

WIRES WildlifeLink Education Project



I spy wildlife



Contents



Sponsor



The Tony & Lisette Lewis Foundation

Supporting the propagation, protection and preservation of wildlife in Australia

Acknowledgements

Written by: Simon Harris
 Editors: Kristy Atherfold, Vicki Atherfold, Margaret Clinton, Njal Hayden
 Project Manager: Simon Harris
 Design: Gekkoprints
 Photographs: WIRES, Steve Parish Publishing & Australian Geographic
 Information sheets: Njal Hayden
 Printed by: AviWeb Printers

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WIRES


tel 02 8977 3333 fax 02 8977 3399 email info@wires.org.au web www.wires.org.au







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Table of suggested curriculum activities

The table below enables you to link activities to each of the key learning areas. Each subject has a certain key for example  = maths, if you are looking for a maths exercise, look in the table and find the corresponding pages throughout the WIRES WildlifeLink education booklet.

Symbol	Subject	Pages
	English	5, 6, 7, 8, 16, 17, 18, 19, 21, 23, 28, 34, 35
	Mathematics	36, 37, 38, 39, 40
	Human Society & its Environment	6, 15, 23, 30, 31
	Creative & Practical Arts	8, 13, 14, 17, 20, 23, 31, 35, 41, 42
	Personal Development, Health & Physical Education	18, 23
	Science & Technology	8, 9, 10, 11, 12, 13, 26, 27, 28, 31, 32

Welcome to WIRES Wildlifelink Education Pack!

This is an educational wildlife activity book for children and teachers to enjoy. It will introduce children to the amazing world of Australia's native animals with the aim of educating young naturalists with details about everyday animals they see and experience.

The objective of this resource is to explore and question some of the values and attitudes that we have towards wildlife. We aim to:

- encourage cross-curricular teaching of animal welfare and conservation in the classroom
- provide teachers with a relevant and accessible resource
- provide children with an enjoyable and creative way of learning about animals
- ignite a spark of compassion in the young generation

Included are activities, information and questions intended to help children develop their knowledge of Australian native wildlife. They have been designed to incorporate a range of topics and use a variety of methods which will encourage children to communicate their ideas.

Outcomes

On completion of this booklet students will:

- be familiar with the work of WIRES
- have an improved awareness of Australian native animals
- be encouraged to take community action to contribute to the protection and conservation of our native animals

This resource will help to support many aspects of the curriculum, including areas of:

- personal, social and emotional development
- physical development
- language and literacy
- knowledge and understanding
- creative development

The poster provides a strong visual focus for children and you can use it to introduce certain topics or animals. The poster illustrates some of the most common of Australia's wildlife as well as some iconic animals. You can use it to discuss, in turn, different animals in class. This wildlife can be found in the backyard, on the ground, in the water, or up in the trees and the sky.

Wildlife information sheets provide physical, behavioural and habitat information about the more common animals found across NSW. They will inform both children and their teachers. Connections between people and animals, some good and some bad, are noted. Particular emphasis is placed on the rearing of the young with intriguing animal facts included for the curious.

WildlifeLink CD included with this booklet is a WIRES information video featuring Dr Katrina Warren talking about the work we do throughout NSW. The video footage can be used to demonstrate visually to students the job WIRES is currently undertaking in rescuing, rehabilitating and releasing sick, injured and orphaned wildlife.

Also on the CD is this entire booklet – it is hoped that you are able to print off the various sections of the kit when required.

WIRES Certificate of Achievement

Finally, included is a Certificate of Achievement that can be given out to pupils when you feel they have gained a certain level of understanding about wildlife or their work is worthy of special recognition.



WIRES (the NSW Wildlife Information and Rescue Service) is the largest wildlife rehabilitation organisation in Australia. We are a voluntary, self-funded charity which is licenced by the Department of Environment and Conservation to rescue and rehabilitate native animals.

WIRES' role is to promote the present and future welfare of Australian wildlife.

History and background of WIRES

WIRES started in 1985 as a Sydney-based organisation. We have quickly grown with many branches across NSW, ranging from Bangalow in the North, to Bega in the South, as far west as Cobar and far east as Coojee and we are still growing.

The idea of forming WIRES came about when an injured ibis was found in Hyde Park in Sydney and no one was prepared to take responsibility for its care. The National Parks and Wildlife Service (NPWS) did not have the resources to cope with injured native animals. Later in the year The National Parks and Wildlife Service issued a licence for WIRES to rescue, rehabilitate and release native animals.

WIRES has a network of thousands of rescuers, carers and other volunteers across NSW. They rescue and rehabilitate sick, injured or orphaned native animals and work closely with our allies the veterinarians and NPWS staff. After these animals have recovered they are then returned to the habitat where they were first rescued.

All WIRES members are issued with an individual authority by WIRES which allows them to carry out their work. WIRES members must undergo various levels of training, depending on the species for which they care. When new members join they are normally assigned a 'buddy' to provide extra knowledge and support.

WIRES responds to more than 50,000 rescue calls a year.

WIRES' work

WIRES carers are called upon to rescue a wide variety of animals – ranging from small pygmy possums to large kangaroos, and tiny thornbills to cockatoos. The safety and welfare of the rescuer is the highest priority. Caution and care is always taken when dealing with wild animals. Situations that are likely to be dangerous – such as climbing trees or catching large kangaroos are only to be attempted by experienced and suitably trained rescuers, and then only if every precaution is taken to ensure the rescuer's welfare.



WIRES Branches which fall within the boundaries of the greater Sydney metropolitan region are all linked through a telephone call centre known as the Sydney Rescue Office. While there are more branches and members in country areas the reality of habitat loss from development means that it is people rather than place which cause wildlife rescues. More people means more cars, domestic pets, more poisons and most importantly less natural habitat.

The Sydney Rescue Office is staffed by a small group of paid specialists and volunteers from across Sydney. Between August and May the call centre can take up to 300 calls a day and, as most of these involve an animal in distress, the office is a very high pressure place to be!



The rescue procedure in regions outside Sydney is broadly similar but the phones are staffed by volunteers.

The caller is advised that they will assign a WIRES rescuer to attend to the animal but this may take some time so the animal should, if possible, be contained and kept in a warm, dark and quiet place. If it cannot be contained the caller will be asked to continue to observe the animal.

Many animals are left by the public at veterinary surgeries. The very nature of a surgery stresses wild animals and it is important WIRES members collect the animal as soon as possible. Veterinarians are very important to WIRES work so we treat them with courtesy and respect.

When the vet has examined the animal and diagnosed and treated its symptoms, the WIRES rescuer transports the animal to a WIRES carer who then cares for the animal until it is healthy enough to be released.

Carers have facilities in their homes to provide around-the-clock treatment. Depending on its injury or age, some animals will need to be fed every ten minutes or have their temperature kept exact for days! Also, the length of stay can vary from a few hours to 18 months.

From the time the sick, injured or orphaned animal is received until it is released, the aim of the WIRES carer is to restore it to a state of health where it has a good chance of survival in the wild. Animals must be released as close as possible to where they were found.

This is particularly true for the highly territorial birds such as kookaburras which should be released within 100 metres from where they came.

Carers ensure a release site provides food, shelter and habitat for the animal being released.

WIRES carers are extremely dedicated and committed to the care of our wildlife and largely pay for specialised animal food and veterinarian fees from their own pockets.

Imprinting

Imprinting is an irreversible learning process that occurs very early in an animal's life. Some bird chicks that come into WIRES care for example can become imprinted on humans as they have had insufficient time with adults of their own species.

A bird which has become imprinted on a human carer will not survive or reproduce in the wild because it will always seek out humans in preference to its own species. This unnatural behaviour cannot be reversed and will almost surely result in death sooner or later. Wild animals see humans as predators and if they stop seeing us as predators they can put themselves at risk.

Contact with other animals is essential for chicks and other young animals to develop their natural behavioural characteristics. To avoid imprinting in young animals, WIRES carers follow these simple rules:

- animals are seldom reared alone – they are usually cared for along side other members of the species or where there are wild members of the species in the area
- only one carer cares for the animal
- when handling animals, WIRES' carers use a firm grip, this is often an unpleasant but not a painful experience for the animal
- carers avoid eye contact and do not talk to the animals
- in short they are not treated like a pet, but like a wild animal, this ensures them a much higher chance of survival in the wild

Case Study – Caring for Pimples

Imagine being only three months old and taken from your mother's warm and secure pouch and put in a milk crate in a bright room with only a woollen jumper for warmth and nothing to hide you from the bright human world.

That is exactly what happened to 'Pimples' a joey wombat. Pimple's mother was hit by a car but luckily a passing motorist stopped to check the wombat's pouch and discovered a little furless joey inside. Less fortunately the person decided they had found a great family pet and took the 528gm joey home to the family.

After a week the novelty of having a young and furless wombat in the house wore off and WIRES were contacted to come and take the joey away. By this stage Pimples was undernourished and dehydrated – she had only been receiving a couple of spoonfuls of food per day and she should have been receiving half a cupful. Pimples was literally starving.

For the first five days Louise, a WIRES carer, gave Pimples special fluids every three hours as well as her five meals per day of a special marsupial milk. As a couple of the feeds were in the early hours of the morning Louise didn't get much sleep that week!

Because she had become dehydrated Pimples (she got her name because she had a few large lumps on her skin) needed cream rubbed into her skin for the first few days to stop it peeling off.

Pimples' new home was a cotton bag inside a woollen one which was placed in a basket lined with sheepskin and covered in a blanket to keep it dark – as close as Louise could get to the mother's pouch. Pimples was kept in Louise's spare room which is as far away from the smells and sounds of the house as possible.

Each evening she was put on clean grasses outside so she got used to eating it. She had pot plants that she could munch on as well as clumps of dirt – wombats love to eat dirt, dry leaves and sticks. These items are necessary for the young wombat gut flora and teeth development.

The first two years of a wombat's life is spent with its mother, so it was critical that Pimples had another wombat for company – she thought Louise was her mother and followed her about. When it was nearly time for Pimples to go to an outdoors enclosure it was important that she had the company of another wombat of similar size and age.

After Pimples reached five and a half kilograms, she was put in a "soft release cage" a lot further away from humans which allowed her to smell wild wombats and in time explore the bush. Over time she came back to the cage less often and eventually learned to live totally in the wild.

Comprehension

1. What type of animal was Pimples?
2. Describe Pimples' new home.
3. Why didn't Louise get much sleep when she first got Pimples?
4. How heavy was Pimples when she was put into the soft release cage?
5. How long do wombats stay with their mothers?
6. What do wombats love to eat?
7. Why shouldn't untrained people try to care for native animals?





Student activities

Find out if you have a local WIRES Branch.

Write or call the Branch to find out the following:

- How many people volunteer their time to rescue and care for native animals?
- What hours does the Branch operate?
- Which animals are commonly rescued in their area?
- Find out if there any interesting stories of recent rescues / releases?
- What ways can your school help?
- What is involved in being a WIRES member?

Poetry

Ask students to create some poetry about an animal they might already know. Here are some examples that use rhyme and alliteration. To start them off give them to the young learners for inspiration and as a template.

Black and white with beak so strong,
I spend my days in work and song,
Amidst the trees where I belong,
For I'm a carefree currawong.

My days are spent beneath old logs,
or in the reeds round ponds and bogs,
I have no place with cats and dogs
or geese or ducks or warty hogs,
my friends and kin are other frogs.

I have cackled in Murrumburrah,
chortled in Muttaborra,
and guffawed in Turramurra,
for I am a kookaburra.

The pelican
I visit the inland
when rains make them wetlands
and breed on the banks of briny Lake Eyre,
and I travel the sea sides
at high tides and low tides
my home can be found almost any old where.

Flying fox
At night I fly across the moon
on wings of velvet black as coal
by day I hang in trees and chatter
to my friends in squabbling shoals
It's I who spread the seed and pollen
that the forests need to thrive,
I who keep the towering giants
of the wilderness alive.



Squirrel glider twins

Learning objectives

- techniques of observing and recording wildlife
- understand language and terminology relating to wildlife
- recognise the uniqueness of our animals
- recognise the difference between native animal species
- understand the state of wildlife in the local area

Introduction

Wild Australia is extremely diverse and interesting, with most of its animals unique to Australia. Our native animals have evolved in isolation and so have developed very individual characteristics. This also means that the animals have adapted well to the diverse and often harsh climatic conditions of Australia.

Student activity

Ask students to find out the meaning of the following terms using the internet, dictionary or animal books, either as a group or in pairs and ask the pupils to report back to the class.

Glossary: –

native animal	feral animal	mammal	reptile
marsupial	ecosystem	macropod	diet
species	joey	herbivore	monotreme
evolve	scats	carnivore	echolocation
habitat	nocturnal	omnivore	placental
food chain	endangered species	raptor	incubate

Wildlife behaviour

Although much of our wildlife is nocturnal, people often have close encounters with native animals in the bush and even in their neighbourhoods! Whilst most birds are active during the day, most Australian mammals are active during the night. Sometimes trying to observe animals can be difficult. We know that some animals are there because of the clues they leave behind.

Gaining an understanding of native animals is often done through secondary research such as using the internet, videos, books, field observations and tracks of animals. If we record such observations we can better understand the behaviour of the animal and the reasons for its behaviour.

'Native' wildlife are those species of animals that are living in the environment that they have adapted to over sometimes millions of years. They belong there because they evolved there. Australia's wildlife is unique because most of our animals cannot be found anywhere else in the world.

Exotic, feral or introduced animals are species of animals that have been brought into this country for various reasons. Examples are foxes for hunting and pigs for food. These animals are not always under control and can cause a lot of damage to the environment and our native animals.

One thing to always keep in mind is that our native animals are wild animals wherever you may see and encounter them. Always treat them with respect and a little caution. They will always be more afraid of you than you are of them so don't corner them but just let them quietly go about their routine and they will give you a wide berth!



Student activities

- Ask your pupils to act out being a wild animal themselves, this is a good way learn about characteristics of native animals. Ask them to pretend to be an animal of their choice. As native animals, children can pretend to:
 - be tired, playful or hungry
 - eat, drink and sleep
 - make their animal's noise
- In groups or as a class ask pupils to discuss some of the following:
 - how many species of Australian native animals can you name?
 - how many individual Australian animals can you name?
 - what is special about most of Australia's wildlife?
- Refer the children to the wildlife poster for animal identification and analysis. In groups, identify four animals illustrated and answer the following questions on each of the four animals.
 - what do they eat?
 - where do they live?
 - describe their movement, size, shape, and colour, and markings
 - When are they most active? Why?

Who am I?

<p>Number 1 I am a small mammal. I have a long sticky tongue. I eat only termites and ants. I do not have a pouch. I am a _____</p>	<p>Number 4 I am Australia's largest bird I can lay big eggs but my partner hatches the eggs I am a _____</p>
<p>Number 2 I am the most colourful parrot. I am noisy as I feed in trees. I stay in a group. I eat nectar flowers, seeds and insects. I am a _____</p>	<p>Number 5 I appear to have a duck's bill I am not a duck I live in fresh water I have waterproof fur I lay eggs I am a _____</p>
<p>Number 3 I am black and white I have feathers I sometimes swoop near people when I have chicks I am a _____</p>	<p>who am I?</p>

I'm spying wildlife

Direct observations of animal's activities are a good guide to where they are likely to be found. Where is their food, water and shelter? What time of day are they likely to be most active? Do they have particular behavioural patterns?

- Observe wildlife in your own yard, school or neighbourhood and keep a diary recording what you see:
 - look for prints in the dirt which might help determine what an animal is, its size, if the animal was alone and the direction of its travel
 - nests and hollows – observe but don't disturb
 - sounds – especially the calls of birds, mammals and frogs but also of moving animals
- List in your diary / notebook the main activities that are happening with the wildlife.
- From your observations list the animals which appear to be most common in your area.
- Draw a map of your house or school yard and mark on it where you spotted different animals. Mark on the map what time of day you spotted these animals.
- Keep your maps in the classroom and add to them every time you see a new animal. Remember to add dates, times and where it was sighted.
- Conduct a survey with people in your neighbourhood to find out which animals are now seen more or less frequently than they were years ago. Older members of your community may remember which ones are no longer in the area? Have some animals moved into the area?



Barking, thick tailed gecko



What do our native animals eat?



Native animals do not have meals provided for them like we do, so they have to find food in the environment. Like humans, animals need a nutritious mix of foods to keep healthy.

- Below is a table for you to fill in. You will need to do some research and find out what these animals eat. You might have to use books and the internet to find the answers:

Name of animal	What does the animal eat?
wallaby	
blue tongue lizard	
magpie	
rainbow lorikeet	
quoll	
koala	
numbat	
grey-headed flying-fox	



A food chain is when you connect various plants and animals together to explain who eats what. Below is basic food chain:



- Design your own food chain using some of the native animals in the table above. You can display your food chain by using pictures of the animal or boxes with the animals' name inside and use arrows to show who eats what.

Interesting facts about animals eating habits

- some animals just eat plants – they are called herbivores
 - some animals only eat meat – they are called carnivores
 - some animals eat both – they are called omnivores
- From your table above list whether they are herbivores, omnivores or carnivores. Put the animals in the above table into their correct group according to what they eat.

What they look like?

When you look at Australian native animals they do not look very much alike. This is because different species of animals have evolved to live in different places and eat a variety of foods.

Many animals have special characteristics to help them survive in a constantly changing environment. To adapt to their environment native animals need to develop specialised methods to find food, shelter and have young.

Look below at the special features an echidna has to survive:

- sharp spines to protect from being eaten
- sharp claws to pull apart rotting logs and ant nests for food
- tremendous strength to dig its body in the ground and only show its spines



Student activities

- Make a list of six native animals and find out what special features they have for living and surviving in the wild.
- Investigate three features of each of these native animals:

Name of animal	1st feature	2nd feature	3rd feature
blue tongue lizard			
ring tail possum			
gecko			
numbat			
tawny frogmouth			

- Find a picture of one of the animals above and show its special features to your class.
- Label your animal with arrows highlighting its special features.



The nose knows best



Objective

Students will learn the ways animals use their sense of smell to help them survive in the wild

Materials needed

- Cotton balls
- Different scents (ideas include vinegar, vanilla, perfume, almond, peppermint and lemon)
- A brown or manila envelope for each student (some scents have distinctive colours. Using a dark coloured envelope encourages the students to use only their noses - and not their eyes - in this activity)

Preparation

Divide the number of envelopes to be used by the number of scents you have collected. Before the lesson, use a cotton ball to rub a scent onto the adhesive strips of the envelopes. Each envelope gets one scent only. Repeat this process with the remaining scents and envelopes. For example, if you have 32 students in your class and have eight different scents, then four envelopes would get one scent, four would get another, and so on.

Method

1. Give each student a scented envelope. Tell the students to smell their envelope, and then have them try to find classmates whose envelopes smell like their own. After about 10 minutes of sniffing, make sure each student is in a "scent" group.



Ringtail Possum

2. Have students brainstorm adjectives describing how it felt to rely on their sense of smell to locate other students. Review the different ways animals use scent.

Teacher background

Many animals have a keen sense of smell to help them identify what's going on around them. They can recognize other species, as well as individuals within their own species, by scent. Detecting other animals by scent helps an animal to stay away from enemies, avoid being eaten, find a mate, locate food, and mark territory.

Identifying animals

Purpose of the exercise

To encourage children to ask good, meaningful questions to identify animals that may be seen in the children's environment. Teaches some basic taxonomy (grouping) of different groups of animals.

Materials

- Postcards of animals or pictures cut from magazines and mounted on index cards
- String
- Hole punch

Preparation

Make a long necklace with the postcards / animal pictures and strands of string

Activity

1. Hang one card around each student's neck, that the picture is face up on the student's back. Be sure the student cannot see his or her animal picture
2. Students are instructed to ask one question of each of the other students, one question per student, in an attempt to find out what animal they have on their back. Questions must have a 'yes' or 'no' answer ('Do I fly', 'Am I covered with fur') Practice a few questions with the students before the activity begins.
3. How long does it take for each student to learn their own identity? Which questions gave the most information?



Tree Snake





Animal traits and characteristics

Look closely at a native Australian animal. Draw it in the oval.



What is my name?

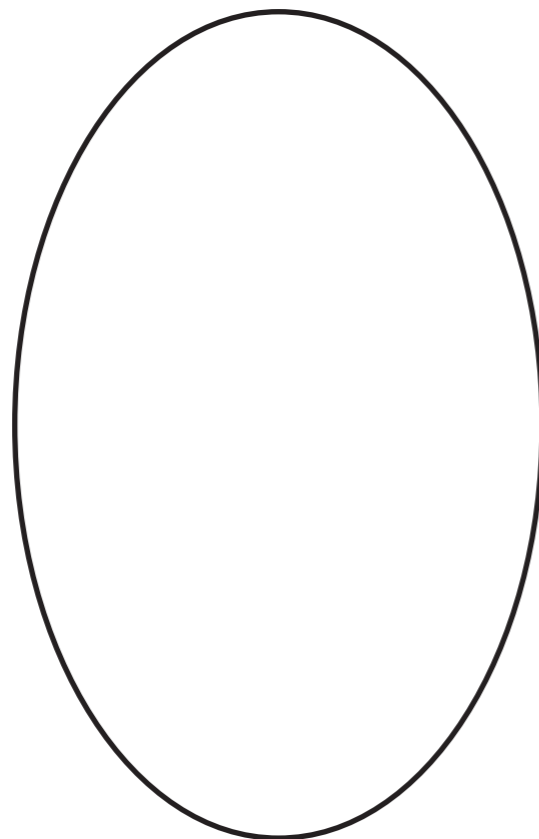
How do I move?

Where do I live?

How many legs have I got?

How do I get oxygen to breathe?

What do I eat?



Why am I suited to my environment?

Who might eat me?

What else can you find out about me?



Learning objectives

Students will be able to:

- understand the problems facing native wildlife
- identify relevant problems facing wildlife locally
- develop solutions to local problems

Introduction

A wide variety of native animals live in and around our homes. They include mammals, birds and reptiles which have adapted to human environments. While some native animals, particularly birds and small reptiles, are still plentiful, many animals have either died out or have only survived in bush reserves and national parks around the cities and towns.

In country areas our wildlife also faces problems. As natural vegetation is cleared and the land used for cultivation or grazing, animals either lose their habitat or are constantly disturbed. Many also die on the roads and others are under threat from feral animals such as foxes, rats and goats. Many are now threatened by the warming climate and the droughts it brings.

Student exercise

Every area has a different mix of wildlife and a different set of problems to face.

Ask students in groups to answer the following questions:

1. Identify problems that native animals face in their environment
2. Who or what is responsible for causing these problems?
3. Are there ways to lessen these problems?

As human populations expand into the remaining natural areas, animals are forced to live in close proximity with people. While we are privileged to be able to observe fascinating native animals, living with wildlife has its own special problems.

Why have problems developed?

Wildlife face many problems every day. The most significant of these are caused by humans and have come about because of:

Ignorance – sometimes we do things without knowing that they can be harmful or without thinking about the consequences. We may even think we are being kind, for example feeding animals when this has the potential to make them ill or spreads disease

Landuse conflict – land is used for a variety of purposes such as growing crops, grazing, housing, recreation, protection of species, forestry and garbage disposal. Land is limited. Therefore problems can arise when land is needed for a variety of reasons

Planning decisions – often do not take into consideration the effects on wildlife. Traffic calming, landscaping with native plants and preservation of bushland reserves are just some planning decisions that would make our cities and towns better places for native animals

Lack of care – can lead to pollution of our waterways, weed infestation of our bushland, road wildlife fatalities, pet attacks and much more

Conflict with human lifestyles – snakes living under the house, possums in the roof and swooping magpies can be reasons for concerns. Most of these situations can be solved with a little understanding and some patience



Case study – dangers of litter

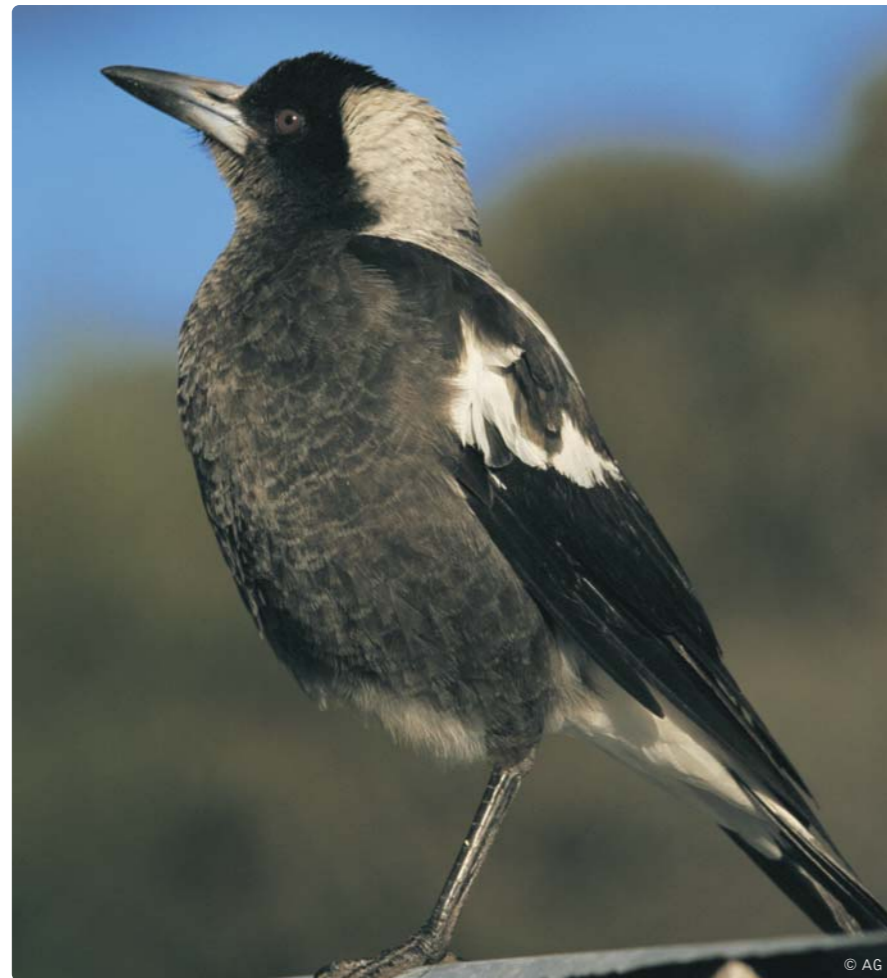
In early November, we received a call from an elderly lady in Manly. One morning the concerned woman, who had always loved watching birds in her back yard, noticed a magpie in distress.

Mandy, a member from the Northern Beaches WIRES Branch, attended to the call and soon realised that the bird had picked up a plastic ring from a milk bottle and got it stuck over his head.

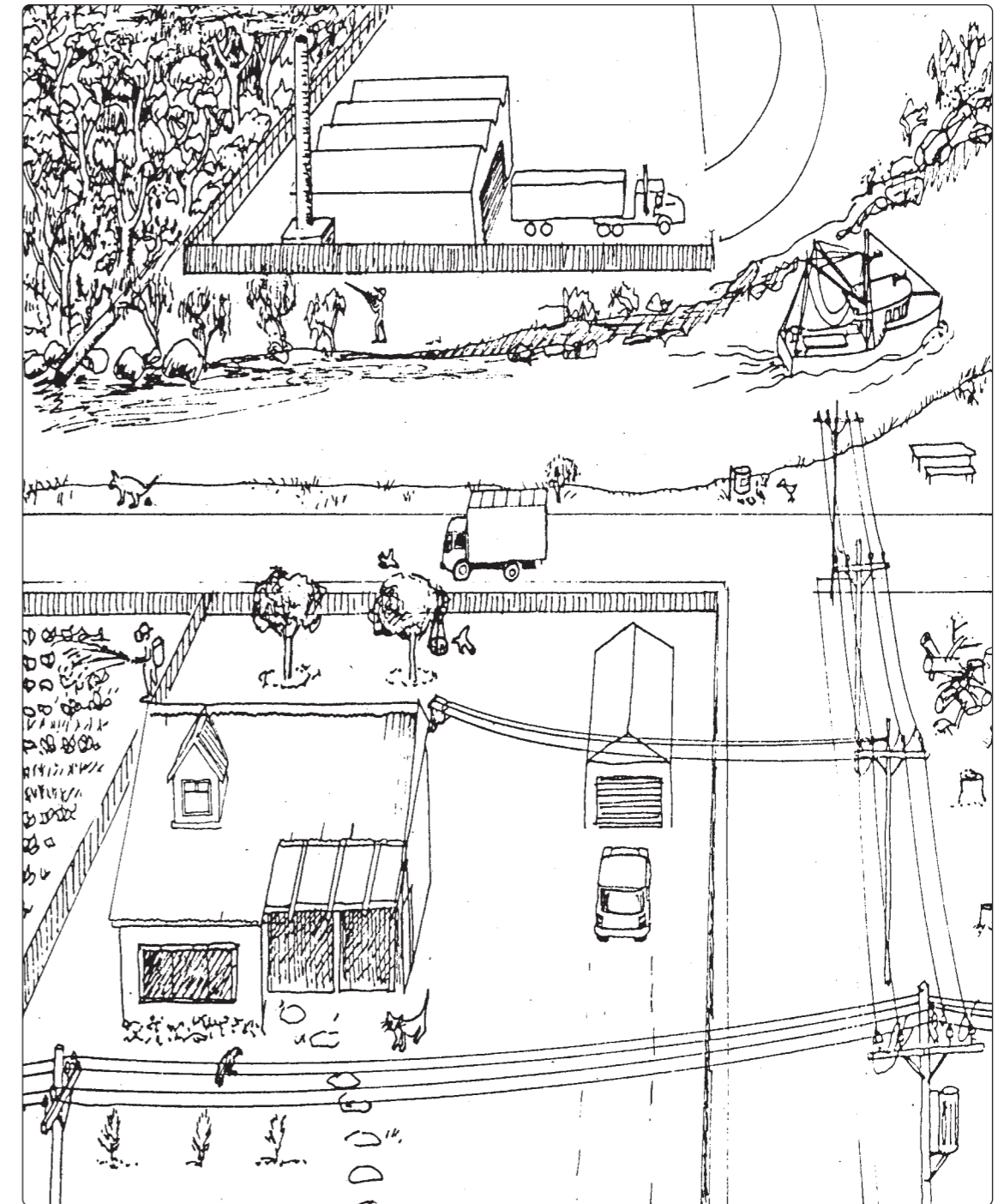
Mandy cut the ring from his head and disinfected the corners of his mouth where the ring had cut deeply into him. After some antibiotics and a good feed the magpie was ready to return. Mandy said that it was great to watch! He would have starved within a matter of days and has now gone back to his territory where it has a good chance of living for its full life of about twenty years!

Comprehension

1. Where did the woman live who made the call to WIRES?
2. Why do you think Mandy had to disinfect the cuts?
3. What was wrong with the animal Mandy rescued?
4. Can you think of some other things that people throw away that could be dangerous for birds?



Student activity



Find the potential threat

- how many things can you find in the picture which might cause a problem to native animals?
- who is responsible for causing these problems?
- how can they be overcome or lessened?
- draw another picture showing how you might improve the urban environment for wildlife?





Bushfire story

Read out to the class the following excerpt from an old WIRES newsletter on one of the most catastrophic bushfires Australia has ever seen. Get the children to close their eyes and imagine how the fires may have looked through the eyes of native animals.

Images of dry and cracked jigsaw-puzzle earth and bare trees have become achingly familiar in daily newspapers.

To make things worse, dry conditions have brought summer's other annual menace to prominence far earlier than at any time in recent history. Bushfires have been raging throughout the state since early October, human lives and hundreds of thousands of hectares of bushland have already been lost. Many of these devastating fires have been either deliberately lit by arsonists, or are the result of carelessness by humans.

In parts of NSW whole populations are being wiped out. Slow moving animals like wombats are immediately affected... then there is the New South Wales ever-diminishing koala population.

Many kangaroos are being killed daily as they are forced to feed beside busy highways. Possums and birds are being forced out of their own territories and closer to towns and cities where dogs and cats become their enemies.

Whole habitats are disappearing. Vital food and water sources are evaporating by the day. Ground cover used for protection from predators is ceasing to exist.

Student activities

1. Discuss as a class how the disaster may have had immediate effect on the community surrounding the bushfires? What would it have been like to watch?
2. Ask students how they would have felt if they were there and how could they have helped?
3. Ask them to write an essay discussing the damage it would cause to native animals and the local environment if a bush fire was to take place in the area in the future.



© WIRES

joey with bandaged burnt paw

The following letter is a typical one received by WIRES carers. Have students write a letter in response to it on behalf of WIRES.

123 Emu Parade
Koala Heights NSW 2456

25 May 2005

Dear Sir / Madam

I am concerned about possums in the urban environment. I personally enjoy being visited by possums (however not at 2 in the morning!) and watching them interact with each other in their natural environment.

Could you advise me of ways to remove these animals from my and my neighbours' roofs without having to remove them from the property and destroying their habitat.

Could you also please answer my other queries:

- as I am a possum enthusiast, I tend to feed them fruit and occasionally vegetables. Am I feeding them the right thing and am I doing them a disservice attracting them into an urban environment?
- if I am under 18 years old, can I become a foster carer?
- how can I best help WIRES in the work they do?

I really appreciate your help with this matter and look forward to receiving your reply.

Kind Regards
Mr Harry Human



If you find a native animal with a problem



Learning objectives

- techniques of dealing with sick and injured wildlife
- understand the dangers to the animals when being rescued
- recognise the needs of injured native animals
- understand a person's role in dealing with sick animals

Introduction

Because humans share the same environment, no matter how alert we are, animals will continue to get injured or ill. It is so easy: kangaroos get their feet caught in fences and blue-tongue lizards are hurt by dogs and cats. This is when we need to know what to do and who to call in an emergency. **Who should you call? WIRES**

A lot of WIRES calls are in the spring and summer, and are about:

- chicks falling from the nest
- orphaned mammals who have lost their mothers because of car accidents
- dog or cat attacks
- electrocution or shooting
- animals caught in wires or nets
- animals to be moved, such as possums from roofs, snakes and echidnas from gardens
- swooping by magpies protecting their chicks
- juveniles leaving home too early
- sickness
- malnutrition
- being fed the wrong food by the public

If you find a native animal with a problem

1. Remove any threat to the animal, which includes locking up cats and dogs until the animal is rescued.
2. If the animal appears to be sick or injured it will need to be treated for shock. Get an adult to place it in a cardboard box with a cloth. Keep it warm, and in a dark and quiet place, and disturb as little as possible. **DO NOT FEED THEM.** This simple procedure can save an animals' life.
3. Call WIRES. WIRES carers will give you advice and when appropriate will arrange for a trained rescuer to pick up the animal.

Student activity

In groups get students to compile a list of animal rescues carried out by class members, family, and friends. Detail the associated injuries caused to native animals in the past twelve months.

Make a wall chart showing:

- animals involved
- type of problem
- how the situation occurred
- how the problem was overcome
- how the situation can be prevented

WIRES story – Against all odds

WIRES was called to pick up a clutch of eggs from a lady who had found them whilst doing some gardening. When she threw a shovelful of dirt into a wheelbarrow she realised she had uncovered 13 eggs. Unsure what to do with them she rang WIRES.

John from WIRES Hawkesbury branch immediately went to rescue the eggs and incubated them as soon as he arrived home. The eggs were oval in shape and cream in colour. Due to the colour and size of the eggs John was fairly confident they were lizard eggs, but he was concerned about their chances of survival as they had been dug up, moved and turned over – all things that should not be done to lizard eggs, as altering the position can affect the developing embryo inside.

John put the eggs into a container after he tried to determine which way they should be placed by shining a torch into the eggs. He looked for the position of the egg sac, which John placed in the down position. He then covered them with dirt and placed them into the incubator. He kept the temperature at 28 degrees and sprayed the dirt with water every day to keep the humidity at about 60 to 65 per cent. He hoped for the best.

Four weeks later, John opened the incubator door to spray the eggs and found five water dragon hatchlings scurrying around. By the end of the day John had 10 hatchlings, which he placed into a reptile cage where they were content to bask under the heating lamp.

The next morning another hatched, so John now had 11 out of 13 eggs successfully hatched. John raised the water dragons for a further two weeks to ensure they were big enough to fend for themselves. Using WIRES procedures, John released the lizards at the place where they were first discovered.



Comprehension

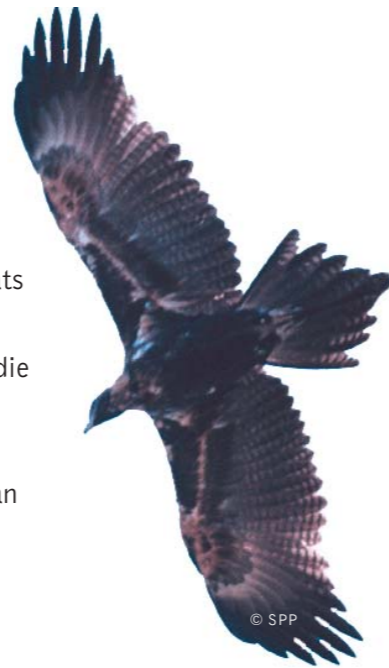
1. How many eggs were uncovered?
2. What shape were the eggs?
3. What did John do with the eggs?
4. Draw the animal that hatched from the eggs
5. Name three things you should not do to lizard eggs. Why?



Rescue

Improper rescuing can hurt both the person and the animal. This is why WIRES trains its volunteer carers and rescuers. Practical items to be aware of:

- WIRES deals with wild animals; they are not used to being handled. If not handled properly, they are likely to struggle and hurt themselves even more (which defeats the object of the exercise really!)
- native animals are very susceptible to stress. They can die just from the stress of capture or rescue
- animals can be stronger and tougher than they look. Possums may look cute but they are strong, and they can scratch and bite
- most reptiles can bite. Beware! Some are venomous
- flying foxes may carry diseases
- echidnas have very spines
- birds have strong hard beaks which bite. If they can break seeds open or pull a lizard apart, they won't be put off by your skin!



Let nature feed itself

If you care about wildlife, let nature feed itself. Nature's food chain has been developed over millions of years – by feeding wildlife you could be causing untold damage to our already fragile environment.

The dietary requirements of our native fauna are extremely complex. By continually feeding wildlife, they can become aggressive, dependant and ultimately sick. It can impact on their ability to forage for natural foods.

It is also against the law for anyone to feed native animals unless you have a special licence permitted by The National Parks and Wildlife Service (NPWS). WIRES has been issued with this licence and then authorises our trained volunteers.

Why return animals to the wild?

- animals are wild, they are not pets. Wild animals belong in their natural habitat where they can look after themselves
- animals kept in captivity face problems immediately or as they grow up. Many animals are stressed by human contact. An animal that has been brought up as a pet and is later released in the wild will not survive
- many wild birds will live longer lives than the people caging them
- problems faced by animals in captivity include: - stress - sickness - injury - abandonment - death - neglect - dependence - inappropriate behaviour - loss of natural behaviour. All of which makes them unable to feed and take care of themselves

Where you come in

1. Be alert

There are many times and situations when we must be particularly on the lookout for wildlife needing our help. These include:

- during spring, when there are lots of young birds and animals that may fall from nests or become orphaned
- wildlife road fatalities and other freshly killed animals. Ask your parents to check the pouches of marsupials and drag them off the road if its safe
- driving, especially on country roads at night – ask your parents to watch out for road signs of animals in the area
- migration – some birds migrate along certain routes each year













2. Improve conditions for wildlife – this often begins at home and school

3. Educate those around you – talk to neighbours, school, clubs and parents

4. Help WIRES by being a responsible person



Activities

Ask students to identify the situations and times that they are most likely to find wildlife having problems in their area	
Design and create signs for the school's nature area if there is one	
Design a game based on an animal's problem in your area and what hazards it faces as a result of these issues. Invite other classes to play the game	
Ask pupils to write a poem from an animal's point of view of the difficulties it faces	
Ask pupils to design a leaflet or poster about what to do when injured wildlife is found	 
What are the dangers faced by animals everyday, especially in urban areas?	 
Ask the children to imagine a perfect world for wildlife to inhabit. What would this world be like? How does it compare to your local area?	 
Divide the class into groups. Each group chooses a particular animal and documents its lifestyle and threats to this lifestyle. Then have each group present their findings to the rest of the class.	 

More mammals have become extinct in Australia in the last 200 years than on any other continent. Today, more than 360 of our animal species are considered threatened. *(The National Parks and Wildlife Service)*

What makes an animal threatened?

The main reason that animals become threatened or extinct is because of habitat loss and/or over harvesting. Humans have great power to change and destroy habitats and so reduce the chances of species survival.

Species and their habitats are affected when vegetation is cleared for uses such as agriculture, forestry, mines, suburbs and roads. Aquatic environments are affected when rivers are dammed to store water or when swamps are drained for development. Overfishing not only wipes out the edible fish but also those other animals like dolphins and albatross that rely on fish for their survival.

Introduced animals such as foxes, rabbits, and feral animals such as wild cats and dogs can also cause population decreases in native species that can lead to them becoming threatened or extinct. For example, foxes are a severe problem for the numbat which can only exist where there are no foxes.

How are species defined as threatened by the government?

The government encourages individuals and community groups to protect our native animals. Anyone can include their observations of wildlife they see around them – procedures to alter the threatened species list are as follows:

1. A member of the public needs to send a nomination to the scientific community of NSW (Threatened Species Network).
2. The scientific community assesses all nominations made by the public and decides whether or not to accept them.
3. If the scientific community accepts the nomination then evidence has to be found to back up claims. The nomination is then put on public display. People are able to send in submissions about the nomination.
4. The scientific community assesses all claims made and makes a decision. If the original nomination is approved then it is advertised on The National Parks and Wildlife service website and newspapers.

Levels of threatened species

There are various levels in which species are endangered according to the NSW government. These are as follows:

- **Species presumed extinct** – A species has not been seen for the last 50 years even though many observations have been made in the species' natural habitat.
- **Endangered species** – The species will become extinct if their habitat continues to reduce or if the number of the species continues to stay at its current number.
- **Endangered population** – This category states that extinction for the species is at a dangerous level – the species could be geographically isolated or will become genetically extinct.
- **Endangered ecological community**
The ecological community (a grouping of species living in a certain environment or area) will become extinct if the threats to their existence persists.
- **Vulnerable species**
If threats continue to the species then it will become extinct in time.



There are now many animals living in Australia that have been deliberately introduced to the wild over the past 200 years. Others came by accident, or were escapees from aviaries, aquariums and zoos. They were introduced for a number of reasons and it is a good history lesson to examine past introductions so that the same mistakes are not repeated in the future.

When populations of domestic animals such as livestock or household pets become established in the wild they are called feral or introduced animals. Some of these include the feral pig, feral cat, the hare, feral goat and feral horse or brumby.

Introduced wild animals have had a great impact on Australian wildlife and the environment. There are three main problems with introduced or feral animals:

1. Feral, non-native species compete with native animals for food, shelter and nesting sites. In country areas of NSW rabbits, foxes and rats have gone wild, some of them reaching plague proportions.
2. They have destroyed vast areas of natural habitat with their burrowing, hard hooves, feeding habits and wallowing, leaving many native animals without food or shelter. Many smaller animals in Australia have become extinct as a result.
3. Some introduced animals such as cats, foxes, rats and dogs attack, kill, maim and / or spread disease among both young and adult wildlife.

Case study – foxes

The European red fox is Australia's number one predator. Native wildlife threatened by the fox include the rockwallaby, numbat, brush-tailed bettong and bilby. Foxes are also predators of livestock, with reports of them taking up to 30% of lambs in some areas.

Foxes are estimated to cost Australia millions of dollars per year in combined environmental and agricultural impacts. Foxes also pose risks as potential hosts of exotic diseases such as rabies and carry diseases such as mange, which threaten human and animal health.

Foxes are opportunistic feeders and can survive on insects and native fruits such as the geebung. The average lifespan for a fox is ten years in which time it may kill thousands of animals.

Foxes are typical of many introduced animals which have a natural advantage over many native animals because of their superior defence, hunting abilities and higher reproduction rates.



Native wildlife threatened by the fox include the numbat which is presumed extinct in NSW



Case study – cane toad



Up until 1935, Australia did not have any toad species of its own. We had tree frogs and burrowing ground frogs - but none of the world's hundreds of toad species evolved here.

Cane toads were introduced into Australia to eat French's cane beetle and the greyback cane beetle which ate and destroyed the roots of sugar cane and stopped the growth of the plants. The Australian Bureau of Sugar Experimental Stations imported about 100 toads from Hawaii to the Meringa Experimental Station near Cairns. The toads bred quickly and more than 3,000 were released in the sugar cane plantations of north Queensland in July 1935.

Cane toads have proven themselves to be one of Australia's worst environmental disasters. Since 1935, they have spread across most of Queensland, they are halfway across the Northern Territory and they have reached the world-renowned wetlands of Kakadu. Their numbers are profuse in the drier southeast Queensland area and they are spreading down the NSW coast.

Cane toads are considered a pest in Australia because they:

- poison many native animals whose diet includes frogs, tadpoles and frogs' eggs
- prey on native fauna
- compete for food with other animals such as small skinks
- may carry diseases that can be passed on to native frogs and fishes

Student activities

1. What are feral animals?
2. How do feral animals effect the Australian environment?
3. Which native Australian animals are at threat because of introduced species?
4. Why are these animals so vulnerable?
5. How can native animals be protected from introduced species?
6. In what environments do you find introduced animals?
7. How do native and introduced animals compete in these environments?
8. Why are foxes an increasing threat to wildlife?

Ask students to choose a feral animal and have them research the advantages it has over a native animal it might prey upon. Students could work in pairs or in a small group to produce a poster or a report.

Students can use the following sub-headings as a guide for their research:

- food
- life cycle
- habitat
- predators
- defences
- vulnerability

Ask students to present their findings to the class.

The Earth is surrounded by a layer of gases called the atmosphere. The Sun is much hotter than the Earth and it gives off rays (radiation) that travel through the atmosphere and reach the Earth. The rays of the Sun warm the Earth and heat from the Earth then travels back into the atmosphere. There are some gases in the atmosphere which trap the heat escaping from the Earth and stop it from travelling back into space. These gases are called greenhouse gases.

The glass in a greenhouse has a similar effect on the Sun's rays and so it is called the Greenhouse Effect. The greenhouse effect is a natural process and it warms the Earth.

Without the Greenhouse Effect the world would be a cold place to live.

It has taken millions of years for life to adapt to the conditions on Earth. A climate that changes too quickly will alter these conditions and affect the homes of plants and animals throughout the world. For example, the polar bears and seals will have to find new feeding grounds as the ice melts.

Many animals and plants may not be able to cope with these changes and could die. This could lead to local, or world-wide extinction of certain species.

The Greenhouse Gases

The atmosphere which surrounds the Earth contains the greenhouse gases, sometimes in very small amounts. The list below shows the greenhouse gases which are produced naturally on Earth.

- carbon dioxide
- water vapour
- methane
- ozone

These gases are very important in keeping the Earth's temperature at the correct level so that we can live. To do this, the amount of greenhouse gases in the atmosphere must be kept at the right balance.

Natural sources

Carbon dioxide is produced naturally when people and animals breathe. Plants and trees take in and use carbon dioxide to live. Volcanoes also produce carbon dioxide.

Methane comes from cattle as they digest their food. The gas also comes from paddy fields where rice is grown. Ozone occurs naturally in the atmosphere.

Man-made sources

Some of the activities of man also produce greenhouse gases. Carbon dioxide comes from the burning of fuel such as coal, oil and gas. These are called fossil fuels. We burn fossil fuels to make energy, which gives us heat and light in buildings. The cutting down and burning of trees also releases carbon dioxide. Methane can be released from buried waste. For example, the rubbish that is collected from our homes by the dustmen is buried in large rubbish dumps. This buried waste will produce methane. Coal mining and stored gas also produces methane.

Another group of greenhouse gases includes the chlorofluorocarbons. The name for these gases is rather long so they are called CFCs for short. CFCs have been used in aerosols, such as hairspray cans, fridges and in making foam plastics. They become dangerous when released into the atmosphere, depleting the ozone layer. For this reason, their use has been banned around the world.



The Effects

A warmer Earth might lead to a change in the weather, including hotter summers. This may seem like a good idea, but a rise of a few degrees in temperature could change the conditions on Earth which are at present just right for life.

At the moment it is difficult for scientists to say how great the changes on Earth will be and where the changes will happen.

The Weather

Scientists agree that in Australia our winter and summer temperatures will increase and the weather will be warmer. In winter it may also rain more but in summer it may become drier. In other parts of the world the effect will be different; some countries will become much hotter whilst others become cooler. There may be more storms, floods and drought, but we do not know which areas of the world will be affected.

Sea Levels

Higher temperatures will make the water of the seas and oceans expand. Some of the ice from ice caps and mountain glaciers will melt, and this melted ice will also cause the seas to rise.

Farming

The changes in the weather will affect the type of crops grown. Some crops, such as wheat and rice grow better when it is warmer, but other plants, such as maize and sugarcane do not. Changes in the amount of rainfall will also affect plant growth.

The effect of a change in the weather on plant growth may lead to food shortages in some countries of the world. Brazil, parts of Africa, southeast Asia and China will be affected most and many people could suffer from hunger.

Water

Throughout the world there is a great demand for water, and in many regions of Australia. Changes in the weather will bring more rainfall in some countries, but others will have less rainfall.

Global Warming Word Match

The fourteen words printed below can be matched up to make seven new phrases. Match a word from the left hand column with a word from the right hand column, (choose a word from the left-hand column first) and see if you can find a match

- | | |
|------------|------------|
| CARBON | LEVEL |
| GREENHOUSE | EFFICIENCY |
| GLOBAL | VAPOUR |
| OZONE | EFFECT |
| WATER | DIOXIDE |
| ENERGY | HOLE |
| SEA | WARMING |

Help conserve our unique native wildlife

Below is a list of activities you can do at home or at school to help conserve our unique native wildlife and also help prevent species becoming endangered and extinct.



- Understanding the community around you
- Habitat restoration
- Gathering data and monitoring
- Sustainable use of our resources

Understanding the community around you

1. Conduct a community awareness survey. With the information that is gathered, write an article for a local newspaper to inform people in the community about what is happening in their environment
2. Find out how you and your communities activities affect (in both positive and negative ways) the environment you live in
3. Start a school newspaper to tell others about endangered species. Investigate and research issues thoroughly, and always stick to the facts!
4. Conduct a public awareness campaign on the threats of non-native, introduced and exotic species to native wildlife in Australia. Create a poster from your results and display it where you can such as in libraries.
5. Adopt an endangered species native to your area, find out how you can conserve it, and inform people in your community about your adopted plant or animal with speeches, brochures, posters, signs, videos etc...
6. When you and your parents are out driving where wildlife may be present SLOW DOWN and keep a sharp lookout
7. Hold a seminar or debate. Topics could include endangered species, water quality, recycling, composting and environmental alternatives to harmful practices

Habitat restoration

1. Learn more about the causes and effects of habitat loss for native animals. Find out if planned development threatens sensitive habitats in your area.
2. Take part in National Tree Day at your school. Find out which native trees would benefit native animals in your school
3. Plant a garden/ create a habitat on your school grounds to attract wildlife and birds
4. Adopt an area of your school's playground, and then develop a plan to improve it
5. Identify causes of erosion to areas such as forests and riverbanks. Develop and distribute a forest or river protection guide
6. Participate in river cleanups under proper and knowledgeable supervision. Replant riverbanks with native plants to provide wildlife habitat

Data gathering and monitoring

1. Get your school to take part in WIRES' annual school fundraiser I Spy Wildlife - to find out more please go to www.wires.org.au/ispy
2. Adopt a stream, river or wetland. Monitor the water quality, plant and animal distribution, and share your findings with local newspapers and relevant local environment groups

How kids can help?



Sustainable use of our resources

1. Conduct a school energy audit. Brainstorm ways the school could lower energy use and present your ideas to your head teacher and local council
2. Challenge other schools in your area to an energy conservation contest
3. Establish a school organic garden, and teach others the techniques you've learned
4. Conduct a waste audit at school and identify materials that can be recycled or re-used
5. Establish a school energy committee
6. Read energy conservation during morning announcements

Energy Checklist

- Turn off computer monitors. Monitors use a lot of energy. So if it's not convenient or practical to turn off your whole computer, you can still save lots of energy by switching off the monitor.
- Use the sun's energy: let the sun filter into rooms to help keep the heat down and reduce the need for lights. On hot days, drawing the blinds will exclude the sun and keep you cooler.
- Don't let windows waste energy: when your school is being heated or air conditioned, the windows need to be shut. If they aren't, huge amounts of energy is being wasted. Report any drafty windows to your teacher.
- Report extreme temperatures: if the temperature in your classroom is controlled centrally, it might be way too hot in the winter or too cold in the summer without the caretaker knowing it. If you find you have to open the windows in winter, or wear a jumper in summer, be sure to tell your teacher / principal.
- Turn off lights: it really makes a difference. If you're not using a light turn it off. If you leave a room, turn the lights off behind you. You may have heard that you should leave lights on if you're gone only a short while, because turning them back on uses a lot more energy. That's not true with today's lights. Always turn them off when they're not being used.
- User fewer electric lights. If your classroom has several wall switches, experiment with leaving some of them off. You might still have enough light.

Recycling and the laughing kookaburra

Take action: Recycle materials to reduce the need to manufacture new materials.

Who benefits: Laughing kookaburra

Why: Reusing paper reduces the need to log forests, helping to keep the kookaburras home secure.

At school: Make a journal from paper used on one side. Turn the sides to face each other, fold and staple along the side to bind, and you have a usable notebook! If you want, you can use a dab of glue to stick the pages together.

At home: Make notepads from one-sided paper. Cut paper to the desired size. Staple at edge to keep notes together. You can even stick a magnet to the last page to put it on the refrigerator.

At work: Double sided options on many copiers and printers save paper. Does your school have these and does everyone use the options. Help increase recycling by making a one sided paper recycling bin separate from the recycling bin.





Design a native wildlife habitat at school

Habitat, the area where an animal lives, is the key to wildlife survival. And wildlife conservation can begin in your own school.

Every school yard or garden can become a habitat for birds and other wildlife. A native wildlife habitat located on the school grounds provides an important environment for sustaining wildlife, and also provides experience and learning opportunities for all ages.

Properly landscaped schools can provide natural food and water sources, as well as wildlife cover and nesting areas, frequently attracting a variety of wildlife species to their grounds and the local area. Such species range from wallabies and kangaroos, to lizards, possums, and magpies depending on the school's location and the quality of the habitat they provide.

A school habitat is an outdoor laboratory alive with learning opportunities. Your specially created habitat will attract wildlife if it provides the elements critical to survival ie food, water, cover and places to raise young. School grounds can:

- provide areas for teaching and learning about nature
- restore habitat for wildlife
- provide an alternative classroom setting
- create beautiful places
- enhance biodiversity

Below are some guidelines to help you get started designing your wildlife habitat.

Before you begin

Involve students in the project from the very beginning. Student's mutual involvement at this stage is crucial to project success. Even very young children can participate in planning and designing the habitat.

Step 1 – getting started

1. Talk with your school principal
2. Assemble a habitat project team
Include people with different backgrounds and talents. Your team should include some of the following:
 - students
 - teachers of various grade levels and subject areas
 - school principal or other work colleagues
 - school caretaker
 - interested parents
 - local professionals or community groups such as WIRES
3. Identify your goals
What do you want to be able to do in and with the habitat?
Consider the needs of all who will use the habitat; students, teachers, families and community members. Do not forget the needs of the wildlife!

4. Learn what animals are native to your region. Focus on native species to maximize the conservation and education benefits of the project.
5. Identify what kinds of animals you want to attract. Use the exercise on page 12 to work out what animals are common to your area. Be realistic. Schoolyard habitats in urban areas will attract:
 - insects
 - birds
 - small reptiles such as lizards
 - aquatic life (if a pond or other water feature is included)
 - small mammals
6. Research the needs of the species you hope to attract
 - what plant material will provide food, shelter and nesting places?
 - what physical elements will provide cover and nesting places?
 - are species present year round or seasonally?
 - do their needs change according to season?

Step 2 – Plan your habitat

1. Be inclusive – get input from students, teachers, staff, parents and local council
2. Create an 'idea wall' at the school where everyone can record answers to the question, "What do we want in our schoolyard habitat?" The written plan includes goals and objectives such as:
 - requirements - what do we want to see and do in the habitat?
 - activities and activity settings - how will we use the habitat?
 - design features
 - curriculum ideas
3. Create several designs
Ask your group to come up with a school habitat individually and then come together as a group and look at the best features of each personal design.

Step 3 - Prepare a final master plan

Each class could come up with a design and the best features of each could be combined to develop a whole school plan

Step 4 – Create your habitat

GOOD LUCK



Activity 1 – English

A thief in the bush

It is against the law for the general public to keep or take animals from their natural habitats. Each year The National Parks and Wildlife Service issues licences to qualified wildlife rehabilitation organisations and individuals such as WIRES giving permission and responsibility to carers to rescue, rehabilitate and release sick and injured wildlife.

Freida the frilled necked lizard used to live out in the bush, until one day she found herself living in captivity in a young man's house.

Freida was on a rock asleep one day in the bush, when she was captured by young man who was attracted to the idea of having such a beautiful reptile as a pet. She suddenly awoke to find that someone had taken her from the rock where she was sleeping and put her into a tiny box.

Frieda was taken from her natural environment and placed in a glass case to be kept as a pet which would be on show to friends and visitors. This was a stressful situation for an animal whose previous existence was in the wild where she was almost always able to find shelter and a place to hide from predators.

The glass cage felt uncomfortable and didn't have the proper food or the rocks and plants Freida required for a healthy normal life. No matter how hard the young man tried to find the right foods for Frieda, he lacked the knowledge to provide her with either an appropriate environment or the correct diet. Frieda's health began to deteriorate, and from a healthy vigorous animal she descended into a listless state of ill health.

One day, a knock came at the house where Freida was being kept and National Parks and Wildlife Officers with Police had arrived to question Freida's captor. When they learned that he did not have the appropriate licence to keep reptiles they confiscated Freida, along with all the other reptiles he had and charged him with the illegal possession of fauna.

Freida was taken to a WIRES carer where she received care and attention to help rehabilitate her back to normal health before being returned to the bush where she came from.

Student activities

1. A local newspaper reported the incident.

Write an article about Freida for a newspaper. Think of a catchy headline to attract the readers attention. You can find pictures of frilled necked lizards on the internet or from books in the library.

Remember that when you write an article you have to write 'he', 'she' or 'it'.

2. Write a diary entry from Freida's point of view describing what happened to her.

Activity 2 - English

WRX the lorikeet chick, had a terrible start to life which began when he toppled from his nest in the end of a dead hollow tree branch. Luckily the fall to the ground didn't cause any major injuries, although it was a bruising landing. WRX's parents had no choice but to leave him to his fate and concentrate on feeding his siblings.

Two people walking past picked her up and rang the WIRES rescue number and she was eventually taken to a carer's house. She was shocked and her legs were painful and bruised from the fall but above all else she was hungry as she was used to her parents feeding her.

After water and food she was put in a small aviary with other Lorikeets and in a short time grew into a colourful bird. When she was able to fly well and find natural food she was released and flew with the other lorikeets around the local area until she found a mate and undertook raising her own family.

1. Get a dictionary from your teacher.
2. On paper, write down these words in alphabetical order

a. Chick	b. Rescue	c. Nest	d. Carer	e. Life	f. Friend	g. Bird	h. Chirp
----------	-----------	---------	----------	---------	-----------	---------	----------
3. Find out what each word means. Write down the meaning next to each word.
4. Read out some of your meanings to your table / class. Can they guess what word you are explaining?
5. The bird in the story is a Rainbow Lorikeet (a bird that comes into WIRES care quite often) – find out what the bird looks like and draw a picture of the colourful bird.

Activity 3 - English and art

McAdam was a male koala joey, who was rescued from his mother's pouch after she became a road accident victim in the Coffs Harbour area of Northern NSW. McAdam was rescued by a passing motorist who stopped and checked the pouch of his dead mother, gently took the joey from its pouch and called WIRES.

McAdam, who was still dependant on his mother's milk was placed in a pouch and fed a special formula by the WIRES member who looked after him. The formula was specially designed to be as close as possible to natural koala milk. At first he was kept inside in a quiet and secluded room isolated from the humans and domestic animals that the carer owned. The room was isolated from the rest of the house and the many noises made by television, radios and people laughing and talking, as the WIRES member understood that all these noises would stress McAdam. The aim of wildlife rehabilitators is to return animals to the wild where they belong and if they become used to all the sights sounds and smells of humans it is very difficult for them to adapt to a wild environment.

When McAdam could thermo-regulate, that is maintain his own body temperature without artificial heating, he was moved to a large outdoor cage. Although he still had access to his artificial pouch he was also able to roam about within the cage and learn to climb and find eucalyptus leaves that were placed there by his carer. Gradually he was weaned off the artificial milk formula and relied more and more on leaves provided from the area in which he was to be released. This ensured that he would be able to find his own food readily when released.

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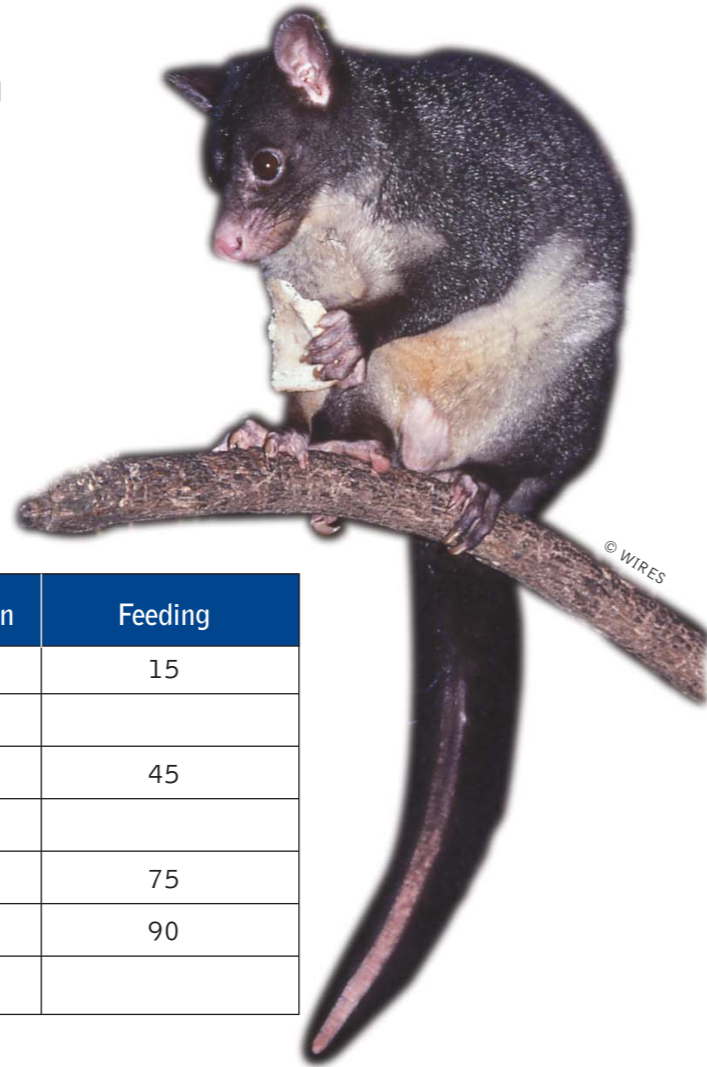


Activity 4 - Maths



WIRES has to feed many orphaned and injured possums every year. Mary has to feed and care for her fostered possum for 15 minutes every day. She has to give her possum medicine and medical attention for 30 minutes every day.

For each day calculate the amount of time Mary has spent so far that week feeding and caring for her possums. Use the answers to fill in the table below:



	Medical attention	Feeding
Sunday	30	15
Monday	60	
Tuesday		45
Wednesday	120	
Thursday		75
Friday		90
Saturday	310	

- How many minutes has Mary spent feeding her possum by the end of Monday?
- How many minutes has Mary spent feeding her possum by Thursday?
- How many minutes in total does Mary spend feeding her possum during the week?
- One Saturday Mary forgot one meal time. How many minutes that week has Mary spent feeding her possum?
- How many minutes will Mary spend on medical attention on her possum in six days?
- Medical time for Mary's possum is double the feeding time. Fill in the gaps.

Feeding	1	2		4	5	6		8	9	10
Medical	2		6				14		18	

Activity 5 - Maths



WIRES carers are trying to decide what they need to buy for their native animals in care. Here are some of the items they need:

ITEM	COST
1kg bag of food – bird seed	\$6.00
Water dish	\$2.00
Possum pouch	\$3.05
Food syringe - glass	\$9.95
Thermometer	\$11.00
Scales	\$14.00
Bird bath	\$5.00

This is how much money WIRES carers at North Sydney Branch have to spend:

David	\$12.00
Jenny	\$36.00
Sanjay	\$14.00
Michaely	\$8.00

- Choose any two items for each carer to buy. Work out how much money they will have left. Put your answers in the chart below:

Carer	Item 1	Item 2	Total Cost	Money Left
David				
Jenny				
Sanjay				
Michaely				

- Who has the most money left?
- Which extra items could that carer buy?
- What is the greatest number of items David could buy?



Activity 6 - Maths



How much does caring for a wallaby cost?

New WIRES carer Alice is trying to work out how much it will cost for her to care for a wallaby until it has can be released. She has the information from her local Branch:

ITEM	COST
Electrical heat pad	\$340.00
Thermometer	\$11.00
Feeding syringes - glass	\$9.95
Food per month	\$30.00
Vet fees	\$160.00 per year
Parasite protection	\$20.00 every four months

1. What is the total cost of equipment Alice will need to buy once to care for a wallaby?
2. How much will it cost for food per year?
3. If the wallaby is in care for one year how much will it cost in vet fees?
4. How much it will cost for parasite protection for one year?
5. If Alice cares for three wallabies how much would it cost for her vet fees and food for one year?
6. What would be the cost of keeping of a wallaby for one year?
7. How much money will Alice need each week to pay for food for one wallaby?



Activity 7 - Maths



Polly possum and her joey climb great distances every night to find food. They usually have two routes through the bush. The longer route takes 35 minutes and the shorter route when Polly is after a special plant takes 20 minutes.



1. Polly sets out early in the evening for a feed at 7pm. They take the shorter route. What time do they arrive home if it takes them 20 minutes to eat.
2. If Polly leaves for a mid morning snack at 2.35am and they take the long route. What time do they arrive home?
3. If Polly and her joey go out exploring twice a night, which food route could they choose? Fill in the gaps in the chart below:

Walk 1	Walk 2	Time taken
Short		40 minutes
Short	Long	
Long		70 minutes

4. Polly feels like being adventurous one week and takes the long route every evening. How long does she walk in that week?
5. Over four days they walked the same route every night. In total they were out for 80 minutes. Which route did they take?

Challenge: Find out how long it takes you to walk 250 metres



Activity 8 - English

Gus (the flying fox) was found clinging to his dead mother by two smart and caring children. His mother had been electrocuted on power lines and had fallen to earth. Gus was only approximately seven days old, dehydrated and in shock when collected by WIRES carer, Kay. She raised and fed him on a special milk formula only made in South Australia.

As Gus recovered and grew strong in Kay's care, he was weaned from this special formula and placed on a diet of soft fruit sprinkled with another purpose made product called High Protein Mix..

In time Gus graduated to other fruits but mainly native flowers which were part of his natural diet. Finally it was time for Kay to take Gus to a creche in the northern Sydney suburb of Gordon directly beneath a well known flying fox path. This creche is a 'kindergarten for bats' and provided a critical step in his rehabilitation. The creche had many other young flying foxes of approximately the same age.

He stayed there for two months before being moved to the big release cage where the door is left open at night. Gus spread his wings and made several trips out of the cage, returning to what he knew was a certain source of food. Finally, he decided that he was old enough to join his mates and return to a wild existence.

Comprehension

1. What animal is Gus?
2. What word in the passage means dried out?
3. What was considered a critical part of Gus' rehabilitation?
4. How long did Gus stay in the release creche?
5. What happened to his mother?
6. Find the meaning of the following words: juvenile, rehabilitation, creche

Australians are becoming aware of the problems facing our threatened species. We are aware that we should change the way we do things. We need to recycle, create less rubbish, use less water and not destroy the bush. With help from everyone, Australia's threatened species have a greater chance of survival.

Threatened species list

Below are some of our animals that are currently on the threatened species list for NSW:

Extinct	Vulnerable	Threatened	Endangered
1. greater bilby	1. grey-headed flying-fox	1. masked owl	1. wandering albatross
2. numbat	2. koala	2. southern hairy nosed wombat	2. red-tailed black cockatoo
	3. long-nosed potoroo		
	4. spotted-tail quoll	3. grey falcon	3. regent honeyeater

For a complete list go to <http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Threatened+Species>







aestivate	Process by which animals such as turtles and frogs become inactive in drought time	habitat	Place where a particular animal lives. In particular, it refers to physical and biological conditions that are required for a particular species. Some common habitats are aquatic (water), terrestrial (land) and arboreal (trees)
amphibian	Creature living on land and water, like a frog	herbivorous	Animal that eats only plants
aquatic	Water dwelling creature; or the habitat for such animals	hibernate	In cold weather a state of inaction or sleep
arboreal	Tree dwelling animal, such as a koala; or the habitat for such animals	incubate	Keep eggs at constant temperature to enable them to hatch
camp	Place where animals rest together	introduced	People bringing species from one place to another. In Australia this includes foxes, rabbits, and camels
carapace	Upper shell of a turtle	insectivore	Animal that eats insects and arthropods
carnivore	Animal that eats animals	invertebrate	Animal that lacks a backbone
climate	Weather (temperature, wind, rain, etc.) of a region over time	larvae	The immature young of any invertebrate animal
cold blooded	An animal whose body temperature stays close to the surrounding environmental temperature. Examples are reptiles and amphibians	macropod	Big footed herbivores that hop. Includes all kangaroos and wallabies
colony	Many animals of one species that live together	mammary glands	Milk producing glands found on mammals
common	Refers to a species that can be frequently found within its habitat	microbat	Tiny bat that eats insects
crèche	Nursery where young of the species are kept while adults forage	migrate	Move from one place to another, usually for food
diurnal	Active during the day	nocturnal	Active during the night
drey	Nest of a Ringtail Possum	omnivore	Animal that is both a plant and a meat eater
echolocation	Microbats, like Gould's Wattleed Bat, send out high frequency calls at short pulses. This frequency strikes an object which bounces off as an 'echo' and returns to the bat's forward facing ears. As the bat gets closer to an object this frequency increases. Used for navigation and finding prey	pollen	Reproductive substance produced by flowers
ectothermic	An animal whose body temperature stays close to the surrounding environmental temperature. Examples are reptiles and amphibians	predator	Animal that hunts, kills, and eats other animals
endangered	At risk of extinction, with particular reference to a species	rogue	A young eagle, especially when it forms a flock with other young eagles
endothermic	An animal that maintains a constant body temperature, regardless of the environment	roost	A resting or sleeping place for birds
extinct	No live member of a species left alive, examples are thylacines or the Lesser Bilby. Sometimes refers to the extinction of a species in a particular area, such as that there are no more Numbats in New South Wales although they do still exist in West Australia	sentinel	One or more animals watch for danger while others feed
feral	Refers to introduced animals that have gone wild. In the wild, feral animals include cats, goats, and camels	species	The basic unit of animal classification. The animals are genetically similar and capable of interbreeding to produce offspring that are fertile
forage	Behaviour engaged in by an animal in searching for and finding food	talon	The claw of a bird, in particular of a bird of prey
freeze	how an animal can quickly become still if alarmed or curious	terrestrial	A land habitat on the surface of the earth; used to describe creatures living in such a habitat
frugivore	Animal that eats nectar, blossoms, fruit	territory	Area controlled by one to a group of one species. They defend it against outsiders from their own species
gestation	The process of carrying young in womb from conception to delivery	vertebrate	Animals that have a brain in a skull with a vertebral column or backbone that supports the body
		vulnerable	A threatened species that is in less danger of extinction than an endangered species
		warm blooded	An animal that maintains a constant body temperature, regardless of the environment

Magazines

Australian Geographic
<http://editorial.australiangeographic.com.au/>

Australian Natural History
www.anhs.com.au/

Wildlife Australia
www.wildlife.org.au/magazine.html

Organisations

Geography Teachers Association of NSW
<http://hsc.csu.edu.au/pta/gtansw>

Gould League of NSW
www.curriculumsupport.nsw.edu.au/

National Parks and Wildlife Service, NSW
www.nationalparks.nsw.gov.au/

Wildlife Preservation Society of Australia
www.wildlife.org.au

WIRES
www.wires.org.au

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- www.wires.org.au
- www.zoo.nsw.gov.au/content





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w www.wires.org.au

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