a skin membrane between the feet on either side of the body allowing them to glide between trees.

Where is it found?

Lives in woodlands and forests in the ACT in colonies of up to seven adults and the year's young.

Shelter

Shelters in tree hollows in mature trees during the day.

Physical requirements

Omnivorous-eats plant materials, including pollens and sap from eucalypts and wattles, and invertebrates, including moths, beetles and spiders.

Breeding

Marsupial-baby spends time in the pouch, then is often carried on the parents' back. Young animals disperse from the colony and must survive and become accepted into another group.

Status Common-locally common where food and shelter is available.

Threats

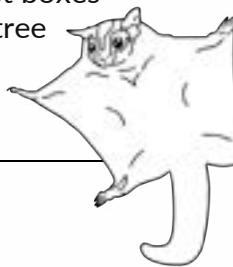
Predation by cats and foxes (and owls, kookaburras and goannas). Destruction of habitat, where areas of vegetation are cleared and become disconnected, so that the distances are greater than the distance the gliders can glide.

Fact file

Sugar gliders are ash grey with a distinctive black stripe from nose to tail. They are up to 35 cm long with more than half this length being their tail. Sugar gliders make a distinctive yapping call which may be heard at night. They move about by gliding, launching themselves and parachuting through the air to land on a tree trunk. They often thrive in strips and patches of forest that remain on cleared agricultural land. Sugar Gliders require interconnected systems of suitable forest and woodland areas and can be successfully reintroduced into young revegetated areas if nest boxes are provided. They get the sap by chewing into the bark, leaving characteristic marks on tree trunks and branches.



Describe how sugar gliders move from tree to tree?



Why do you think they need connected vegetation?

Swamp Wallaby (*Wallabia bicolor*)

What is it?

Looks like a small kangaroo with a darker coat, often an orange colour.

Where is it found?

The swamp wallaby is found in woodlands where it feeds in the open at night and shelters during the day in thick undergrowth.

Shelter Requires dense vegetation for daytime shelter.

Physical requirements

Herbivorous, eats grass but favours leaves of many different plant species, including pasture plants (usually exotic grasses planted especially for stock grazing).

Breeding

Marsupial-young are born very small and spend eight to nine months in the mother's pouch.

Status Common

Threats Predation of young by foxes. Being run over by cars.

Fun Facts

Where Kangaroos and other wallabies are grazers that eat grass, Swamp Wallabies tend to eat more leaves and so are known as a browser. They have different teeth to other wallabies to help them chew up tough leaves. Swamp Wallabies will even eat plants, such as bracken fern that is poisonous to stock and plants such as hemlock that is poisonous to people.

What is the difference between a grazer and browser?



Native Grassland in the ACT includes Natural Temperate Grassland, an **endangered ecological community**. This is original native grassland that is in good to moderate condition. This Grassland is very different from lawns, ovals, parks and most paddocks, which have been created by people clearing the native trees and shrubs. Natural Temperate Grassland is what existed originally before humans made vast changes to the natural landscape.

Special features of this ecological community

Grasslands are found in valley floors where there is cold air drainage, where it is too cold for trees to grow naturally. These grasslands have no, or nearly no trees and one or more native grass species dominate this ecosystem type. Many native herbs (small flowering plants) and some small shrubs also grow in these areas.

Dominant (most common) plant species

Kangaroo Grass, Wallaby Grass, Spear Grass and Native Tussock Grass (these are all native grasses).

What types of animals live there?

Many different mammals, reptiles, frogs and invertebrates and a number of birds. Some of these, the threatened Grassland Earless Dragon and the Striped Legless Lizard, are grassland specialists, meaning that they are not found in other habitats.

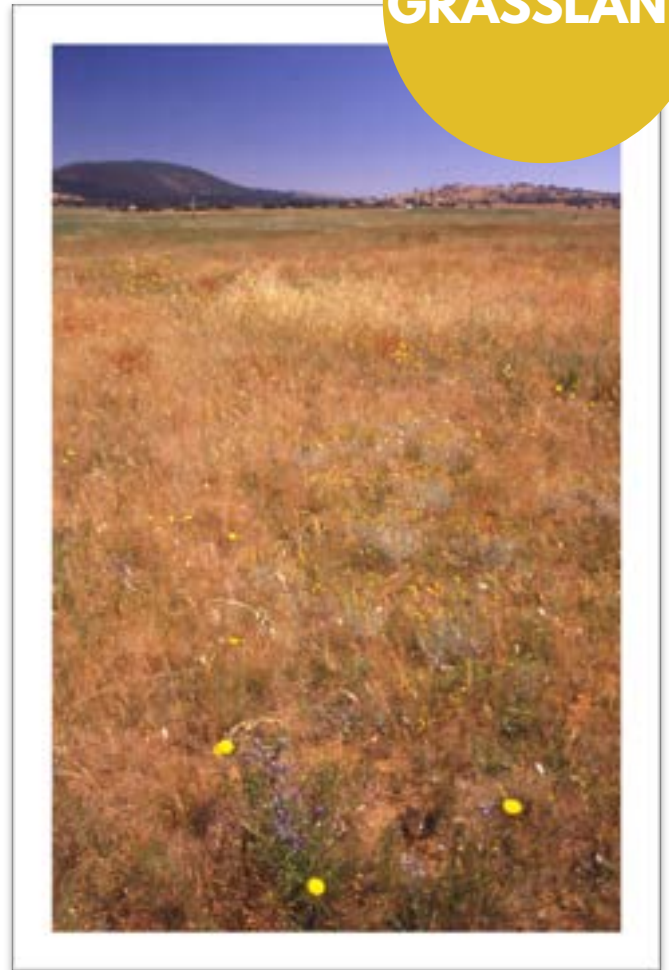
Where is it found in the ACT?

Native grassland, which includes patches of Natural Temperate Grassland endangered ecological community, can be found in the Jerrabomberra, Crace, Gungaharra, Mulanggari and Dunlop Nature Reserves. It can also be found in the Majura Valley at the airport.

Threats

Natural Temperate Grassland is one of Australia's most threatened ecosystems. It is a declared **endangered ecological community** in the ACT. Only 5 per cent of the original area of Natural Temperate Grassland remains in the ACT.

Many of these grassland areas are now protected in Canberra Nature Park reserves but there are still areas outside reserves that are threatened by clearance for development. Overgrazing and competition from weeds are also threats.





Imagine you are a wombat thumping through the grass. What can you see, hear, smell? Make a list.

_____	_____
_____	_____
_____	_____
_____	_____

Or draw a picture of the view from amongst the grass.



Kangaroo Grass *(Themeda triandra)*

What is it?

A native grass.

Where is it found?

Kangaroo Grass is mainly found in grassland but can also occur in woodlands.

Shelter

Kangaroo Grass tends to occur in valley floors or on slopes in full sun or some shade. The plants withstand frost, but individual leaves may turn red/brown.

Physical requirements

Producer, can occur in a variety of soil types, but it may weaken or disappear if the soil becomes too fertile when nutrients are added through farming practises. Occurs in wet or dry sites. Grows and flowers mainly in late spring and summer unlike most grass which grows in spring.

Pollination

Flowers from November to January. Flowers are pollinated by wind. Seeds are dispersed by wind or animals. Fire may stimulate seeds to germinate.

Status

Common-a common plant that also occurs as part of an endangered ecological community, Natural Temperate Grassland.

Threats

Clearance, over grazing, competition with pasture under increased fertilisation and changed fire regimes.

Fun facts

Kangaroo Grass is made up of leaves, stems and the lovely, distinctive flower heads that often contain seed pods. Kangaroo Grass forms dense stands that out-compete weeds and provides shelter for snakes and other animals. Many different animals eat Kangaroo Grass. Grazers, such as kangaroos and wombats, like to eat the whole plant. Seed-eating birds, such as finches, love to balance on the long stems to get out the seeds. Kangaroo Grass, like many Australian plants, grows back very well after it has been burnt. This caused a few problems for early settlers who were burning the grass to replace it with pasture. Kangaroo Grass has seed pods covered in sticky hairs that allow them to hitch a ride on your sock or some mammal's fur to a place where they can germinate away from their parent plant.

What different animals eat Kangaroo Grass? What part of the plant do they eat?

What do you think is the purpose of the seed pod sticking to your sock or an animals fur?

Come back to this Question after you read the next page – Can you list three different species that shelter in Wallaby Grass?

Wallaby Grass (*Austrodanthonia* spp.)

What is it?

A native grass, also known as 'white top' because of its fluffy white seed heads.

Where is it found?

There are more than a dozen different types of Wallaby Grasses in the ACT. Wallaby Grass grows in other habitats, such as woodlands, but only in grasslands can it become one of the most abundant species (called dominant).

Shelter

Wallaby Grass tends to occur in valley floors or on slopes in full sun or some shade. Wallaby Grass grows in tussocks that provide shelter for forbs (small flowering plants that are not a grass, sedge or rush), reptiles and other animals.

Physical requirements

Producer, can tolerate soils of very low fertility (often shallow and rocky), but benefits from higher soil fertility. Usually occurs in dry conditions.

Pollination

Flowers October to December. Flowers are pollinated and seeds dispersed by wind.

Status

Common-a common plant that is part of Natural Temperate Grassland, an endangered ecological community.

Threats

Clearance for development and agriculture, may be out-competed by weeds under improved soil fertility. Survives well under grazing.

Fun facts

Wallaby Grass provides an important source of food for grazing mammals such as kangaroos, wallabies and wombats. Wallaby grassland provides shelter for the Grassland Earless Dragon, snakes and other animals



What might this plant provide shelter for?

Now answer question on the previous page...

Common Wombat (*Vombatus ursinus*)

What is it?

A stocky mammal, up to one metre in length with grey/brown fur. It has powerful front legs and big claws for digging.

Where is it found?

The Common Wombat is found in grasslands, woodlands, forests and along riverbanks. Slopes above creeks and gullies are favoured sites for burrows. These wombats prefer to live in higher rainfall areas.

Shelter Wombats dig a large burrow and so require soil suitable for burrowing.

Physical requirements

Herbivorous, eats most grass species and will also eat sedges, rushes and the roots of shrubs and trees.

Breeding

Marsupial, babies are born very young and grow in a pouch for approximately six months. Once out of the pouch, young animals usually move into a different area from their parents.

Status Common-fairly generalist in higher rainfall regions.

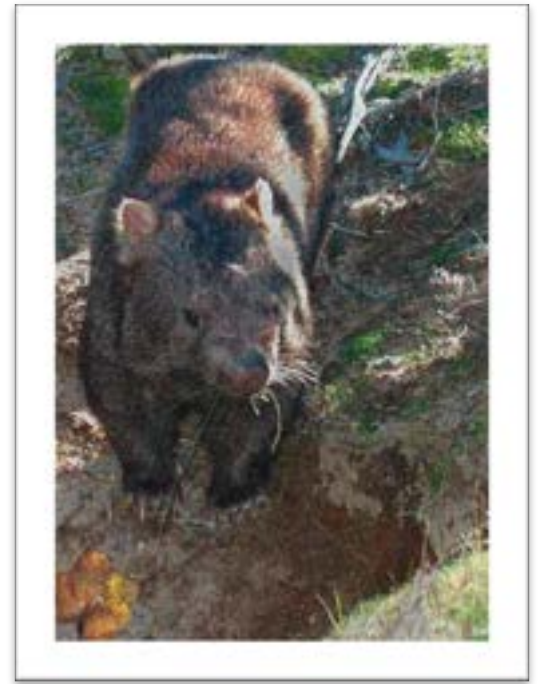
Threats

Limited by food availability. May sometimes be shot by unhappy landholders although this is illegal and probably rare. Being run over by cars.

Fun facts

Wombats tend to be nocturnal during summer but during winter and cool periods they will come out of their burrow during daylight to bask or graze. Wombats scent-mark their home range area. You can sometimes see their distinctive cube-shaped poo or scats on top of rocks or logs.

Wombats will graze from three to eight hours each night and may travel up to three kilometres while feeding. With their big powerful legs, fences are no barrier to them, and they are often out of favour with farmers for putting holes through fences.



What are some of the reason landholders might see wombats as a pest?

Eastern Brown Snake (*Pseudonaja textiles*)

What is it?

A slender snake with a bullet-like head. They can sometimes grow to more than 2 m in length and are usually pale brown to grey in colour. They are the most frequently seen snake in Canberra.

Where is it found?

This snake is found in grassland and woodland habitat. During summer they occasionally pass through back yards in urban areas close to the bush. The urban habitat does not provide them with suitable food and shelter so they usually move on.

Shelter

Under dense plant material or anything that provides cover and makes them feel safe.

Physical requirements

Carnivorous-fairly general diet which may include small mammals, baby birds, frogs and other reptiles (even snakes).

Breeding

Females lay up to 35 eggs at a secure site-more than one female may lay at the same site. Young are left to fend for themselves.

Status Common - generalist.

Threats

Humans killing them, cats and dogs (if the snake doesn't get them first!) and cars.

Fact file

Young brown snakes often have black bands running across their body and are often mistaken for tiger snakes. Brown snakes have venom that is poisonous to humans. The venom is very important for hunting the small mammals, baby birds, frogs and reptiles that brown snakes eat. The snake will quickly strike and bite its prey, holding the animal in a tight grip so it does not get away whilst the venom takes effect. Contrary to what some people believe, brown snakes do not actively seek to hurt humans. They will only strike at something as large and scary to them as a human if they feel very threatened. Usually they would prefer to run (or slither) away.



How do humans directly threaten this snake? Is there a good reason for this? Explain your answer.

How is this snake likely to respond if it comes across a human? Why might it respond differently?

Grassland Earless Dragon (*Tympanocryptus pinguicolla*)

What is it?

A lizard with no external ear opening. It has several stripes running down its back crossed by bands that run across the body. The scales of dragons overlap and are rough to touch, unlike some other common lizards such as skinks.

Where is it found?

In grassland habitat in the Majura and Jerrabomberra valleys.

Shelter

Grassy tussocks provide shelter and camouflage from predators.

Physical requirements

Insectivorous, eats small invertebrates, especially ants.

Breeding

Females lay eggs inside small burrows. When the eggs hatch, the young look after themselves.

Status

Rare-restricted to grasslands, endangered in the ACT.

Threats

Cats, foxes, loss of habitat through grazing and urban development.

Fun facts

The Grassland Earless Dragon is one of Australia's smallest dragons; it rarely exceeds 15cm and more than half this length is made up of its tail! Like most dragons it has a very long tail that does not fully regenerate if broken. Unfortunately, the Grassland Earless Dragon is an endangered species in the ACT, NSW and nationally. Dragons like to bask in the sun on warm days, keeping an eye out for predators. Sometimes they hide in grass tussocks or spider holes.



If you were looking for a Grassland Earless Dragon, where might you look?

RIVER



Special features of this ecosystem type

Rivers and streams contain the water that has filtered in from the whole 'catchment', that is, all of the surrounding area that slopes down towards the river or stream. Rivers and streams catch the runoff (excess water) that is not absorbed by the soil (in the surrounding area) and, when in a natural or healthy condition, contains and provides clean water. Water courses can be likened to the lifeblood or veins of the Earth, carrying the essential source of life throughout the land.

Dominant (most common) plant species

Many of the banks of the lowland waterways in the ACT are, or were, lined with the spectacular River She-oak. Native aquatic reeds are also dominant.

What types of animals live there?

Fully aquatic animals such as fish are found in this ecosystem which also provides homes for frogs, wombats and platypus. Honeyeater migration routes, nesting sites for birds of prey and winter roosting areas for a population of Yellow-tailed Black Cockatoos can be found in the Murrumbidgee River Corridor.

Where is it found in the ACT?

All streams in the ACT flow into the Murrumbidgee River. Sixty-seven kilometres of the river's journey lies in the ACT, from Angle Crossing in the south to Uriarra Crossing in the north.

Threats

Climate change is a threat to rivers and streams as it brings reduced and changed rainfall patterns. The building of dams has reduced natural flooding which once spilled over the plains, providing shallow breeding grounds for many types of birds and fish. Many of these have now been lost.

Clearance of adjacent forest or woodlands leads to large amounts of soil being blown or washed into the rivers, smothering plants and animals and muddying the water. Fertilisers wash into rivers causing algae to grow, and other chemicals from farms and towns also run into and pollute the streams. Feral fish, such as carp, muddy the water while trout eat small native fish. Weeds, such as willows that were planted to replace native vegetation, spread quickly along the banks reducing water flow. Severe bushfires increase sediment and ash flowing into the river.

Imagine you are a bird once again, flying along the course of the river and looking down from above. What can you see, hear, smell? Make a list.

_____	_____
_____	_____
_____	_____
_____	_____

Or draw a picture of the view from above

River She-oak (*Casuarina cunninghamiana*)

What is it?

A large drooping tree, with needle like leaves growing on riverbanks.

Where is it found?

The River She-oak is common on the banks of the Murrumbidgee, Cotter, Paddy's and other rivers.

Shelter

She-oaks are tall trees (up to 35 m). They provide shelter and shade for river animals. She-oaks absorb most nutrients from the soil, and this provides poor habitat for other plants.

Physical requirements

Producer, occurs in moderately fertile sandy, rocky or alluvial soils. Grows on riverbanks usually between the normal water level and the maximum flood height.

Pollination

Flowers in autumn and winter. Male and female flowers are on separate plants. Flowers are pollinated by wind.

Threats

Clearing (in the past), competition with willows, and fire.

Status

Rare-locally common along the Murrumbidgee River where they are protected in the river corridor and nature reserves.

Fun facts

The River She-oak roots provide a good solid frame for the home of burrowing animals such as wombats and platypus near the river, and for Macquarie Perch in the water. Its strong roots hold the bank in place when the river is flowing fast or in flood.



What are two important functions of the roots of this tree?

Wedge-tailed Eagle (*Aquila audax*)

What is it?

The largest bird of prey in Australia and one of the largest of the world's 'booted' eagles, which are eagles that have feathered legs.

Where is it found?

The Wedge-tailed Eagle can be found all over Australia. In the ACT they often use steep hillsides and gullies, especially along river systems including the Murrumbidgee and Molonglo rivers.

Shelter

Require trees for perching and roosting (sleeping) sites and very large territories, with nesting sites and open hunting grounds.

Physical requirements

Carnivorous-take a wide variety of prey items, including rabbits, kangaroos, wallabies, dingoes and birds (including other birds of prey), reptiles and carrion (rotting flesh).

Breeding

These birds form permanent pair bonds, remaining together for many years. They build huge nests of sticks in the winter months and lay two eggs, but only one chick usually survives.

Status

Common-still quite widespread on the mainland, under some threat in Tasmania.

Threats

Loss of habitat from urban expansion and human disturbance to habitat in the ACT. In some areas illegal shooting or trapping.

Fact file

Wedge-tailed Eagles were persecuted and killed in the early days of Australia's settlement in the mistaken belief that they killed stock animals. Although fully protected now, they are still illegally trapped or poisoned in some areas.



Why are these birds sometimes illegally trapped or poisoned?



Platypus (*Ornithorhynchus anatinus*)

What is it?

A mammal, with fur, a duck-like bill and a tail like a beaver. It spends much of its time feeding in the water.

Where is it found?

In freshwater habitats.

Shelter

The Platypus usually digs a burrow but will use burrows dug by other animals. It requires a suitable bank structure for digging the burrow, often supported by tree roots.

Physical requirements

Carnivorous-needs a relatively open body of water for hunting aquatic invertebrates, such as tiny shrimp, and small vertebrates, like frogs and fish.

Breeding

The Platypus is a monotreme, like the echidna. This means it is a mammal that lays eggs. The female incubates the eggs in the burrow and suckles the young when they are born.

Status

Common, but vulnerable due to threats to rivers and streams.

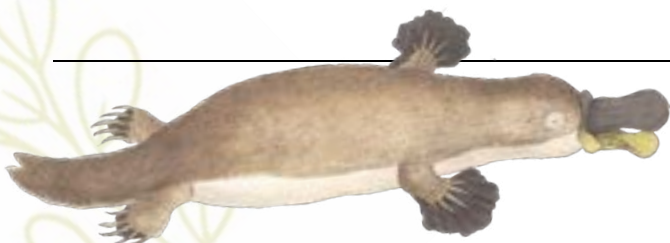
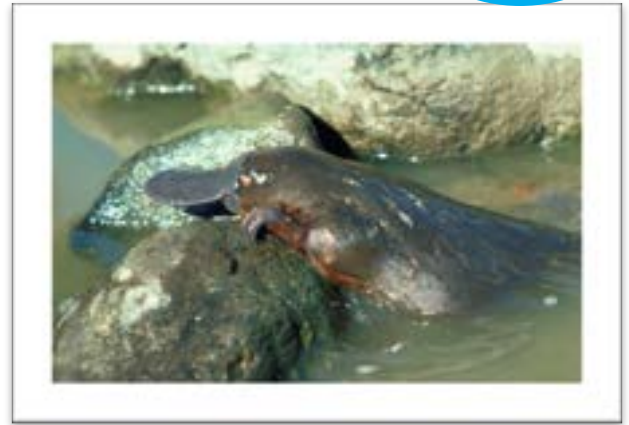
Threats

Pollution, urban development, inappropriate fishing, dams and construction threats.

Fun facts

When the first platypus specimen was sent to England for identification, its appearance was so strange that it was thought to be a hoax! Platypus have special fur designed to stay dry even after long periods in the water. Their eyes and nostrils close when they go underwater; they use their sensitive bills to hunt their prey. When they are breeding, they build more elaborate burrows and the female will often plug entrances with earth. She incubates the eggs inside a central chamber on a bed of damp herbs. Adult males have a strong sharp spur on each ankle that is connected to a venom gland in the thigh that produces very painful venom, particularly during breeding season.

What do you think was so strange about the Platypus's appearance that made people think that it was a horse? Explain your answer/



Dragon Fly Larvae

What is it?

An aquatic invertebrate. The larvae stage is one of the life stages of the adult dragon fly. The larvae change form about 10 to 15 times throughout their life, each form looking more and more like the adult dragon fly. These stages are called 'instars'.

Where is it found?

In freshwater rivers and wetlands.

Shelter

They shelter in aquatic plants on the edges of rivers.

Physical requirements

Carnivorous-they hunt other small, aquatic invertebrates.

Breeding

This stage of the dragon fly does not breed. Firstly, the adult dragon fly lays eggs, often by dropping them into the water from the air. The eggs then hatch into larvae.

Status

Common – widespread.

Threats

Pollution of water, degradation of river environments, reduction of flows due to water being taken from upstream for farming or human consumption.

Fun facts

Dragon Fly Larvae have gill-like structures that allow them to breathe under water. One of their mouthparts is modified to grasp onto prey.



Explain what an 'instar' is.

Macquarie Perch

(*Macquaria australasica*)

What is it?

A small, silvery fish with a single, notched dorsal fin.

Where is it found?

Lives in cool clear water of rivers, lakes and reservoirs, including the Murrumbidgee, Molonglo, Paddys and Cotter rivers.

Shelter

Prefers slow-flowing, deep pools, usually lives alone near the bottom of the river.

Physical requirements

Carnivorous-hunts small vertebrates and invertebrates that live in the water.

Breeding

To reproduce, these fish get together in groups to spawn (produce eggs) between October and December. One female can produce between 50,000 and 110,000 eggs! And these take between 10 to 18 days to hatch.

Status

Threatened-this fish is listed as endangered in the ACT.

Threats

Overfishing, a viral disease carried by introduced redfin perch and habitat destruction.

Fun facts

Macquarie Perch prefer to spawn in flowing water. The females release eggs above riffles (the fast-flowing sections of a river). The eggs are then washed downstream where they lodge in gravel or rocky areas until they hatch.



How do you think the construction of a dam might impact on the breeding requirements of the Macquarie Perch?

Yellow-faced Honeyeater

(*Lichenostomus chrysops*)

What is it?

Where is it found?

Shelter

Physical requirements

Breeding

Status

Threats

Fun facts



Explain what you think 'fuel up' means.

List the sequence of this bird's migration pattern and include the place you will find them, the time of year you will find them and what they do when they are there.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. In the bottom right corner, there is a small, stylized drawing of a green leaf or plant. The overall appearance is that of a clean, unused piece of stationery.

WETLANDS



Special features of this ecological community

Wetlands are areas that are covered with water either permanently or temporarily. Plants and animals that live in wetlands are adapted to changing water levels. A wetland area may be called a swamp, marsh, bog, fen or billabong.

Wetlands play a number of important ecological roles. The plants in wetlands slow down the flow of water across the landscape by providing a physical barrier, holding the water in the system for dry times. Plants also stabilise soil by holding it in place with their roots, reducing erosion and improving the holding of water as the soil also absorbs water. The plants require nutrients to grow and they absorb them from the water. This can improve water quality as excess nutrients caused by pollution and eutrophication can cause algal blooms which may be toxic.

Dominant (most common) plant species

Reeds, rushes and sedges, dominate most wetland systems. Some wetlands, with open water also have aquatic plants floating on the surface such as duck weed.

What types of animals live there?

77 different species of waterbirds can be found at the Jerrabomberra Wetlands in the ACT, some that are permanent residents, some nomadic casual visitors and some that migrate annually. The internationally threatened Latham's Snipe migrates all the way from Japan. Platypus and water rats are the only two native mammals that live in fresh water while many other animals live on the edges of wetlands.

Where is it found in the ACT?

One of the most valuable wetland habitat areas in the ACT is the Jerrabomberra Wetlands. This is an open water wetland or billabong. These wetlands formed when the Molonglo river was dammed to create Lake Burley Griffin expanding the area of existing natural wetlands that were the floodplains of the Molonglo River.

Threats

The Jerrabomberra Wetlands are in a protected reserve. Although it is a highly altered ecosystem it is an important habitat for many animal species. It provides an important refuge in times of drought for large numbers of waterbirds normally seen further inland. Threats to these wetlands include pollution of the water from the surrounding catchment and weed invasion.

Imagine you are a frog, looking out over the wetland. What can you see, hear, smell? Make a list.

Or draw a picture of the view from above

Common Reed or Feather Grass *(Phragmites australis)*

What is it?

A reed, which is like a grass that grows in the water.

Where is it found?

In most open water and along streambeds.

Shelter

Once a stand of reeds is established it provides shelter for itself.

Physical requirements

Producer, soil nutrients, air and water need to be relatively unpolluted. Common reeds are tolerant of winter frosts, but are vulnerable to drought.

Breeding

Produces feathery flowers in late summer to autumn. The pollen and seeds are dispersed by wind. It can also reproduce by runners, and clumps can be dug up and replanted.

Status Common-this reed is the most widespread of all aquatic grasses in Australia.

Threats Clearance and pollution

Fun facts

The leaves are long and, like bamboo, are wrapped around the stem. Leaves are three centimetres wide at the bottom, tapering to a point at the end. Stems grow to three metres tall. Reeds play a role in the health of the wetland. They oxygenate and purify the water by absorbing excess nutrients that they use to grow. The reeds also provide very important shelter, food and nesting sites for animals. Traditional Aboriginal people used the hollow stems as snorkels and the leaves were woven into bags.

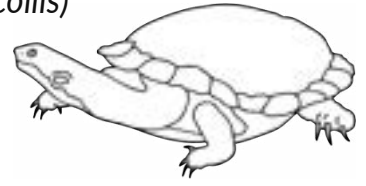


Why do you think it might be a good idea to re-plant reeds around a body of water if they had been removed?

How might they help the water quality?

Common Long-necked Tortoise

(*Chelodina longicollis*)



What is it?

Where is it found?

Shelter

Physical requirements

Breeding

Status

Threats

Fun facts

Why do you think this tortoise produces an odour when threatened? Think about the purpose of this tactic



Banjo Frog (pobblebonk) *(Limnodynastes dumerili)*

What is it?

A common burrowing frog, with a very distinctive 'Bonk' call.

Where is it found?

This frog is more often heard than seen as it remains hidden in burrows on the banks of water bodies including wetlands, rivers, farm dams and reservoirs.

Shelter

Survives well on land and in water but needs water to keep its skin moist, for laying eggs in and for survival of its tadpoles. Digs a burrow with strong hind legs.

Physical requirements

Carnivorous-feeds on aquatic and terrestrial invertebrates.

Breeding

The male calls to advertise for females. Competing males often chorus together. A large foam nest containing up to 4000 eggs is laid in water and is often attached to vegetation. Tadpoles then hatch and develop into adult frogs.

Status Common

Threats Pollution-as frog skin is permeable to chemicals, disease (chytrid fungus) and habitat destruction.

Fun facts

Females have special flanges (flaps of skin) on their fingers which are used to carry air bubbles from the surface of the water into the foam nest to oxygenate the eggs. The Banjo Frog is the largest amphibian in the ACT. It has a brown body, often with a thin pale line down the centre of its back, and orange patterning around its mouth and down the side of its body.

What are flanges and what are these used for?



Why do you think this is necessary?

Latham's Snipe (*Gallinago hardwickii*)

What is it?

Where is it found?

Shelter

Physical requirements

Breeding

Status

Threats

Fun facts



List three different things you might see a Latham's Snipe doing if you were lucky enough to see one during its visit to the ACT.

Purple Swamphen (*Porphyrio porphyrio*)

What is it?

A large waterhen with a purple chest and a conspicuous red shield on its forehead.

Where is it found?

Large wetlands or swampy places where there is reedy or similar vegetation cover, such as Lake Burley Griffin and Lake Ginninderra and at the Jerrabomberra Wetlands.

Shelter

Shelters in vegetation, eg reed beds around swamps and wetlands.

Physical requirements

Herbivorous-eats the young fresh stems of reeds and other vegetation.

Breeding

Nests are hidden in reed beds or other thick vegetation around water or wetlands.

Status

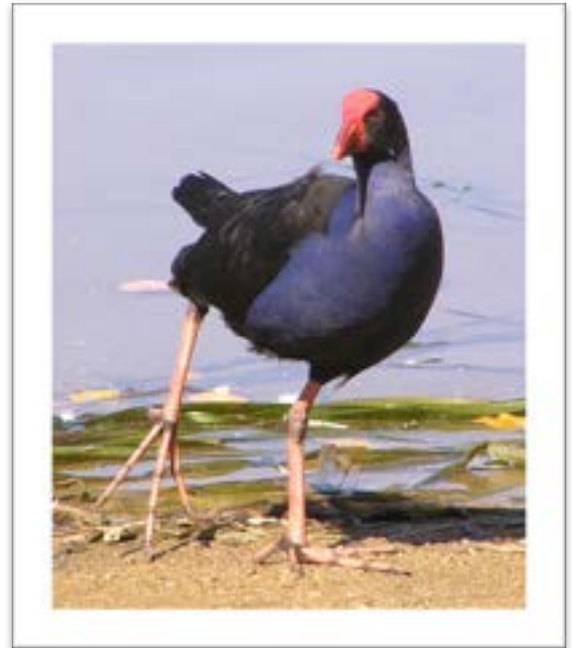
Common-quite widespread.

Threats

Disturbance to or loss of habitat. Predation of young and adults by cats and foxes.

Fun facts

Like other members of the rail family, Purple Swamphens do not have webbed feet for swimming like ducks, but instead have long strong toes, very practical for treading on the surface growth of swamp plants and in boggy areas. They have short tails which they often flick, exposing snow white undertail. Purple Swamphens have an interesting habit of holding food between their toes, picking off small pieces with their bills, then feeding it to their young.



Describe two things that Swamphens do with their toes and that they wouldn't be able to do as well with webbed feet.

Waterboatman (*Poriphyrion poriphyrion*)

What is it?

Where is it found?

Shelter

Physical requirements

Breeding

Status

Threats

Fun facts

Explain how you think the Waterboatman got its name.

If you found a Waterboatman in your local stream or creek could this tell you whether it was unpolluted?



URBAN

...your school, your backyard



Special features of this ecological community

The urban environment is a highly changed ecosystem, very different to the natural environment that we inherited. Agriculture to provide food, buildings like homes, shops, schools and offices, introduced plants and animals, and infrastructure to supply water and electricity to our homes have replaced natural ecosystems.

Dominant (most common) plant species

Planted native and deciduous (introduced) street trees, garden plants (lawns, and native and non-native flowers, trees and shrubs) and fringing woodlands and grasslands.

What types of animals live there?

Animals that live or can be found in the urban environment are usually the common and abundant species. They are common or abundant because they have been able to adapt readily to human-made changes to the environment. Brush-tailed Possums will use the ceiling space inside houses for shelter when tree hollows aren't available. Kangaroos and magpies have benefited from the extra open grass areas. Gardens and parks with native flowering shrubs also attract many bird species such as Red Wattlebirds, Noisy Friarbirds, fantails, whistlers and Superb Fairy-wrens.

Where is it found in the ACT?

The ACT is unique in that all of the hills have been left undeveloped, leaving our woodland and forest ecosystems within the urban area relatively intact, with the suburbs and city nestled in the valleys. This is unusual for a city and is why Canberra has the name the 'bush capital'.

Threats

What we do in our urban environment directly affects the surrounding natural environment in which we live. Weeds and feral animals, like cats, spread into adjacent bushland. High water consumption takes water out of our rivers and streams reducing their health and quality. Driving our cars, consumption of food, manufactured products and electricity all have environmental impacts. But there are lots of things that we can do to reduce our impact!

Imagine your
own body.
smell, hear

Make a list...

Write down any native animals that you have seen near your house or school.

[illegible]

Australian Magpie (*Gymnorhina tibicen*)

What is it?

A medium-sized, black and white bird with a strong beak and familiar carolling song.

Where is it found?

The Magpie is found wherever there are open grassy areas and scattered trees in the ACT. It is absent only in areas of continuous forest such as the denser parts of the Brindabella ranges.

Shelter Roosts in trees and on human-made structures.

Physical requirements

Carnivorous-feeds on ground-dwelling insects, grubs, beetles and other invertebrates.

Breeding

Builds a shallow bowl-shaped nest from sticks and lines it with grass and other soft material, often high up in a fork of a tree. Wire, string, plastic and other synthetic materials are often found in their nests. Magpies will raise several young at a time.

Status

Abundant-Magpies have benefited from land-clearing and agricultural and pastoral activities because they don't like dense forests or thickly treed places.

Threats

People harassing them due to their swooping during the breeding season. Being run over by cars.

Fun facts

The magpie is a very territorial and dominant bird that forms breeding pairs and can be very aggressive in the spring nesting time, swooping on anyone who enters their territory. They need a territory to provide enough good foraging space as well as trees to nest in and resting areas.



Why do magpies sometimes swoop people?

Why do you think you should respect this?

Little Forest Bat *(Vespadelus vulturnus)*

What is it?

Where is it found?

Shelter

Physical requirements

Breeding

Status

Threats

Fun facts



Explain the special technique that bats use to locate insects.

What part of their body do bats use to catch prey?

Eastern Grey Kangaroo (*Macropus giganteus*)

What is it?

A large marsupial that travels by hopping or jumping, using its large hind legs, feet and tail.

Where is it found?

In many woodland and grassland habitats and it also comes down into the suburbs from the adjacent bush.

Shelter

Shelters in the shade of trees and shrubs during the heat of the day, often creating a little dug-out for sleeping in.

Physical requirements

Herbivorous-mostly eats grasses. Needs water to drink.

Breeding

Marsupial-babies are tiny when born and crawl up mum's tummy to the pouch and are then suckled in the pouch until they are about 11 months old. When out of the pouch a young kangaroo will stay with its mum for at least a few months.

Status

Abundant -has probably increased since European settlement because of the planting of pasture grasses and provision of watering points for stock.

Threats

There is nothing that is threatening this species to the point of extinction or declining numbers. However, drought, being shot at by farmers for eating pasture, being run over by cars and destruction of habitat for urban development can all affect population numbers.

Fun facts

Kangaroos are known as a boom and bust species. They can be badly affected by drought, many may die off. But when conditions are good, the tiny babies that have been waiting until times are good enough to be born, crawl to the pouch and the population grows again. The number of Kangaroos in Australia has increased since European settlement. Kangaroos need water and so do cattle and sheep. When farmers put in water sources such as dams and troughs and planted crops, the Kangaroos had more water and more food. The pastoral industry considers them a pest because they eat crops and compete with livestock.



Explain the difference between 'boom and bust' and the increase of this species due to pastoral practices.

Brushtail Possum (*Trichosurus culpecula*)

What is it?

Where is it found?

Shelter

Physical requirements

Breeding

Status

Threats

Fun facts



Why do you think these possums come into our
as well as what they use them for.



Protecting our natural treasures!

You have now investigated lots of the natural treasures that we have in the ACT. As an investigator, you are now tasked to help protect these local ecosystems, plants, and animals.


Nature Reserves protect our local environment and the different ecosystems, animals and plants that live there. These areas are managed by park rangers and scientists who investigate these animals and plants. They do this by counting the different plants and animals in the reserve – known as ‘surveys’ –, putting up fences to keep predators out, and figuring out way to restore the environment. Another way to protect nature reserves is by putting a natural space outside the Nature reserve, between the reserve and any suburbs. This is called a ‘Buffer Zone’. This adds an area between nature and houses. Doing this stops the weeds from your gardens spread into the reserve and reduces the noise and light from houses which impacts the sensitive animals there.

What can you do?

There are many things that you can do to help keep our natural treasures safe. If you have a cat, keep the indoors so they can’t hurt our native animals. This also keeps you cat safe! When you go to a Nature Reserve or a natural place outside, you can make sure you don’t leave any rubbish behind, don’t take anything home with you (such as flowers, rocks and sticks) and only watch the plants and animals around you.

Fun facts

Canberra has 46 protect places which cover over half of the entire ACT area! Many other places are called as “Non-Urban” which means that people cannot build houses and suburbs there. Even better is that most of these areas connect to one another! When the ecosystems are connected, the many animals can move between the environments, for example from forests to woodlands and rivers. It also means that these animals can find food, homes and water across a much larger area. This helps to make an ecosystem healthy.



What are some of the threats to the environment, animals and plants that you have learnt about in this booklet? Make a list...

<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

What are some of the things you can do to protect the environment?

<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

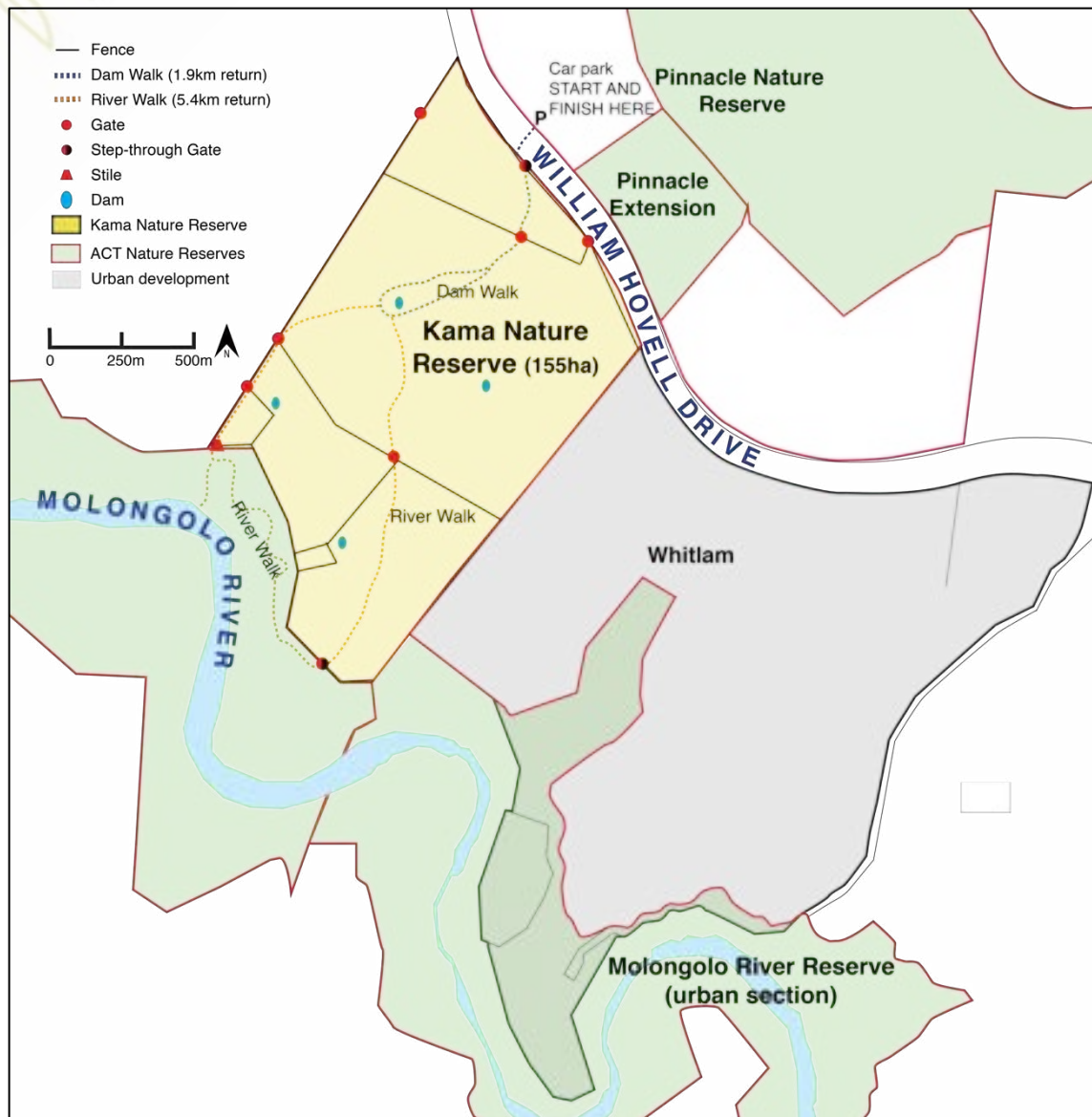
This is Kama Nature Reserve, what ecosystem are these?
Hint: see pages 12 and 20.


Make a list of the animals and plants that live in these ecosystems.

What are the threats to the ecosystems at Kama? Make a list...

Kama Nature Reserve is next to a new suburb. Where do you think a Buffer zone should go and how big? Draw your buffer on the map below.







What are some of the benefits to the plants and animals by connecting all the environment? Explain your answers.

Gungahlin Woodlands

Glossary

Abundant: Abundant species are those which have increased since European settlement.

Biodiversity: The diversity of plant and animal life within an area.

Carnivore: A carnivore is an animal which eats other animals.

Catchment: The area from which a river, stream, lake or other water body receives its water.

Climate change: Increased temperatures and disrupted climate patterns due to the release of greenhouse gases into the atmosphere.

Common: Common species are those which are usually widespread and have fairly large and stable populations.

Consumer: Consumers are animals. They cannot create their own food (like plants) and must eat other organisms to survive.

Declining: A declining species is one that has had a reduction in the number of individuals but has not become threatened.

Decomposers: Decomposers are organisms such as bacteria and fungi. They cause the decay or chemical breakdown of dead organisms or organic material.

Degradation: A process which reduces the capacity of the land to function effectively within an ecosystem.

Diversity: A wide range or variation of (plants and animals).

Ecosystem: A community of plants, animals and micro-organisms, linked by energy and nutrient flows.

Ecological community: An ecological community is an assemblage of species that occur together within an ecosystem.

Endangered: A species (or ecological community) which is likely to become extinct in the foreseeable future. In the ACT threatened species are classified as either endangered or vulnerable. An endangered species is considered to be more threatened than a vulnerable species.

Eutrophication: Increase in the mineral and organic content of a body of water resulting in a depletion of the oxygen content of the water which can cause the death of animal life. Usually triggered by hot weather combined with an excess of nutrient levels in the water.

Food chain: Energy in the form of food is transferred from one organism to another in a single pathway. For example, plants harvest energy from the sun, and are then eaten by herbivores, which in turn may be eaten by omnivores or carnivores.

Food web: Food chains do not operate individually. A food web shows the links between various food chains and organisms in an ecosystem.

Fragmentation: The fragmentation of habitat occurs when larger habitats are broken down into 'patches' or 'fragments'.

Generalist: Generalists are animals that eat a wide range of food and can make use of a variety of habitats.

Grazing: The consumption of one organism without killing it by another organism. For example, cows feeding on grass.

Greenhouse gases: Gases which cause climate change, caused mainly by cars and energy use.

Habitat: The 'home' of a plant, animal or micro-organism. This is where the species find nutrients, water, sunlight, shelter and living space.

Herbivore: A consumer (animal) which eats producers (plants).

Heritage: What is, or may be inherited.

Hibernation: Allows animals to essentially 'sleep' through the winter, and conserve their energy.

