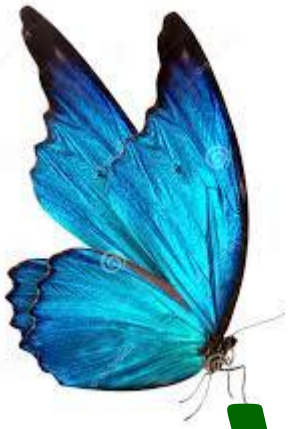
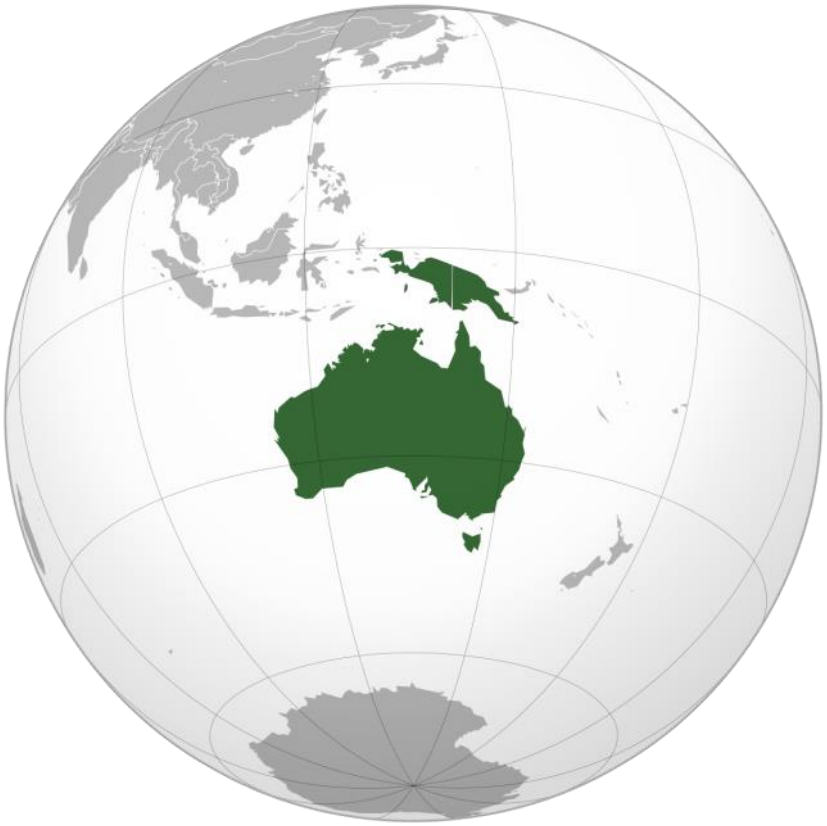


Ecology Warriors



An educational publication of the
The Garden Clubs of Australia Inc. adapted
from material by the National Garden Clubs Inc., USA

Ecology Warriors

are those who help to save our environment.

Ecology Warrior Agreement

Making a world of difference: Understanding that choices matter can open new doors for indepth creative thinking, learning and educational opportunities centred on the natural resources of Earth.

Education is the key in making responsible decisions for today and tomorrow. Educated citizens are responsible stewards who are able to make wise choices for conserving and protecting our planet and its natural resources and who encourage others to follow suit.

The Garden Clubs of Australia Inc. and the National Garden Clubs, Inc. USA invite you to become an **Ecology Warrior** as you investigate and study the contents of this booklet.

You can make a world of difference by the choices you make for the conservation and preservation of natural resources in our world.

My name is: .....

I want to become an Ecology Warrior.
Therefore I pledge to protect and conserve the natural resources of planet Earth and promise to promote education so that we all become caretakers of our natural resources, including our air, water, forests, land and wildlife.

I understand that I have a choice when I make decisions and take actions and that my choices matter to others around me and, at times, to our world.

I want to make a difference to our planet.

My agreement signature: .....

Air

Air envelops the Earth and makes life possible.

- Humans breathe in about 16 kilograms of air every day!
- Air pressure around our Earth is called **atmosphere.** It takes many air molecules to build up that air pressure.
- The Earth's atmosphere shields us from harmful cosmic radiation.
- The air layer closest to the Earth is the **troposphere** where invisible chemical cycling of essential elements takes place as well as the uneven heating of Earth's surfaces that creates our weather.
- The air of the troposphere is made up of gases such as nitrogen, oxygen, argon and sulfur oxides.
- All of these bits of matter play an important role in our weather by providing surfaces for condensation and eventually precipitation - allowing water that evaporates from the ocean and land to rejoin us on the Earth's surface.
- Additionally, rain and other forms of precipitation wash some of these particles down to the Earth's surface.
- Green plants, in addition to respiring, photosynthesise when exposed to sunlight.
- Photosynthesis involves taking carbon dioxide out of the air and converting it to a carbon-based sugar, releasing oxygen in the process.

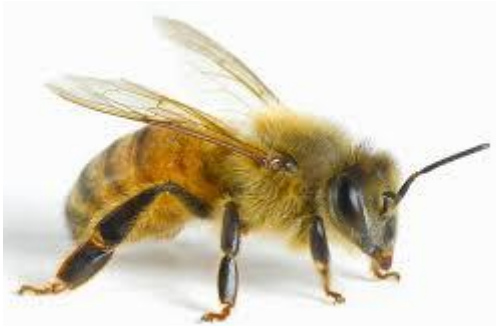
Air is more than just the atmosphere – most all living beings need it.

- **Air pollution** is the introduction into the atmosphere of chemicals, particulates or biological materials that cause discomfort, disease or death to humans and other animals, damage other living organisms, such as food crops, or damage the natural or built environment.
- **Indoor air pollution** and **urban air quality** are known to be two of the **world's worst toxic pollution problems.**

Air pollution questions to consider:

- What varieties of plants or trees would cost less to grow, would grow faster (thereby crating more resources) and would reduce toxic emissions into the environment?
- Are there inexpensive, robust and plentiful plant species that would offer an economical alternative for people who currently depend on burning wood for heating and cooking?
- Is it possible to improve or enhance indoor air quality with certain plants?
- What plants increase oxygen output?
- Can air quality within a building or house be improved with specific or a greater number of plants?
- Could exterior gardens in cities, such as roadside trees, rooftop gardens and wall gardens, improve air quality?

When planning gardens – whether inside or outside – consider options and possible solutions for **Making a World of Difference** because **choices matter.**



Bees

By the numbers:

- 25 000 bee species in the world.
- 1700 native bee species in Australia, most of which are solitary bees. 11 species are social bees, are stingless and live in the tropics.
- In 1992 one species of bumblebee (*Bombus terrestris*) was introduced into Tasmania from Europe and have spread across all areas of the State. They are not found on the mainland.
- 4000 native bee species in North America.

- Bees worldwide are declining in numbers due to several issues collectively called ' Colony Collapse Disorder' (CCD). Issues that contribute to CCD include insecticides, viruses, pests (such as parasitic wasps and mites) and the widespread farming practice of monoculture.

- Monoculture is the agricultural practice of producing and growing a single crop or plant species over a wide area for a number of consecutive years. Monocultures are more susceptible to the spread of pests and diseases. Also, monocultures do not provide bees with a variety of food, therefore, bees can easily starve. In the case of commercial honeybee pollination, hives have to be moved to new crops regularly.

- How can you help?
  - Plant a variety of flowers in your garden. Bees prefer purple, violet, yellow and white flowers.
  - Limit the use of hybrid and double blossom flowers because more pollen can be found on single blossom flowers.
  - Plant native plants.
  - Cluster several specimens of the same plant in a grouping for easier bee pollination.
  - Plant vegetables, herbs, fruits and nut trees.
  - Avoid the use of insecticides.

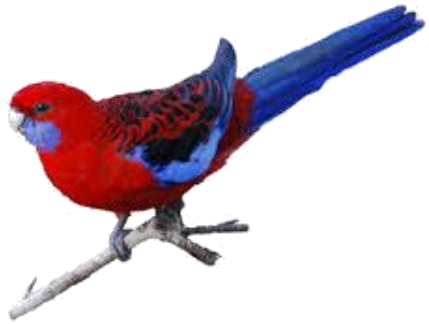
- Many bees, many homes:
  - 30% nest in hives: honeybees, hornets, wasps. These are social insects.
  - 40% nest in cavities: mason bees, leafcutter bees, mud daubers. These are solitary insects.
  - 30% nest in hives and holes in the ground: bumblebees, alkaline bees. These can be social and solitary.

- European honeybees (*Apis mellifera*) are not native to Australia, yet they are the greatest pollinator of commercial food crops. Overseas, native bee species such as leafcutter bees, mason bees and alkali bees have been developed as efficient pollinators of crops such as lucerne and apples. In Australia, the blue banded bees and the stingless bees show potential as specialist pollinators.

- Honeybees travel up to three kilometres in search of pollen; mason bees forage within 300 feet of their nest.

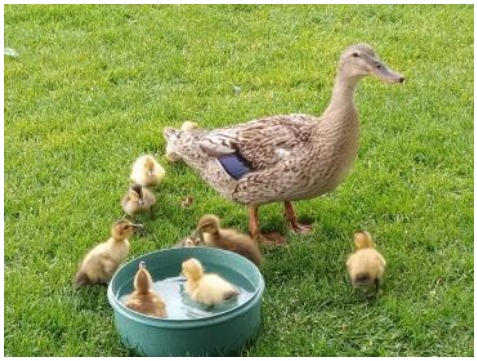
- Bees pollinate one-third of our food supply.

Birds



Birds are an indication of the health of our environment.
World-wide there are close to **10 000 bird species** - with over 1200 considered threatened. Of these, 828 are Australian native birds with 50 that are considered threatened.

- Australia is home to a tremendous diversity of native birds.
- Due to human habitation and agricultural pursuits throughout the world, natural habitat areas are dwindling in size and many have been eliminated. As a result, migratory birds are losing their resting stopovers and some are forced to travel huge distances to find food.
- One solution is to create a wildlife habitat in people's backyards. Habitat gardening provides immediate benefits, but long-term effects are even better.
- When we make certain that our environment remains a healthy place for wildlife, we are keeping it healthy for humans as well.
- The best way to supply birds with the food they need is by planting a wide variety of native shrubs and trees. Supplemental bird feeders can also add nutrition to their diets.
- Always feed natural fresh seeds, feed small amounts daily and clean feeders once a week with 10% bleach solution.
- Be sure to include a clean water. A birdbath, small pond or shallow container with about 2–3cm of water can fulfil the need for bathing and drinking. But water-loving species, like ducks, need deeper water for swimming and bathing.



- Birds also need dust to have a dust bath. Dust in this instance refers to dry, powdery soil. This helps birds absorb excess oils in their feathers and also discourage mites and other parasites.
- Cover is as important as food and water to the survival of birds. Protective cover is needed for nesting sites, sleeping and feeding areas.

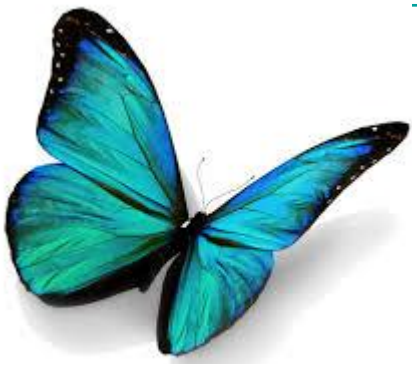
- Different species have different cover requirements, so consider as many types of cover as possible: bushes, hollow logs, trees, shrubs, tangles of vines, meadow grasses and even water.

Many species of bird are more often heard than seen. Most birds have some kind of sound-making ability and they vocalise for a variety of reasons, including:

- advertising their territories to other birds
- attracting a mate
- deterring predators
- making alarm calls.

You can listen to any one of 40 bird songs frequently found in Australia at: http://www.birdsinbackyards.net/birds/featured/Top-40-Bird-Songs

Do you have a bird in your backyard that you're unsure what it is? Try using this bird-finder website: http://birdsinbackyards.net/finder Become a birdwatcher and learn all you can about different birds, help native birds survive and commit to protecting them for the health of the world.



Butterflies

Many butterflies are losing their natural habitat due to urbanisation, excess use of chemicals and genetically altered plants.

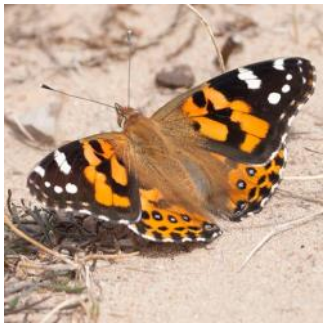
Australia has more than 400 species of butterfly, the majority of which are **continental** species, and more than a dozen **endemic** species from remote islands administered by various Australian territorial governments. The largest butterflies in the world are **endemic** to the Australasian ecozone.

If you live in NSW, this website will help you identify a butterfly in your backyard: http://lepidoptera.butterflyhouse.com.au/sydbuts.html

Let's work together to prevent butterflies from becoming threatened, endangered or extinct. Remember: Extinction means gone forever; never to be seen again.

Painted Lady Butterflies

- Painted lady butterflies are the most widely distributed butterfly in the world. They live everywhere except the continent of Antarctica.
- Their eggs are light green and usually laid on hollyhocks, thistle, or mallow leaves.
- After about five days, the eggs hatch into caterpillars (larvae) and begin eating for about 10 days.
- Caterpillars make chrysalises & after about 10 days emerge as butterflies.
- Painted lady butterflies live for about two weeks.



Tiger Swallowtails

- There are about 550 different species worldwide.
- Tiger swallowtails use some trees plus plants as their host plants.
- Host plants are dill, parsley, fennel and carrots.
- Adult swallowtail butterflies live three to four weeks.

Australian Painted Lady (pictured right)

- The **Australian painted lady** (*Vanessa kershawi*) butterfly is mostly confined to Australia, although westerly winds have dispersed it to islands east of Australia, including New Zealand.
- During spring, adult butterflies migrate south in large numbers from northern states of Queensland and New South Wales. To find mates, male Australian painted ladies exhibit territorial behaviour, which involves a male perching on vegetation in a sunny spot on a hilltop, waiting for females to fly by.
- Despite urbanisation and invasive plants altering its habitat, populations of Australian painted ladies have not been significantly impacted by these changes.

How can you help butterflies?

- Plant their host plants. The space can be as small as a pot or a large garden. For example:

Citrus trees – especially grapefruit, lemon and lime trees	Orchard Butterfly; Dingy Swallowtail; Chequered Swallow-tail; Ambrax; Hummingbird Moth; Emperor Moth
Acacias (wattles), e.g., *A. flavescens, A. holoserica & A. melanoxylum*	Some Jewel Butterflies; Tailed Emperor; Damel's Blue; Ghost Moths, Eye Spot Moths; Large Leaf Moths as well as others
Bottlebrushes, *Callistemon species*	Nectar for butterflies; Ghost Moth; Emperor Gum Moth

Energy

Energy cannot be destroyed or created — only harnessed, converted or transformed.

- There are two basic groups of energy: renewable energy (biomass, geothermal, solar, water and wind power) and non-renewable (fossil fuels, coal, oil, natural gas and nuclear). Three-quarters of the world's energy is generated by burning fossil fuels.
- Renewable energy supplies will never run out. While the supplies of coal, oil and natural gas are limited, sunshine, wind, biomass and water power are naturally replenished and are considered almost limitless resources.
- Only 10% of energy in a light bulb is used to create light. Ninety percent of a light bulb's energy creates heat. Compact fluorescent light bulbs (CFLs), on the other hand, use about 80% less electricity than conventional bulbs and last up to 12 times longer.
- Enough sunlight reaches the Earth's surface each minute to satisfy the world's energy demands — for an entire year. Our energy problems would be solved if we find better ways to harvest that energy.
- Ten countries produce ⅔ of the world's oil and hold the same percentage of known reserves. Saudi Arabia tops both lists.
- Ten countries produce ⅔ of the world's natural gas and hold about the same percentage of known reserves.
- Which countries burn the most fossil fuels? The top seven emitting countries by total fossil-fuel CO_2 emissions are:
  - (1) People's Republic of China (Mainland)
  - (2) United States of America
  - (3) India
  - (4) Russian Federation
  - (5) Japan
  - (6) Germany
  - (7) Islamic Republic of Iran
- The burning of fossil fuels produces around 21.3 billion tonnes (21.3 gigatonnes) of carbon dioxide (CO_2) per year. It is estimated that natural processes can only absorb about half of that amount, so there is a net increase of 10.65 billion tonnes of atmospheric carbon dioxide per year.
- In the average home, 75% of the electricity used to power home electronics is consumed while the products are turned off. The average desktop computer idles at 80 watts, while the average laptop idles at 20 watts. A Sony PlayStation 3 uses about 200 watts and nearly as much when idle. Idle power consumes more electricity than all the solar panels in America combined.
- More than 1/5 of the world's primary energy is used for transport, followed by industry, construction and agriculture.
- Nuclear power produces around 13% of the world's electricity.
- Brazil has one of the largest renewable energy programs in the world, involving production of ethanol fuel from sugarcane. Ethanol now provides 18% of that country's automotive fuel.

Forests

Energy cannot be destroyed or created — only harnessed, converted or transformed.

- Forests play a vital role in a country's economic health, with the forest industry accounting for thousands of direct and indirect jobs (such as the paper industry). **Forests cover a third of all land on Earth, providing vital organic infrastructure for some of the planet's densest, most diverse collections of life.**
- A forest is a natural system that can supply different products and services. The working of this system is influenced by the natural environment: climate, topography, soil, etc., and also by human activity. The actions of humans in forests constitute **forest management**. In developed societies like Australia, this management tends to be elaborate and planned in order to achieve the objectives that are considered desirable.
- Forest managers are well trained to understand how to maximise the timber we can get from harvesting operations and use science to ensure forest features are protected and the trees will grow back ensuring the forest remains healthy and productive for years to come.
- Forests support countless species as well as 1.6 billion human livelihoods, yet humans are also responsible for widespread deforestation, clearing millions of forested acres every year.
- At the same time, forests also store carbon, preserve soils and nurture a diversity of species. These non-timber benefits are known as 'ecosystem services'.
- The benefits provided by forest ecosystems include:
  - goods (such as timber, food, fuel and bioproducts)
  - ecological functions (such as carbon storage, nutrient cycling, water and air purification, and maintenance of wildlife habitat)
  - social and cultural benefits (such as recreation, traditional resource uses and spirituality).
- **Forests help us breathe:** Forests pump out oxygen we need to live and absorb the carbon dioxide we exhale (or emit). A single mature, leafy tree is estimated to produce a day's supply of oxygen for anywhere from two to 10 people.
- **Forests are more than just trees:** Nearly half of all known species live in forests, including 80 percent of biodiversity on land. That variety is especially rich in tropical rain forests, from rare parrots to endangered apes, but forests teem with life around the planet: Bugs and worms work nutrients into soil, bees and birds spread pollen and seeds, and predatory species like dingoes, goannas and eagles keep fast-breeding, hungry herbivores in check.
- **Forests clean up dirty air:** We praise houseplants for purifying the air, but don't forget forests. They can clean up air pollution on a much larger scale, and not just the aforementioned CO_2. Trees catch and soak in a wide range of airborne pollutants, including carbon monoxide, sulfur dioxide and nitrogen dioxide.
- **Forests keep dirt in its place:** A forest's root network stabilises huge amounts of soil, bracing the entire ecosystem's foundation against erosion by wind or water. Not only does deforestation disrupt all that, but the ensuing soil erosion can trigger new, life-threatening problems like landslides and dust storms.
- **Forests block wind:** Groups of trees can also serve as a windbreak, providing a buffer for wind-sensitive crops. And beyond protecting those plants, less wind also makes it easier for bees to pollinate them.

Invasive Plants

Over 100 invasive plant species are recognised as a threat to native plants and animals.

What is an invasive plant?

Invasive plants are non-native (or exotic) species that have adapted to areas where they have never grown naturally. Not all exotic plants are invasive. Invasive plants grow rapidly and spread aggressively. Because they have few natural disease or insect controls in the new location, they thrive and become established over large areas. This unchecked growth allows them to overwhelm native species and form dense one-species stands.

How did they get there?

Some invasive species were introduced to the local environment by accident. Perhaps they arrived as seeds in grain supplies, in shipments from overseas, came attached to the fur or hide of an animal or people's clothing or stowed away in a ship's ballast water. However, the great majority of invasive plants were brought here on purpose. Sixty percent of invasive species were introduced because they were beautiful, unusual, exceptionally hardy, drought-tolerant or fast-growing. In other words, they are just what an adventurous gardener is looking for. The plants later escaped from arboretums, public gardens and home gardens. Many of the same plant attributes that appealed to horticulturists make them invasive.

Why are invasive plants a problem?

An invasive species may overwhelm an area because the insects, diseases and foraging animals that naturally keep its growth in check in its native range are not present in its new habitat. Some invasive plants are worse than others. Many non-native plants are welcome and manageable additions to our gardens. However, some non-native species cause serious damage. Invasive species compete directly with native species for moisture, sunlight, nutrients and space. In the worst cases, invasive plants ruthlessly choke out other plant life. This puts extreme pressure on native plants and animals and threatened species may succumb to this pressure. Ultimately, invasive plants alter habitats and reduce biodiversity.

What can you do?

- Prevent any new, potentially invasive introductions, because once they gain a foothold, they are costly and time-consuming to control. Check your lawn, your nature strip and your garden beds for unwanted plants.
- Avoid disturbing natural areas. Know your plants; do not grow potentially invasive landscape plants.
- Detect and control infestations. Invasive species outbreaks are most easily controlled when stands are small and the plants are young.
- Control the infestations by removing the plants entirely or by managing them to prevent their spread outside your property. This may include removing seedheads, pruning to prevent flowering and seed dispersal or cutting, mowing or herbicide use to prevent vegetative spread.
- Research invasive plants on your local council's website so that you are clearly aware of what is and what is not regarded as an invasive weed in your area.
- Make others aware of invasive plants. Ask nurseries and garden shops to not sell these species. Volunteer to work in exotic plant removal projects.

Land Conservation

Do you care about the land? How much do you value it? Is there a special place, public or private, that you want to help protect? Do you want it to be green, healthy and sustainable? This page is a gateway to ideas, information and resources that can help you protect and preserve the land you love – today and for future generations.

- Whether you want a lawn, flowers or a garden brimming with fresh food, try to do it without pesticides – for your own health as well as the health of your family, neighbours and wildlife. Begin by prioritising what is needed first and where to start your planning.

- Protect and encourage biodiversity in the soil, garden, fields and forests. Use native plant and native tree species – they're likely to be healthier, longer-lasting, and require less water, pesticides and other inputs.

- Protect and preserve the soil – it is the foundation of healthy land and water. Use ecological and organic gardening, landscaping and lawn care techniques, plant windbreaks and do whatever you can to prevent erosion.

- Planting trees makes the property warmer in winter and cooler in summer. They also add beauty, improve the quality of the air and water, prevent erosion, block out noise, reduce heating and cooling costs and attract songbirds. An old proverb states, "The best time to plant a tree was twenty years ago. The second best time is now."

- If you have bushland or forest, consider eco-forestry techniques to strengthen and preserve it. Think of bushfire prevention too. How can it best be managed?

- If the land has been deforested, overused or abused, consider ecological restoration techniques to restore its plants, animals, soil and natural beauty.

Ten Ways to Conserve Soil

1.	Plant shrubs and trees	2.	Maintain soil pH
3.	Build terraces to prevent erosion	4.	Water the soil
5.	No-till farming practices	6.	Salinity management
7.	Contour ploughing	8.	Promote helpful soil organisms
9.	Crop rotation, including your vegie	10.	Grow crops that need less water

Good farming and gardening practices can help restore soil health and preserve this natural resource. If you want to preserve nature, wilderness, agricultural lands or urban public space, consider joining a group or organisation that reflects your concerns. Every member makes a difference, whether as an active participant or as an interested party.

Recycling

Recognise the difference between **reuse** and **recycle**. You can reuse something simply by using it again, such as a shopping bag. You can cause others to reuse by reallocating products or materials to a new owner or purpose without reprocessing or remanufacture, but potentially with some repair (e.g. resale of second-hand cars or clothing re-sold via opportunity shops or the repair of wooden transport pallets for resale or the sale of goods from a landfill or transfer station tip shop).

Metals

- An aluminium can that is thrown away will still be a can 500 years from now!
- In 2016-17 in Australia, about 5.5 Mt, or 226 kg per capita, of metal waste was generated. The recycling rate of 90% was higher than any other material category.
- Metal recycling is well-established in every state and territory but has suffered from unstable global prices, putting financial pressure on the scrap metals industry, which depends on export markets.
- The USA uses over 80 000 000 000 aluminium cans every year.
- A used aluminium can is recycled and back on the grocery shelf as a new can, in as little as 60 days.

Paper

- About 5.6 Mt of paper and cardboard waste was generated in Australia in 2016-17, or 229 kg per capita. About 60% was recycled and 40% was sent to landfill.
- A recent decline in this statistic is partly caused by the increasing digitisation of information. For example, industry analysis suggests that newspaper circulation has declined by about 10% per year over the last decade.
- The average American uses seven trees a year in paper, wood and other products made from trees. This amounts to about 2 billion trees per year!
- Americans throw away enough paper and wood each year to heat 50 000 000 homes for 20 years.

Plastic

- About 2.5 Mt or 103 kg per capita of plastic waste was generated in Australia in 2016-17. Sadly, just 12% was recycled with 87% sent to landfill and 1% sent to an energy from waste facility.
- Plastic bags and other plastic garbage thrown into the ocean kill sea creatures every year!
- Recycling plastic can save twice as much energy as burning it in an incinerator.
- Strong global markets remain for plastic waste that is well sorted by type and free of contamination. Australia's plastics recycling rates could be improved with greater on-shore investment in plastics sorting and cleaning equipment to enable either on-shore or off-shore recycling.

Glass

- Every month, we throw out enough glass bottles and jars to fill a giant skyscraper – all of which are recyclable! A glass bottle would take 4000 years or more to decompose -- longer if it's in the landfill.
- About 1.1 Mt or 44 kg per capita of glass waste was generated in Australia in 2016-17, with 57% being recycled.
- The energy saved from recycling one glass bottle can run a 100-watt light bulb for four hours or a compact fluorescent bulb for 20 hours. It also causes 20% less air pollution and 50% less water pollution than when a new bottle is made from raw materials.
- Mining and transporting raw materials for glass produces about 849kg of waste for every ton of glass that is made. If recycled glass is substituted for half of the raw materials, the waste is cut by more than 80%.

Miscellaneous

- An estimated 80 000 000 Hershey's Kisses chocolates are wrapped each day, using enough aluminium foil to cover over 50 acres of space – that's almost 40 football fields. All that foil is recyclable, but not many people realise it.

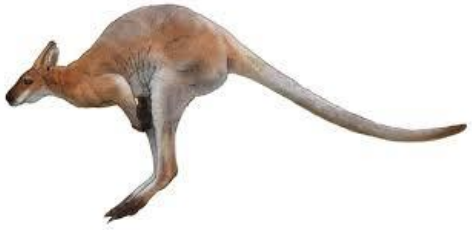
Water

Fresh Water is Essential for Life

1. Water covers 71% of the Earth's surface.
2. Oceans and seas (saltwater) comprise 97.5% of the water on the Earth's surface.
3. A scant 2.5% of the water on the Earth's surface is fresh water.
4. Ice caps account for 2% of the fresh water on the Earth's surface.
5. Only 1% of Earth's water is available for our use and only a miniscule percentage of that 1% is actually accessible.
6. Of that small percentage of accessible water, 98% is used for agriculture and industry.

- **Water is a valuable resource.** Apart from drinking water and household use, Australians rely on water as an input to almost every industry in the nation's economy, particularly agriculture.
- About 95% of water delivered to our houses goes down the drain (toilets, showers, sink).
- In the past, Australians have generally thought of water as a free resource. However, drought and water restrictions in many areas of Australia since 2002, together with increasing evidence of the adverse effects of increased water use on river health, is changing the way we regard water. It is now widely recognised that taking too much water out of Australia's rivers and groundwater systems can have detrimental economic and environmental consequences. These can include declines in native animal and plant populations (and possible extinctions) and reduced agricultural production (e.g. caused by reduced availability of water or salinity).
- **Availability:** The volume of water available is determined mainly by rainfall, which affects run-off and groundwater supplies. Rainfall is variable and in recent times many parts of Australia have experienced prolonged periods of drought. Population growth also contributes to pressure on water supplies. Water storage in dams and aquifers (underground storage) is important to secure water supplies for human use. However, storage is also an environmental issue, for example, dams disrupt and deplete environmental flows. This can adversely affect flora and fauna downstream.
- **Consumption:** Water consumed for drinking and in our homes and gardens is only a small part of the total water use in Australia. Most of the water consumed in Australia is by the agriculture industry, which accounts for nearly two-thirds (65%) of total water consumed.
- **River health:** Water quality is directly related to river and wetland health. Human activities can exacerbate river health problems such as salinity, turbidity and blue-green algae outbreaks. Reduced water quality and flows can affect the agricultural and tourism industries and damage the plants and animals that rely on the water for food and habitat.
- **Management and conservation:** The recent drought has firmly focused attention on the need to conserve water. One-third of farmers report water-related management activities.
  For households, mandatory water restrictions apply in many parts of Australia to limit outdoor water use, and many Australians have been voluntarily conserving water by adopting water-saving practices and installing water-saving devices.
- Water is ultimately a renewable resource. Water is constantly exchanged between the oceans, the land and the atmosphere (the hydrologic cycle). For example, water evaporates from oceans and rivers into the atmosphere and then falls as rain, snow, etc. The amount of rain (as well as the rate at which it evaporates, is transpired by plants or runs off land to fill rivers and aquifers) determines how much water is available.

Wildlife



- Attracting bees, butterflies and other wildlife is a fun way to enjoy nature in your own yard or garden. Imagine your garden covered with great numbers of colourful butterflies, beautiful plants and a water source.

- A water source is an important element to attract wildlife. All animals need water, not only for survival, but some need it for bathing, keeping cool and, in some cases, for breeding as well.

- Trees, shrubs and other plants provide a home for wildlife and for pollinators.

- The environment and economic impact that will follow extreme loss of honeybees, native bees, birds, bats and butterflies, all of which are experiencing population declines, demands attention and is a wake-up call for all of us.

- Honeybee pollination accounts for $15 billion worth of crops, giving us the vegetables and fruits that we need for survival.

- It is imperative that we provide comprehensive education on pollinator loss to increase awareness about the dangers of declining pollinator population. Forming partnerships in the public and private sector to protect pollinators and improve their habitats should be the goal of every citizen of all ages.

- Today, 3079 animals and 2655 plants are listed as endangered worldwide, compared with 1998 levels of 1102 animals and 1197 plants.

- **40 % of the entire species dwelling on this planet are facing a high risk of extinction.**

- The most important cause of the decline of endangered species is caused by the loss of habitat. Other factors driving animals to near extinction are pollution, climatic changes and disease.

- The keystone endangered species in Australia (according to the *Australian Geographic*) are:
  - Southern cassowary
  - Grey-headed flying fox
  - Gilbert's potoroo
  - Grey nurse shark
  - Tasmanian devil
  - Red-tailed black cockatoo
  - Tasmanian wedge-tailed eagle
  - Northern quoll
  - Australian sea lion

You can create a wildlife-friendly garden that provides birds, butterflies and other backyard wildlife with the four components of habitat: food, water, cover and places to raise their young. These things will make your garden attractive to all sorts of beautiful and interesting wildlife for you to observe, appreciate and enjoy.