

# 5.1 Local Environmental CITIZENSHIP

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## What is it?

Active and informed citizenship involves participation in community activities and public affairs. Caring for the environment by taking an active role in the local community is described as *environmental citizenship*.

Demonstrating environmental citizenship could start by being sustainable in your own home, e.g. composting kitchen scraps instead of putting them in the rubbish bin.

## Local active and informed environmental citizenship

Joining a community group can be a very rewarding experience. You can always achieve more and make a bigger difference when you are working together with like-minded people.

### Landcare

Landcare groups across Maitland tackle local concerns such as poor wetland health, riverbank erosion, biodiversity decline, and loss of bushland. Landcare volunteers are involved in on-ground projects that include activities such as planting native trees, shrubs and grasses, weed removal, litter collection, mulching, and raising community awareness.

Local Landcare groups are active at Greenhills Gardens, Tenambit Wetland, Morpeth Common, Largs Community Reserve, Bolwarra Wetland, Melaleuca Ponds and along the Hunter River (from Aberglasslyn to Lorn). Refer to map of community environmental sites across Maitland.

#### How to get involved:

- ♦ Join a local Landcare Group and participate in their meetings, working bees and training workshops.
- ♦ **Ph:** Maitland Landcare Coordinator (02) 4934 9838.
- ♦ **Website:** [www.maitland.infohunt.nsw.gov.au](http://www.maitland.infohunt.nsw.gov.au)

### Hunter Bird Observers

The Hunter Bird Observers Club (HBOC) is a group for both beginner and more experienced bird watchers. HBOC aims to encourage the study and conservation of Australian birds and promote bird observing as a leisure time activity.

#### How to get involved:

- ♦ **Ph:** (02) 4958 9838.
- ♦ **Website:** [www.users.hunterlink.net.au/hboc/home.htm](http://www.users.hunterlink.net.au/hboc/home.htm)

### Native Animals

The Native Animal Trust Fund (NATF) is a group of local volunteers involved in the rescue and rehabilitation of sick, injured and orphaned native animals. The group also relocates native animals that are causing distress to property owners.

NATF run a 24-hour emergency hotline for people who find injured or sick wildlife. The hotline number is 0500 502 294.

Volunteers can be involved in animal caring, answering the phone hotline, education activities and administration. NATF runs workshops to train volunteers in animal management; the group's trainers are highly experienced carers and wildlife experts.

#### How to get involved:

- ♦ **Meetings:** the third Tuesday of each month at the Shortland RSL Club at 7.30 pm.
- ♦ **Email:** [natf@bigpond.com](mailto:natf@bigpond.com)
- ♦ **Website:** [www.users.bigpond.com/natf](http://www.users.bigpond.com/natf)

### Australian Plants

The Australian Plants Society promotes the conservation and use of native plants in gardens and bushland areas. The Lower Hunter group is affiliated with the Australia-wide Plants Society. Members of the group participate in meetings with guest speakers, plant identification sessions and field trips to gardens or natural areas.

#### How to get involved:

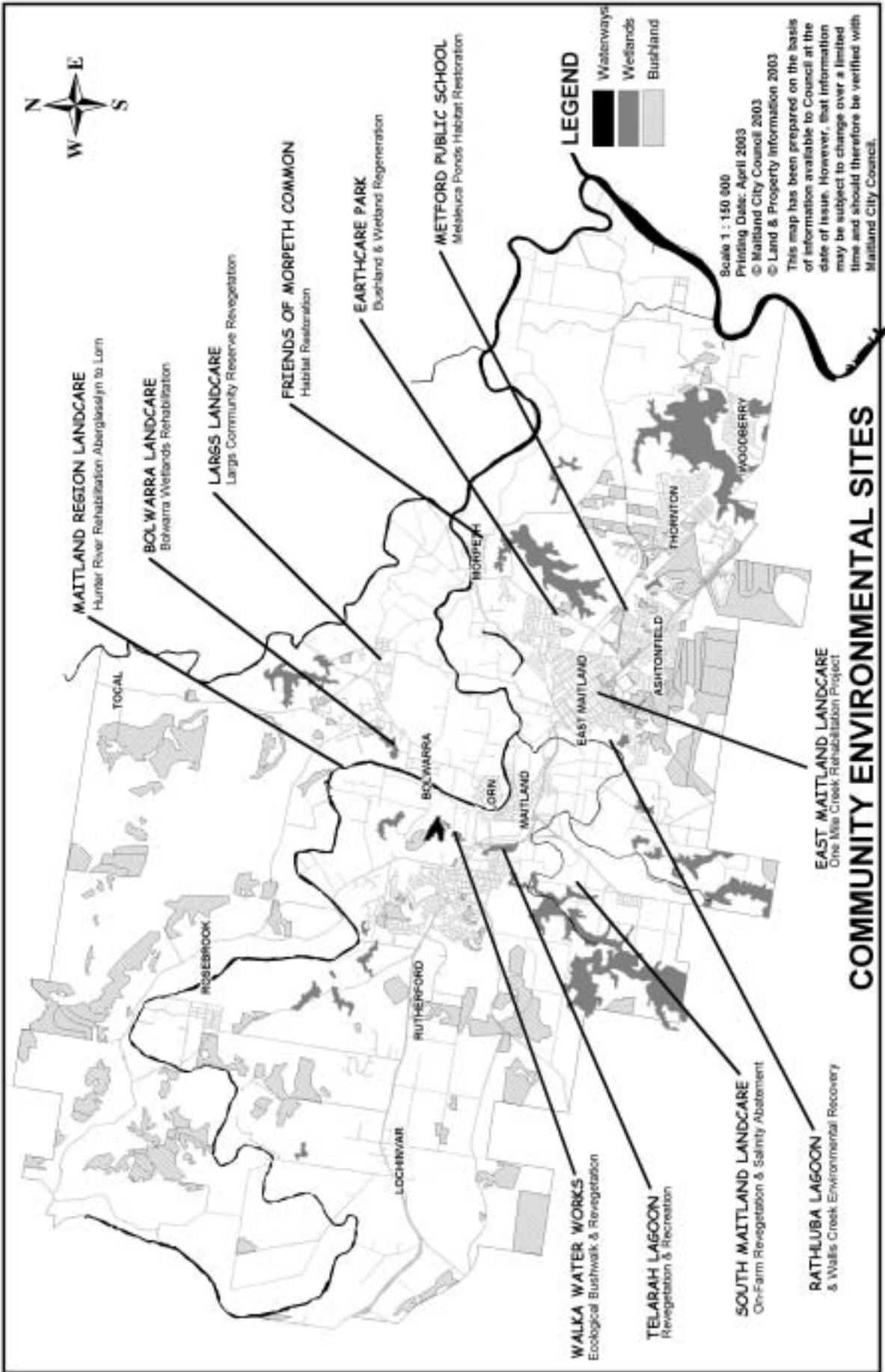
- ♦ **Meeting:** the third Wednesday of every month at the Polish Hall, Maitland.
- ♦ **Ph:** Sue Newman (02) 4930 5564.

### Waterwatch

Hunter Waterwatch is a community water quality monitoring program. It involves volunteers from community groups or schools doing water tests in local creeks, rivers and wetlands. All volunteers are trained to use the Waterwatch Kit and conduct regular water tests, as well as spring and autumn waterbug surveys.

#### How to get involved:

- ♦ **Ph:** Waterwatch Coordinator (02) 4930 1030.
- ♦ **Website:** [www.waterwatch.nsw.gov.au](http://www.waterwatch.nsw.gov.au)



## 5.1 Local Environmental CITIZENSHIP

### Community Events Calendar

#### March

##### *Clean Up Australia Day*

Since 1989 this event has been held on the first Sunday of March to remove waste from the Australian environment. Across Maitland participants remove about 3 tonnes of waste annually.

- ♦ **Ph:** 1800 024 890
- ♦ **Website:** [www.cleanup.com.au](http://www.cleanup.com.au)

##### *Autumn Water Bug Survey*

A Hunter Waterwatch event to measure waterway health in the region using macroinvertebrates.

- ♦ **Ph:** Waterwatch Coordinator (02) 4930 1030

#### July

##### *National Tree Day*

Planting local native trees, shrubs, grasses and groundcovers is the focus of this event held on the last Sunday of July.

National Tree Day promotes the importance of native vegetation to wildlife. Landcare groups, Council and other community groups host tree planting sites throughout Maitland.

- ♦ **Ph:** Maitland Landcare Coordinator (02) 4934 9838

#### September

##### *Biodiversity Month*

A month to celebrate the variety of life on earth and raise awareness of the importance of the web of life, which provides us with fresh air and clean water.

- ♦ **Ph:** Maitland Landcare Coordinator (02) 4934 9838

##### *Spring Water Bug Survey*

- ♦ **Ph:** Waterwatch Coordinator (02) 4930 1030

#### October

##### *P-day*

Nutrient awareness day to measure phosphorous in waterways.

- ♦ **Ph:** Waterwatch Coordinator (02) 4930 1030

### Individual action

At an individual level you can contribute to decisions being made in your community. If there is an environmental, social or cultural issue that concerns you, there are a number of ways to have your message heard:

#### *Speak with community leaders*

Focus on the people in our community who make decisions, such as Councillors and politicians.

#### *Write a letter*

State your concerns in a letter to:

- ♦ Local Councillors - find out the contact details of your Councillors from Maitland City Council on (02) 4934 9700.
- ♦ Local Members of Parliament - see 'Parliament' in the White Pages.

#### *Petitions*

Start a petition about the issue that concerns you and present this to the Mayor of Maitland and the local State Member of Parliament.

#### *Use the media*

Raise the issue you are concerned about in the local media, write a letter to the editor or talk to a reporter.



*Waterwatch workshops are organised by Maitland Region Landcare to help people gain water monitoring skills.*

*Gathering data and other information on an issue, like poor water quality, is one of the first steps towards active citizenship.*



*Revegetating with native species is one way to help improve local water quality and biodiversity.*

## 5.1 Local Environmental CITIZENSHIP

### Profile of local environmental citizens

#### **David Power (East Maitland)**

Age: 21 years      Profession: Electrical design

**Motivation:** The author Bradley Greive once described the earth's ecosystem as a building made of pillars. You can remove one or two with no great effect. You remove several more and from a distance it looks perfectly fine. As you look closer however you can see cracks in the pillars from the extra load they are bearing and if you remove even more you weaken it until it collapses.

#### **How do you contribute to our local environment?**

I belong to several community groups in the area:

- Landcare for bush regeneration/preservation;
- Earthcare Park for community education and bush regeneration;
- Native Animal Trust Fund (NATF) for injured native animal rescue, rehabilitation and release.

The most important thing that I do is to think first about how my actions are going to affect the environment and other people. If everyone makes a small effort, together we can make a big difference to the world.

#### **What benefits do you gain from being involved?**

I get a sense of pride when I go back to a site that was once an open paddock but now has trees and shrubs supporting a wide range of wildlife that otherwise would have nowhere to go. I also feel great satisfaction when I release an animal back into the wild after having cared and nursed it back to full health.

By working in my local environment I have had some great experiences that the general public may miss. I've canoed down the Hunter River and watched baby turtles being released back into the environment. I have met so many interesting people of all ages and backgrounds that are aiming for the same thing and are doing their bit towards it - it's a great way to make friends.

#### **What is your message to other young people?**

Your actions, no matter how small, will have an effect on the people around you. Your actions will affect the environment right around the world as you influence the people around you, around them, and the circle grows.



#### **Catherine Baird (Woodville)**

Age: 19 years      Profession: Environmental Science student, University of Newcastle

**Motivation:** Initially I joined the Maitland Environmental Youth Council (MEYC) because I enjoyed bushwalking, camping and just being outdoors. I saw MEYC as a group where fun could be had while improving our local environment.

Being involved with local groups puts me in contact with a variety of people who are passionate and well-educated about our environment. These people inspire and motivate me to attend working bees, workshops, forums and meetings.

#### **How do you contribute to our local environment?**

I regularly attend working bees at Earthcare Park to help with tree planting, weed removal and litter collection.

I am also involved with the MEYC, Landcare and The Wilderness Society. I study Environmental Science at university so that I can better understand environmental degradation and how we can remedy these problems.

#### **What benefits do you gain from being involved?**

I am in contact with environmental professionals from a variety of backgrounds (biological, management, conservation). This allows me to be continually educated (in a non-formal way) about the natural environment while doing on-ground work.

I have also made many new and wonderful friends who share my concern for the environment. Knowing that I am one of many contributing to a more sustainable society is also great.

#### **What is your message to other young people?**

The natural environment isn't something that you can separate yourself from, it provides for all requirements of human survival.

Being concerned and involved in your local environment doesn't mean that you're a 'greenie' - it means that you have respect and are considerate towards other living organisms. Don't be scared to get involved; if you set an example and lead the way others will soon follow.

Being involved with local environmental groups is a lot of fun as you get out and enjoy the beauty of Nature, make new friends and learn ways to live more sustainably.

# 5.2 Maitland Environmental YOUTH COUNCIL

## Who are Maitland Environmental Youth Council (MEYC)?

We are a group of young people between the ages of 12 and 25. As a group we put forward our views on local environmental issues and turn talk into action!

Our aims are to:

- ♦ improve our local environment,
- ♦ increase awareness of environmental issues,
- ♦ provide youth perspectives to adults and decision-makers,
- ♦ encourage young people to take action and care for the environment, and
- ♦ have FUN whilst making a difference.

The MEYC was started in July 1997 by a group of young people from the first Maitland Enviro Youth Forum.



*Removing Water Hyacinth at Morpeth Common.*

## Demonstrating active citizenship

The achievements of the MEYC show that our enthusiasm and commitment to the environment are making a difference.

Our group members participate in local Landcare projects and we have helped to establish thousands of native trees, shrubs and grasses across Maitland. We have carried out bushland regeneration, weed removal, habitat creation and helped to establish a bushfood education area. We have even donned waders and removed Water Hyacinth from Morpeth Common Wetland.

In 2002 we organised the first Maitland Biodiversity Challenge. This event involved over 100 high school students planting native trees for biodiversity at Tenambit Wetland. 800 trees were planted on the day!

## Sharing our story and educating others

Since 1998 we have organised the annual Maitland Enviro Youth Forum, which attracts over 150 high school students. The event focuses on developing young people's skills and knowledge and provides them with a way to get involved in the MEYC or other local environmental activities.



*Native seed collection workshop at the Enviro Youth Forum.*

We have also made guest presentations at international and statewide conferences, Enviro Youth Forums in other regions, and Landcare events.

During 2003-04 we will travel to other regional centres in NSW to present Youth Environmental Workshops and inspire other young communities to set up their own EYCs.

## Educating ourselves

The highlight of our year is the environmental youth training camp at Wangat Lodge in the Chichester Forest. The camp provides an opportunity for us to get to know each other and learn how to work as a team.

At the camp we do many different activities including:

- ♦ bushwalking and swimming;
- ♦ music, drama and environmental role plays;
- ♦ cooking foods from different cultures;
- ♦ frog and nocturnal animal spotlighting walks;
- ♦ bush regeneration; and
- ♦ above all, making many great friends.



## 5.2 Maitland Environmental YOUTH COUNCIL

### Have your say!

We strongly believe in young people expressing their views, thoughts and feelings to decision-makers. After all, we are the ones who will inherit the outcomes of these decisions.

Choices made about our environment are going to have consequences for life on earth today, tomorrow and far into the future. Often environmental decisions have unexpected consequences.

At the Maitland Enviro Youth Forum, students complete a survey on their local environmental concerns. We ask what they think should be done to find solutions to environmental issues. The results of the survey are presented in a report to Maitland City Council.

We are actively providing feedback to Maitland City Council and commenting on important plans for our city, such as the Maitland Greening Plan. As a group we felt so strongly about commenting on the Maitland Greening Plan that we produced a video about the protection of our native bushland for our local Councillors to watch.

29<sup>th</sup> May 2002

General Manager  
Maitland City Council  
PO Box 220  
Maitland NSW 2320



Dear Mr Evans,

**RE: Submission on the proposed environmental levy**

I am an active member of the Maitland Environmental Youth Council who lives in Ashtonfield.

I have read Council's flyer on *Maitland's Future Environment*. I think that the environmental levy is one of the best ideas Maitland Council has ever had to help take care of our local environment. As a young person I am really concerned that environmental issues are getting worse and worse and that unless we take some kind of action now our quality of life is going to be compromised in the future. Our environment is what supports us, we can't keep taking from it without giving anything back!

Whilst I am too young to be a ratepayer at this stage, I have spoken with my parents, and they are supportive of the environmental levy.

The environmental levy is an investment not just in our local environment, it is an investment in our future. We want to grow up in a Maitland that is truly clean and green, not polluted and totally developed.

I am happy to speak further with you about my support of the environmental levy or my concerns regarding the current state of our environment.

### Why should you care?

The environment is what supports us all - it provides us with food, shelter, clothes, air, water - and all of the other things we need for survival (not just for humans but for all living things).

Sadly, our environment is becoming more and more polluted and devastated. We all have a responsibility to secure a healthy future.

Getting involved in the Maitland Environmental Youth Council is a great way to make a big positive difference for our environment. It's also a chance to meet new people, gain skills, do something worthwhile and have heaps of fun.

So, what does it mean to become an MEYC member?

- ◆ It shows that you support our group and its aims.
- ◆ It gives you the chance to find out about and come along to any of our activities and events.
- ◆ You'll receive the Maitland Landcare newsletter to stay informed about all of the things happening across our local environment.
- ◆ And most importantly, you'll be helping to look after our local environment and making a real difference!

### How to get involved

We meet after school on the first Wednesday of every month. The venue for our meetings is usually the Maitland Town Hall, but other times we're at a working bee, on a field trip or at another member's place.

You can join the MEYC, it only costs \$2 and new people are joining all the time. Send your name, postal address and phone number to the address below.

- ◆ **Ph:** Maitland Landcare Co-ordinator (02)4934 9838
- ◆ **Website:** [www.geocities.com/maitland\\_eyc](http://www.geocities.com/maitland_eyc)
- ◆ **Post:** Maitland Environmental Youth Council, PO Box 392, East Maitland NSW 2323.



*The feeling you get from being involved.*

# 5.3 Landcare: Making a DIFFERENCE

## What is Landcare?

Landcare is possibly the most well-recognised environmental movement across Australia. A snapshot of NSW shows there are over 34,600 individuals involved in Landcare. These people are volunteers drawn from different backgrounds, professions and of all ages.

The benefits of Landcare are three-fold:

**Environmental** - improving and conserving the health of our soil, water, native plants and wildlife.

**Social** - helping people to work together on local problems generates community spirit.

**Economic** - improving the sustainable management of our natural resources and productivity on farms.

## Is there a Landcare group near you?

Most Landcare groups in Maitland work on public land and all projects have been started by the local community.

### **Morpeth**

The Friends of Morpeth Common are improving habitat for waterbirds and other wildlife. This has involved: planting windbreaks; establishing natives around the pond edge; caring for historic fig trees; and creating an outdoor education area and sensory garden.

### **Largs**

At Largs Community Reserve (on Dunmore Road) improvement works are almost complete along an urban stream. Planting native trees and shrubs, constructing a footbridge and undertaking water quality tests have improved habitat and passive recreation opportunities.

### **Hunter River**

Rehabilitation of the Hunter River is taking place at Oakhampton, Maitland Vale, Bolwarra and Aberglasslyn. This involves revegetation and weed control.

### **East Maitland**

Bush regeneration and wetland rehabilitation is the focus of the Earthcare Park project (on Metford Road). Activities involve: establishing a bushfood garden; bushland regeneration; planting on the wetland fringe; and developing the site for passive recreation purposes.

### **East Maitland**

The One Mile Creek urban stream management and rejuvenation project involves native plantings, litter collection, weed control and erosion control.

### **Metford**

Metford Public School cares for Melaleuca Ponds (on Schanck Drive) by removing litter, planting natives and testing water quality.

### **Bolwarra**

The Bolwarra Wetland rehabilitation project aims to conserve and enhance wildlife habitat, including remnant rainforest, by planting natives and controlling weeds.

### **Maitland Region**

Environmental education projects are organised by Landcare. These include the Hunter River Canoe Trip, field days and community training workshops. Maitland Landcare also has input into local and regional decision-making, including the Maitland Greening Plan.



Landcare runs native seed collection workshops and uses plants grown from locally collected seeds in their revegetation projects.



East Maitland Landcare members removing weeds and rubbish from One Mile Creek. Prevention of such issues has focused on education through information pamphlets and leading by example.

## 5.3 Landcare: Making a DIFFERENCE

### East Maitland Landcare Group

#### *One Mile Creek, East Maitland*

One Mile Creek is an urban stream fed by stormwater. If you were a leaf that dropped in the gutter along Chisholm Road you would be taken in a pipe to the headwaters of One Mile Creek in Greenhills Gardens. Floating through the public reserve managed by Maitland Council, you would see a mix of bushland and areas of open space.

Then suddenly you would be in darkness, rushing through a pipe under the New England Highway. You continue in an open channel through residential and light industrial areas. After you've travelled about 2.5 kilometres down One Mile Creek you would be met by the waters of Two Mile Creek near the Main Northern Railway Line. The two creeks merge to then flow through Maitland Golf Course and enter Tenambit Wetland.

One Mile Creek was not always a defined channel, as it is now, but a series of ephemeral ponds that filled during wet times and dried out at different rates. The creekline was dug out in the 1970s to create a defined channel with edges. At the time this was the accepted practice for management of urban streams.

### Community concern initiates action

One Mile Creek has been dramatically altered by urbanisation of its catchment. In 1994, the local community raised concern about the following changes to One Mile Creek:

- ◆ increased infestations of weeds along the waterway;
- ◆ sediment coming from urban developments;
- ◆ grass mowing in degraded areas causing erosion;
- ◆ increased urban run-off and streambank erosion;
- ◆ loss of remnant vegetation;
- ◆ rubbish dumping and litter; and
- ◆ declining water quality.

East Maitland Landcare Group was formed in early 1996 to address these concerns. The group prompted Maitland City Council to prepare a Plan of Management for Greenhills Gardens. It also initiated the development of an Urban Stream Management Plan for One Mile Creek, prepared by the NSW Dept. Land & Water Conservation (now known as NSW Dept. Sustainable Natural Resources).

### Working together helps One Mile Creek

East Maitland Landcare group involves about 15 people who volunteer their time to improve One Mile Creek. In addition to group labour, investment in the local creek has been gathered from Maitland City Council, the Commonwealth Government's Natural Heritage Trust, NSW Dept. Sustainable Natural Resources' Rivercare program, Hunter Catchment Management Trust, and Maitland High School's Waterwatch program.

### Transformation of One Mile Creek

The on-ground achievements of East Maitland Landcare group include:

- ◆ restricting grass mowing in bushland areas to allow for natural regeneration of understorey species;
- ◆ planting over 3,500 local native trees, shrubs, groundcovers and grasses;
- ◆ decreasing erosion by planting native grasses and constructing mounds to direct run-off;
- ◆ constructing rock works to slow the velocity of water at the drain under Brisbane Street;
- ◆ regular removal of weeds, rubbish and litter from the creek and its surrounds; and
- ◆ placing over 20 bird and possum nest boxes throughout Greenhills Gardens.

East Maitland Landcare have also promoted the importance of caring for catchments and encouraged a strong local appreciation for One Mile Creek. The group has distributed pamphlets about the creek to the local community and hosted school excursions to raise awareness of Landcare activities. Community events such as National Tree Day and Clean Up Australia Day, have also been held at Greenhills Gardens.

### Tackling a local issue: Weeds

Both noxious and environmental weeds are present within the One Mile Creek catchment. These are a result of dumping garden waste and weed seed spread by stormwater. Controlling weeds in the catchment encourages the regeneration of native understorey species.

Noxious weeds found in the One Mile Creek catchment include Mother of Millions, Noogoora Burr and Willow trees.

Mother of Millions is a vigorous plant that reproduces via vegetative means - if a small piece of plant material breaks away from the mother plant it forms a new plant. The control of Mother of Millions has been particularly successful along One Mile Creek. Landcare members manually remove the plants and place them immediately in bags that are disposed of in the rubbish bin.



(Source: Auld, B.A. & Medd, R.W. 1992, *Weeds: An illustrated botanical guide to the weeds of Australia*, Melbourne: Inkata Press; p.157.)

### How can you get involved?

Contact the Maitland Landcare Coordinator on 4934 9838 to find out about the next working bee.

# 5.4 Regeneration at EARTHCARE PARK

## Where is Earthcare Park?

Earthcare Park is located on Metford Road, East Maitland and is part of a Crown Reserve called East Maitland Common. It is zoned for public recreation and is under the care and control of Maitland City Council.

The site is approximately 35 hectares of gently sloping, low-lying land that includes sections of Tenambit Wetland and remnant Spotted Gum and Ironbark forest.

## Site history

### Vegetation

Originally the native vegetation at Earthcare Park would have included:

- ♦ **Lower Hunter Spotted Gum Ironbark Forest**, found on hilltops, which included an open forest of eucalypts with an understorey of prickly shrubs.
- ♦ **Alluvial Tall Moist Forest**, found on the south facing slopes, with tall eucalypts amongst a dense small tree canopy of rainforest and paperbark species.
- ♦ **Freshwater Wetland Complex**, found on the low-lying floodplain. It included a dense understorey of rushes, sedges and aquatic plants, with paperbarks and swamp oaks found on the wetland margins.

### Aboriginal occupation

Tenambit Wetland would have been an important place for local Aboriginal people because of its abundant food sources. Foods such as waterfowl, turtles, shellfish and various plant foods would have been gathered. Aboriginal sites in the area have been recorded and include open campsites, a fish trap, scarred trees, bora/ceremonial sites, an art site, axe grinding grooves and a midden.

### European use

From the early 1800s European settlers cleared most of the Tenambit Wetland area. The site also has a long history of stock grazing as 'Commons' were traditionally shared areas used for this purpose. Cattle have been removed from the Earthcare Park site since August 1996.

In the 1920s the site was the rifle range for the West Maitland Volunteers. The mounds used for shooting practice are still visible on the lower slopes of the site.

Other parts of East Maitland Common have been developed for public recreation purposes including sporting fields, a BMX Track, golf practice range, horse trotting track, and a model aeroplane strip.

## Ecosystems and wildlife

### Bushland

The site's remnant bushland is limited to the clay-based hill top, which has lost most of its topsoil. This ecosystem includes the following species:

#### Tall Open Forest

- ♦ Spotted Gum (*Corymbia maculata*)
- ♦ Grey Ironbark (*Eucalyptus paniculata*)
- ♦ Forest Red Gum (*Eucalyptus tereticornis*)

#### Understorey

- ♦ Sickle Wattle (*Acacia falcata*)

#### Ground Cover

- ♦ Kidney Weed (*Dichondra repens*)
- ♦ White Root (*Pratia purpurascens*)

### Wetland

The wetland zone covers the low-lying part of the site and includes native aquatic species:

- ♦ Sedges (*Juncus* species and *Eleocharis* species)
- ♦ Water Ribbons (*Triglochin procerum*)
- ♦ Clubrushes (*Schoenoplectus* species)
- ♦ Jointed Twigrush (*Baumea articulata*)



### Fauna

The site offers a range of habitats such as tree hollows, fallen logs and a permanent water source that are mostly suited to birds, reptiles and amphibians. Using these habitats can be a problem for some animals (especially arboreal and ground-based mammals) as they must first travel across a large area of open space to get to the site. This makes them more vulnerable to predators.

Many birds feed and nest at Earthcare Park. These include the Pacific Black Duck, Australian Pelican, Egrets, Ibises, Royal Spoonbill, Nankeen Kestrel, Purple Swamphen, Little Corella, Sulphur-crested Cockatoo, Black Cockatoo, Eastern Rosella, and Superb Fairy Wren.

Reptiles that inhabit the site include the Eastern Bearded Dragon, Blue Tongue Lizard and Red-bellied Black Snake.

## 5.4 Regeneration at EARTHCARE PARK

### Impacts on ecosystems

#### Land clearing

Extensive clearing of native vegetation in the early 1800s has significantly reduced biodiversity, affecting the variety of flora and fauna found at the site. The clearing also isolated the remnant forest, making it more dangerous for fauna to move through the open areas to the site.



#### Cattle grazing

The long history of cattle grazing at Earthcare Park has caused soil erosion and compaction. This has led to a decline in the health of older trees. Cattle have also destroyed understorey vegetation and made it difficult for bushland to naturally regenerate.

#### Weeds

Introduced weed species have become a problem because they compete with native plants for sunlight, water and essential nutrients. Some of the common weeds found on the site are:

- ♦ Kikuyu (*Pennisetum clandestinum*)
- ♦ Couch (*Cynodon dactylon*)
- ♦ Paspalum (*Paspalum dilatatum*)
- ♦ Blackberry Nightshade (*Solanum nigrum*)
- ♦ Fireweed (*Senecio madagascariensis*)

#### Domestic and feral animals

Native flora and fauna at Earthcare Park are threatened by domestic and feral animals through grazing and predation. These pest species include dogs, cats, rabbits and foxes (with cattle having already been removed).

#### Water quality

Water quality in Tenambit Wetland is affected by surrounding land uses including agriculture, residential living, industry and recreation. Run-off from these areas adds nutrients and other pollutants to the wetland.

Land clearing and rising water tables have created a dryland salinity problem in the wetland area, with occasional salt scalds forming on the soil surface.

### The steps to demonstrating active and informed citizenship

**1. A site was chosen** (August 1996) with the aim to transform a degraded area and promote practical and educational environmental activities.

The Metford Road site was preferred because it had been affected by human activities for many years, was located on public land, and offered a chance to link with the Four Mile Creek wildlife corridor.

The site was also favoured because it was close to road and rail transport, schools and other recreation facilities.

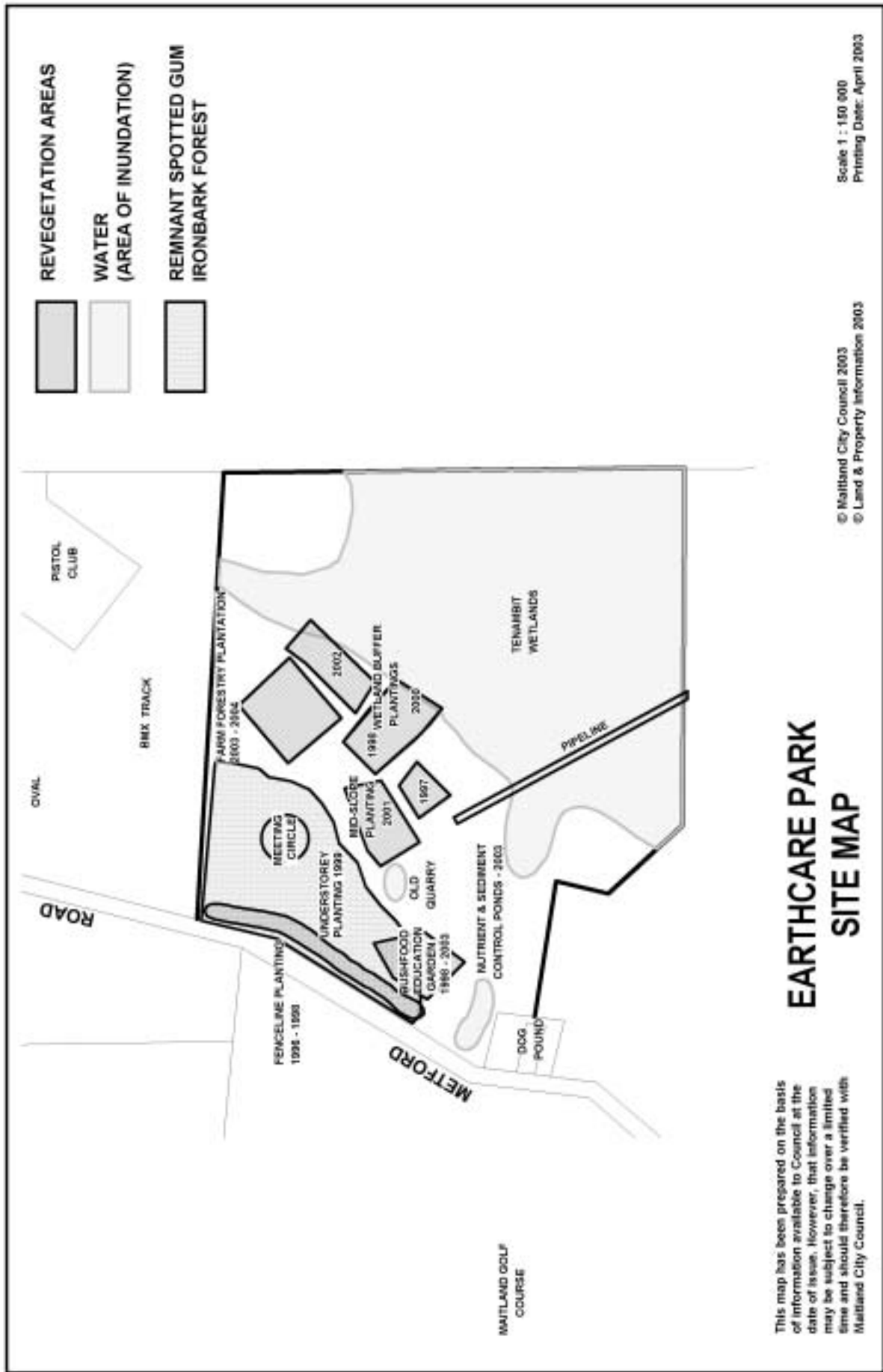
**2. Investigation** of the site took place with help from local community members, environmental professionals and organisations. The focus was on flora and fauna, soils, archaeology and hydrology. Studies on these elements gave baseline information about the site and highlighted the issues that needed to be addressed.

**3. Developing a plan of action** used information from each study and identified priorities for action. The first priority was to seek funding and support for the regeneration of the site. The group gained assistance from Maitland City Council, the Federal Government's Natural Heritage Trust and the Hunter Catchment Management Trust.

**4. Making a difference** began on the most degraded section of the site. The work aimed to re-introduce native understorey plants, improve the soil, and reduce erosion by building mounds and swales, mulching, and revegetating. Other projects have also addressed issues of concern (refer to Earthcare Park site map):

- 1996 Planting native understorey along the fenceline.
- 1997 Wetland buffer planting.
- 1998 Setting up a community bushfood education area.
- 1999 Planting more understorey amongst the remnant bushland area.
- 2000 Wetland buffer planting and nestboxes in trees.
- 2001 Biodiversity planting on the mid-slope.
- 2002 Wetland buffer planting with school students through the "Biodiversity Challenge".
- 2003 Farm Forestry Plantation trial and construction of nutrient and sediment control ponds.





## 5.4 Regeneration at EARTHCARE PARK

### The steps to demonstrating active and informed citizenship (cont.)

5. *Monitoring and evaluating progress* for all site projects is important. It is part of the group's reporting obligations to sponsors and also helps to maintain motivation and enthusiasm of volunteers.

Changes at the site are recorded through photographs and written descriptions. Areas that were once bare are now covered by native trees, shrubs and grasses.



*Dressed in waders, group members are ready to collect water samples and carry out investigations of wetland flora and fauna.*

The donation of people's time to on-site projects are recorded. About 500 hours of labour is invested on the site annually, this is valued at \$7,500. The number of native plants established is also recorded. Between 1996 and 2003, over 5,000 natives have been planted.

Keeping these records also helps the community group to attract more support and funding from governments and private enterprise. Importantly, it also helps to evaluate the success or otherwise of on-ground works.

### Community involvement

The regeneration of Earthcare Park would not have been possible without community involvement. Organising training workshops, media promotion and field days have helped the Earthcare Park group to generate environmental awareness and motivate people.

Some of these community education events involved:

- ♦ workshops on understanding biodiversity, native seed collection, bushfoods and permaculture;
- ♦ school excursions to the site, including tours of the bushfood education garden;
- ♦ tree planting days for the wider community.



*Information stalls and workshops at community events have helped to generate interest in the project and get new people involved.*

### You are invited...

Involvement in the Earthcare Park project is open to everyone. The group's monthly working bees attract about 15-20 people of all ages - young children, teenagers, adults and older people. Enjoyment as well as environmental improvement are the focus of the group's activities.

Assistance is needed with a variety of tasks including revegetation, planning projects, seeking sponsorship, writing newsletters and investigating the plant and animal life on the site.



*Placing nestboxes in trees has helped improve habitat for native birds.*

### How do you get involved?

- ♦ **Meetings & Working Bees:** first Sunday of every month at Earthcare Park, Metford Rd, East Maitland.
- ♦ **Ph:** Landcare Coordinator (02) 4934 9838.
- ♦ **Website:** [www.earthcare.asn.au](http://www.earthcare.asn.au)

# 5.5 Restoring Wetlands AT MORPETH

## Wastewater to wetlands

The decommissioned treatment ponds at the old Morpeth Wastewater Treatment Works (WWTW) have been transformed into a wetland sanctuary for birds.

The original Morpeth WWTW was constructed in 1940. During 2001 a new \$20M treatment works was constructed to accommodate population growth and reduce nutrients entering local waterways.

The original WWTW used a series of shallow ponds to allow direct sunlight to kill bacteria in the effluent. The new facility uses artificial ultraviolet (UV) light in a disinfection tank.

During construction of the new treatment works environmental groups informed Hunter Water that the old maturation ponds had become habitat for local and migratory birds. With this knowledge Hunter Water made a commitment to retain the open water ponds and rehabilitate them as a wetland area for birds.

## The rehabilitation project

Over 100 tonnes of concrete and soil waste was recycled on-site instead of being disposed of to landfill. This recycling involved the creation of beaches, islands and shallow areas to attract a variety of wading birds.

The rehabilitated wetlands have created much interest among bird watchers and the local community. A Green Corps team (supported by Maitland City Council) and Hunter Water employees planted many native trees and shrubs around the wetland site. The aim was to recreate as closely as possible a 'natural' wetland ecosystem.

High quality, disinfected treated effluent from the new plant is only pumped into the wetlands when natural water levels fall too low to sustain this ecosystem. This constant source of water has helped support the survival of local and migratory birds during recent droughts.



## 5.5 Restoring Wetlands AT MORPETH

### Treating wastewater at Morpeth

Morpeth Wastewater Treatment Works (WWTW) serves the 40,000 people who live and work in Morpeth, Metford, Thornton, Tenambit, Ashtonfield, Beresfield, East Maitland, and some parts of Maitland.

The WWTW have the capacity to treat an average flow of 14 million litres per day, or about 60,000 people, and can be upgraded to 80,000 people in future.

The Works have been built to minimise impacts on the surrounding environment. Wastewater is collected from houses and industry via pipes and pumping stations. It is treated to a high standard including disinfection.

The final treated effluent is recycled where possible or otherwise discharged into the Hunter River. During dry conditions some effluent is diverted to the wetland ponds.

The recycling of treated effluent includes irrigating golf courses and woodlots. The remaining sludge (solids) is treated, dewatered to become a 'biosolid', and reused in agricultural activities and minesite rehabilitation.



*Pelicans and cormorants are amongst the many different bird species that use the old wastewater treatment ponds for feeding and habitat.*

### Protecting the Hunter catchment

By 2004 all of Hunter Water's WWTWs will have been completely upgraded. The focus of the upgrades has been to reduce phosphorous and nitrogen in effluent.

In achieving higher levels of treatment, however, some trade-offs have had to be made:

- ♦ higher costs for construction and operation of new plants compared to older plants;
- ♦ more atmospheric emissions from power stations associated with higher power consumption at plants;
- ♦ increased transport needs through recycling greater quantities of biosolids.

A water quality report on the Hunter River indicated that lowering effluent concentrations of nitrogen to 7mg/L and phosphorous to 3mg/L, would protect and improve downstream water quality. Reductions in phosphorous and nitrogen beyond this, however, were considered to be of little benefit as Morpeth WWTW only contributes 2% to 3% of the total nutrient load in the river.

The plant could achieve further improvement in effluent quality through tertiary filtration, but this would be at an additional capital cost of up to \$2M. So far there is not enough proof of major environmental benefits.



*Local school students take a tour of the wastewater treatment plant.*

### Acknowledgement

© Public Affairs Unit, Hunter Water Corporation.



# 5.1 Is one planet enough? Calculate your ecological footprint

## Links with Syllabus

Key Learning Area	Stage	Syllabus outcomes addressed
Human Society & Its Environment	3	SSS3.7 (Resource Systems)
Science & Technology	3	PSS3.5 (Products & Services)
Personal Development, Health & Physical Education	3	PHS3.12 (Personal Health Choices)
Geography	4 5	4G4 (Global Citizenship) - 4.1, 4.2, 4.3, 4.8, 4.9 5A4 (Australia in its Regional & Global Context) - 5.1, 5.2, 5.3, 5.6, 5.9
Science	5	5.11.1 (Energy Resources)

## Overview

This program develops students' understanding of the connection between themselves, their impacts, and the health of the environment.

**Ecological Footprint Analysis (EFA)** is a tool developed by M. Wackernagel to measure impact on the environment. The measurement is expressed in hectares. It accounts for the amount of land it takes to:

- ♦ grow an individual's food;
- ♦ provide building materials to house an individual;
- ♦ provide raw materials for an individual's other consumables; and
- ♦ absorb the CO<sub>2</sub> (through vegetation uptake) released through production of energy for transport, food, housing and consumables.

The underlying principle is that there is a limit to the amount of productive land available. Ecological Footprint Analysis develops an understanding of the inequality in the current 'rationing' of land. For instance, many people in developed countries use  $\geq 6$  hectares per person, while many in the developing world use as little as 0.5 hectares. These figures encourage a realisation that if everyone (6 billion people) used as much area to support themselves as those in developed countries, we may need an extra three or four equivalent worlds to provide for our needs and wants. And this is without considering what land area should be allocated for other species use.

## Materials Required

### *Provided*

- \* Worksheet 5.1 - EFA test
- \* Worksheet 5.2 - EFA scoring sheet

### *To Obtain*

- \* Copies of worksheet



## 5.1 Is one planet enough? Calculating your ecological footprint

### Program Instructions

Content	Strategies	Resources
Ecological Footprint Analysis paper test	<ul style="list-style-type: none"><li>◆ Discussion of Ecological Footprint Analysis.</li><li>◆ Students each receive a copy of the test (Worksheet 5.1) and have about 15 minutes to complete (some questions may need explanation).</li><li>◆ Students swap test answers with the person next to them and assign scores to each answer based on Worksheet 5.2 (do not hand out this sheet until after the test has been completed).</li><li>◆ Class or small group discussion of the test results. Class results may be tabulated and graphed.</li><li>◆ Students choose one question in the test where they think they could change their behaviour in order to score better.</li><li>◆ Explore further issues (e.g. global inequality, use of fossil fuels) based on review of EFA and other websites.</li></ul>	<ul style="list-style-type: none"><li>◆ Worksheets 5.1 &amp; 5.2</li></ul>

### Acknowledgement

This program has been compiled by Kate Adkins (University of Newcastle, Environmental Science student).

## 5.1 Is one planet enough? Calculating your ecological footprint

### Ecological Footprint Analysis Website Review

The following are some good websites that explore simple EFA:

1. [www.chappy.au.com/](http://www.chappy.au.com/) ★★★★★  
This site focuses on energy audits, which can be related to EFA. The site offers workbooks (primary or secondary) that can be downloaded. They cover questions on the amount of energy used within the home depending upon the design of the home and the type of appliances used.
2. [www.bestfootforward.com](http://www.bestfootforward.com) ★★★★★  
This is one of the main sites for EFA with plenty of background information. It has a very helpful emailing group, and online EFA and carbon calculators allowing students to calculate their impact in hectares. Downloadable demonstration calculators are also available.
3. [www.futurescapes.com.au](http://www.futurescapes.com.au) ★★★★★  
This website allows the creation of a future scenario based on answers to questions. The chosen 'future' includes an annotated picture of what life might look like if everyone made the same lifestyle decisions as the participant (e.g. big house vs small house; car vs bicycle). This site is refreshingly different to EFA sites as it asks questions about how you would plan your life (future decisions) rather than how you are currently living it.
4. [www.web.net/~tendays/footprintwkshop.htm](http://www.web.net/~tendays/footprintwkshop.htm) ★★★★★  
A 2.5hr workshop is detailed on this website. The workshop is aimed at middle to upper secondary students and provides some great ideas for activities with clear instructions and a great paper EFA calculator.
5. [www.rprogress.org/programs/sustainability/ef/](http://www.rprogress.org/programs/sustainability/ef/) ★★★★★  
This site outlines concepts and methods, and answers Frequently Asked Questions (FAQs) relating to EFA. It has a very sophisticated online EFA calculator linked to questions on food, transport and travel, shelter, goods and services. The result is expressed in hectares and is able to be compared with the average footprint of a selected country. The result is also conveyed in terms of the number of planets required to support a world population with this size footprint.
6. [basecampearth.org/exp2/](http://basecampearth.org/exp2/) ★★★★★  
This website features links to other websites produced by US students about their impressions of EFA. It details some of their project activities. There are a lot of graphics so it takes quite a while for pages to come up but it is quite inspiring.
7. [www.ecovoyageurs.com](http://www.ecovoyageurs.com) ★★★  
This website deals with the concept of EFA lightly. It has an online EFA calculator, however, some of the questions are a little odd and the response options are not always clear. It offers downloadable lesson plans for secondary schools, which includes worksheets. Unfortunately all the facts and figures contained throughout the lessons and worksheets refer only to Canada.
8. [www.ecologyfund.com/registry/ecology/res\\_bestfoot.html](http://www.ecologyfund.com/registry/ecology/res_bestfoot.html) ★★★  
This site features a very simple online calculator that may not give the most accurate results. It has the advantage, however, of showing graphically how many worlds would be needed to support a population with a footprint the size of that calculated. Students can watch this graphic change as they respond to the EFA questions. No background information is available from the website.



# 5.2 Environmental Citizenship SCENARIO

## Links with Syllabus

Key Learning Area	Stage	Syllabus outcomes addressed
Geography	5	5A3 (Issues in Australian Environments) - 5.1, 5.2, 5.3, 5.4, 5.6, 5.8, 5.9
Science	5	5.10 (Ecosystems)

## Overview

This program provides an opportunity for students to apply their geographical and scientific knowledge, understanding and skills to demonstrate active and informed citizenship. It focuses on a local scenario or site and engages students in discussion and reflection of the balance between conservation and human use of a natural ecosystem.

## Materials Required

### *Provided*

- \* Case Study 3.1 - *Maitland's Native Vegetation*
- \* Case Study 3.2 - *Flora & Fauna of Maitland's Wetlands*
- \* Case Study 5.1 - *Local Environmental Citizenship*
- \* Case Study 5.2 - *Maitland Environmental Youth Council*
- \* Case Study 5.3 - *Landcare Making a Difference*

### *To Obtain*

- \* Photos and maps of local scenario site
- \* Copies of case studies

## 5.2 Environmental Citizenship SCENARIO

### Program Instructions

Content	Strategies	Resources
Introduction to a local place	<ul style="list-style-type: none"> <li>♦ Provide students with an overview of a local site:               <ul style="list-style-type: none"> <li>- Where is the site? What is the size of the site?</li> <li>- What is the ecosystem type - bushland, wetland?</li> <li>- Who owns the land?</li> <li>- Why is the site important?</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>♦ Photos and maps</li> </ul>
Set up scenario	<ul style="list-style-type: none"> <li>♦ EXAMPLE: A developer has purchased additional land in the Bolwarra area close to the Bolwarra Wetland. An application is to be submitted to MCC to expand residential land close to the wetland and an area of remnant rainforest.</li> </ul>	<ul style="list-style-type: none"> <li>♦ Case Studies 3.1 &amp; 3.2</li> </ul>
Discuss stakeholders	<ul style="list-style-type: none"> <li>♦ Mind map of who cares about this site.</li> <li>♦ Position stakeholders on a spectrum according to their environmental philosophies (from preservation to exploitation).</li> </ul>	<ul style="list-style-type: none"> <li>♦ Case Studies 5.1 &amp; 5.3</li> </ul>
Discuss influences	<ul style="list-style-type: none"> <li>♦ Students form into small groups. Each group is given an 'identity' - one of the relevant stakeholders to the scenario (e.g. Landcare, developer, residents, non-carers).</li> <li>♦ Facilitate a brainstorming session to determine the concerns for each group.</li> </ul>	
Role Play	<ul style="list-style-type: none"> <li>♦ Set up a mock Maitland Council meeting, with each stakeholder group presenting their arguments or writing letters stating their concerns.</li> <li>♦ Another group of students or the teacher acts as Council. Council considers all stakeholder concerns, makes a decision in relation to the development and explains why they have come to this decision.</li> </ul>	
Reflection	<ul style="list-style-type: none"> <li>♦ Class discussion on other opportunities to demonstrate active citizenship for similar scenarios.</li> <li>♦ Invite a guest speaker to the classroom - role model of active citizenship.</li> </ul>	<ul style="list-style-type: none"> <li>♦ Case Studies 5.1, 5.2 &amp; 5.3</li> <li>♦ Guest speaker (refer to Section 8)</li> </ul>

# 5.1 Is one planet enough? Calculate your ecological footprint

## Background

There are approximately 7.3 billion hectares of productive land in the world and 6 billion people trying to share it. To have an equal share each person would have access to 1.22 hectares (remembering that this also needs sharing with species other than human). This would be the amount of land available to feed, clothe, house and support each person.

Perform the following test - **Ecological Footprint Analysis** - to see how many hectares are currently being used to support your needs and lifestyle.

**For each question place a tick beside the answer that is most correct for your current situation. Your teacher will give scores for answers later. Please answer all questions honestly and accurately.**

## Acknowledgement

This test is adapted from that developed by Eric Krause, City of Toronto and the Recycling Council of Ontario, Canada. The original version can be found at: [www.web.net/~tendays/footprintwkshop.htm](http://www.web.net/~tendays/footprintwkshop.htm)

## HOME

### A. How many people live in your household?

- (i) 1
- (ii) 2
- (iii) 3
- (iv) 4
- (v) 5 or more

### B. How is your home heated?

- (i) Natural gas
- (ii) Electricity
- (iii) Half gas/electricity and half from renewable sources
- (iv) Renewable (e.g. solar)

### C. How big is your home?

- (i) Small unit (1-3 rooms, one bathroom, shared laundry)
- (ii) Small house (3-5 rooms)
- (iii) Medium house (6-7 rooms)
- (iv) Large house (>7 rooms, including two bathrooms)

### YOUR SCORE:



# 5.1 Is one planet enough? Calculate your ecological footprint

## FOOD

### YOUR SCORE:

**D. How many meals of meat or fish do you eat per week?**

- (i) 0
- (ii) 1-3
- (iii) 4-6
- (iv) 7-10
- (v) More than 10



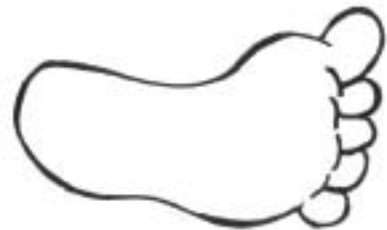
**E. How many home-made meals do you eat per week (including those you bring to school/work)?**

- (i) Less than 10
- (ii) 10-14
- (iii) 15-18
- (iv) More than 18



**F. When purchasing your food items does your family try to buy locally produced goods?**

- (i) Yes, all the time
- (ii) No, never
- (iii) Yes, sometimes
- (iv) Very rarely
- (v) I don't know



## TRANSPORT & TRAVEL

### YOUR SCORE:

**G. If you or your family own vehicles, what type are they? Add points for each vehicle.**

- (i) Motorcycle
- (ii) Small-compact car
- (iii) Medium-sized car
- (iv) Full-sized car, mini-van or ute.



**H. How do you normally travel to school/work?**

- (i) Car
- (ii) Public transport (bus, train)
- (iii) Walk
- (iv) Bicycle



## 5.1 Is one planet enough? Calculate your ecological footprint

### TRANSPORT & TRAVEL (cont.)

**YOUR SCORE:**

**I. How many trips do you make on public transport (e.g. bus, train) per week for which you might otherwise have used a car?**

- (i) 0
- (ii) 1-5
- (iii) 6-10
- (iv) 11-15
- (v) More than 15



**J. Where did you go on holiday within the last year?**

- (i) No holiday, stayed at home
- (ii) Within the region
- (iii) To another region, within NSW
- (iv) To another State
- (v) To another country



**K. How many summer weekend trips do you take by car?**

- (i) 0
- (ii) 1-3
- (iii) 4-6
- (iv) 7-9
- (v) More than 9



### PURCHASES

**YOUR SCORE:**

**L. How many large purchases (e.g. stereo, TV, VCR/DVD, home computer, car, furniture, fridge etc.) has your household made in the past year?**

- (i) 0
- (ii) 1-3
- (iii) 4-6
- (iv) More than 6



# 5.1 Is one planet enough? Calculate your ecological footprint

## WASTE

**M. Does your household try to reduce the amount of waste created in the house (e.g. buying food in bulk, refusing junk mail/flyers, reusing containers for storage)?**

- (i) Always
- (ii) Sometimes
- (iii) Rarely
- (iv) Never

**N. Does your household compost food scraps?**

- (i) Always
- (ii) Sometimes
- (iii) Rarely
- (iv) Never

**O. Does your household recycle paper/cardboard, aluminium cans, glass and plastic bottles and other recyclables?**

- (i) Always
- (ii) Sometimes
- (iii) Rarely
- (iv) Never

**P. How many garbage bags of waste do you set out for pick-up each week?**

- (i) 0
- (ii) 1
- (iii) 2
- (iv) 3
- (v) More than 3

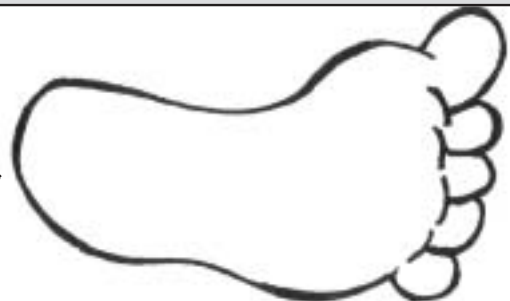
**YOUR SCORE:**



## YOUR ECOLOGICAL FOOTPRINT

**Add your sub-totals for:**

- HOME
- FOOD
- TRANSPORT
- PURCHASES
- WASTE

# 5.2 Calculate your ecological footprint: SCORING SHEET

## HOME

**A. How many people live in your household?**

- (i) 30
- (ii) 25
- (iii) 20
- (iv) 15
- (v) 10

**B. How is your home heated?**

- (i) 30
- (ii) 45
- (iii) 15
- (iv) 0

**C. How big is your home?**

- (i) 10
- (ii) 15
- (iii) 20
- (iv) 30

## FOOD

**D. How many meals of meat or fish do you eat per week?**

- (i) 0
- (ii) 10
- (iii) 20
- (iv) 35
- (v) 50

**E. How many home-made meals do you eat per week (including those you bring to school/work)?**

- (i) 25
- (ii) 20
- (iii) 15
- (iv) 10

## FOOD (cont.)

**F. When purchasing your food items does your family try to buy locally produced goods?**

- (i) 25
- (ii) 125
- (iii) 50
- (iv) 100
- (v) 75

## TRANSPORT

**G. If you or your family own vehicles, what type are they? Add points for each vehicle.**

- (i) 15 for each
- (ii) 35 for each
- (iii) 60 for each
- (iv) 80 for each

**H. How do you normally travel to school/work?**

- (i) 50
- (ii) 25
- (iii) 0
- (iv) 5

**I. How many trips do you make on public transport (e.g. bus, train) per week for which you might otherwise have used a car?**

- (i) 50
- (ii) 40
- (iii) 30
- (iv) 20
- (v) 10

# 5.2 Calculate your ecological footprint SCORING SHEET

## TRANSPORT

**J. Where did you go on holiday within the last year?**

- (i) 0
- (ii) 10
- (iii) 30
- (iv) 40
- (v) 70

**K. How many summer weekend trips do you take by car?**

- (i) 0
- (ii) 10
- (iii) 20
- (iv) 30
- (v) 40

## PURCHASES

**L. How many large purchases has your household made in the past year?**

- (i) 0
- (ii) 15
- (iii) 30
- (iv) 45

## WASTE

**M. Does your household try to reduce the amount of waste created in the house?**

- (i) 0
- (ii) 10
- (iii) 20
- (iv) 30

**N. Does your household compost food scraps?**

- (i) 0
- (ii) 10
- (iii) 15
- (iv) 30

## WASTE (cont.)

**O. Does your household recycle?**

- (i) 0
- (ii) 10
- (iii) 15
- (iv) 20

**P. How many garbage bags of waste do you set out for pick-up each week?**

- (i) 0
- (ii) 5
- (iii) 10
- (iv) 20
- (v) 30

## SCORING INSTRUCTIONS

Score	Ecological Footprint (ha)	Number of planets needed if everyone lived like this
< 150	< 4.0	Less than 3 planets
150 - 350	4.0 - 6.0	3 - 4 planets
<b>351 - 550*</b>	<b>6.0 - 7.7*</b>	<b>4 to 6.3 planets</b>
551 - 750	7.7 - 10.0	6.3 - 8.2 planets
> 750	> 10.0	More than 8 planets

\* Canadian average

Even low scores of 150 still require 3 equivalent planets to support 6 billion people living in this way. The test recognises that anyone living in a developed country is going to have a larger footprint than the majority of the world's population (who live in developing nations). It highlights the inequality of human impact and the unsustainability of current global impacts from the combined population.

If any students scored less than 150 they should be congratulated as this is well-below the average of people living in affluent countries such as Australia, U.S., Canada, and the U.K.