Integrated Weed Management Plan

Sustainable | Inclusive | Connected to Place | Respecting Boodja

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This document is available in alternative formats upon request including in large and standard print, electronically by email, in audio on CD and on the Shires website at **amrshire.wa.gov.au**.

Acknowledgement of Country

The Shire of Augusta Margaret River would like to acknowledge that we are on Wadandi and Pibelmen country whose ancestors and their descendants are the traditional owners of this country.

The Shire is home to one of Australia's most significant archaeological and anthropological sites at Devil's Lair which shows that human occupation of the area began at around 48,000 years ago making it one the earliest sites in Australia and an important source of information about the timing and character of the first human colonisers of Australia.

We acknowledge that the Wadandi and Pibelmen have been custodians since the land was soft (creation times) and continue to perform age old ceremonies of celebration, initiation and renewal. We acknowledge their living culture and their unique role in the life of this region.

The Shire is committed to Aboriginal Australians sharing fairly and equitably in the Shire's cultural, social, environmental and economic future.

Introduction

Weeds are plants that grow in sites where they are not wanted and can have major economic, environmental and social impacts. The management of weeds throughout Australia remains an ongoing challenge for land managers and requires a collaborative approach between all levels of government, industry, landholders and the community.

Many procedures and methods are available to manage the effects of weeds. The most effective means of weed control are prevention, early detection and eradication. In the event that weeds become established, various procedures and methods for weed control are available to reduce their impact.

The Shire of Augusta Margaret River implements an integrated weed management approach for the control of weeds around the Shire that pose a risk to biodiversity, infrastructure or public safety. This involves using a combination of several weed management techniques, such as physical control, chemical control and biological control. The advantage of using an integrated weed management approach is that there is flexibility in determining appropriate control strategies for different areas by considering economical, ecological and human health factors.

It is recognised that there may be concern in the local community and from visitors alike about the use of chemical herbicides, particularly in public and residential areas. The Shire aims to evaluate the use of chemicals for weed control by using alternative weed control methods where feasible, including biological control, natural weed control by planting endemic species, mulching, fire, steam, slashing and manual removal.

Mission

To continuously improve upon and integrate new weed management technologies and strategies on Shire owned and managed land that increase and facilitate resilience while maintaining a high level of human health, biosecurity, infrastructure and our unique biodiversity values across the Shire.

Purpose and Scope

This Integrated Weed Management Plan provides guidance on the effective and efficient control of weeds on Shire-managed land based on an integrated approach using a range of appropriate prevention and control methods.

Outside the scope of the Integrated Weed Management Plan

- Private land
- Other Crown lands and reserves managed by other agencies, including Unallocated Crown Land

Legislative context

Local government, Commonwealth and WA government agencies, as well as many other organisations are involved in the management of weeds. The WA *Biosecurity and Agriculture Management Act 2007*, administered by the Department of Primary Industries and Regional Development, gives provision to prevent new animal and plant pests (vermin and weeds) and diseases from entering WA and manages the impact and spread of those pests already present in the State. The Act also gives provision to safely manage the use of agricultural chemicals.

In the Shire, there are 68 species of known weeds that are listed under the Biosecurity and Agriculture Management Act and need to be controlled.

Other processes that have identified priority environmental weeds in Western Australia include the following:

- The Environmental Weed Strategy for WA (1999) prioritised 1,350 weed species in WA based on their invasiveness, distribution and environmental impacts. Of this list, 34 species of weed were rated as a high priority.
- The Weeds of National Significance (WoNS) is a joint initiative of the Australian State and Territory Governments to coordinate national effort against 32 of Australia's worst invasive plants. These weeds cause negative impacts to Australia's natural and productive landscapes. Six weeds of national significance occur within the Augusta Margaret River Shire.
- The Department of Biodiversity, Conservation and Attraction implemented a weed prioritisation process in 2013 and identified 720 priority environmental weeds located in the South West region, based on their ecological impact, invasiveness, current distribution, potential distribution and feasibility of control.
- The Capes Region Environmental Weed strategy 2017 prioritised environmental weeds at a local scale and includes recommendations for weed control to help protect the important biodiversity values of the region, recognising weed invasion as one of the largest threats.

Why manage weeds?

The Shire manages weeds on its lands for a variety of purposes, including:

Biodiversity

Weeds pose one of the greatest risks to biodiversity by adversely affecting the integrity, conservation value and processes of ecosystems. They do this by:

- Successfully outcompeting native species for resources
- Replacing native plants that provide habitat for native fauna
- Impacting on native plants or animals through toxins, thorns, or other adverse habits
- Providing habitat for introduced animal pests
- Altering fire regimes

The Shire lies within the South West botanical province, which is one of 34 global hotspots of biodiversity and the only one listed for Australia. It supports an estimated 8,000 taxa of plants, representing two thirds of the estimated plant taxa in Western Australia. Over 80% of the plant taxa in the South West are endemic, which means they are not found anywhere else.

Road safety

Under the *Road Traffic Act 1974*, local governments are responsible for designing, building and maintaining an extensive road network and for ensuring the safety of all road users. Weeds can affect the safety of local roads by posing a fixed object hazard for oncoming traffic, reducing driver visibility and impeding the integrity of the road surface. Controlling weeds along roadsides helps to improve road safety, and reduce the number of vehicle crashes.

Weeds growing on road shoulders can affect the drainage of the road leading to pot holes and poor and unsafe road surfaces.

Bushfire protection

Weeds that grow in parklands, open space, bushland reserves and along roadsides all have the potential to increase fuel loads and therefore create a fire hazard. Under the *Bushfires Act 1954*, local governments, along with DFES and DBCA, are responsible for managing fire in these areas and may do this by controlling weeds to reduce fuel loads. This is particularly important in the Shire, where weed control in bushland reserves and roadsides that adjoin residential areas is undertaken to protect lives and property from the threat of bushfires.

Biodiversity values within the Shire include:

6 Threatened Ecological Communities

4 Priority Ecological Communities

59 Vegetation complexes including a significant number which are threatened

69 Declared Rare and Priority Flora species

28 Declared Threatened Fauna species

15 Priority fauna species

The Shire manages weeds to protect biodiversity on the reserves and roadsides it manages using a combination of physical, chemical and biological control techniques.

Asset protection

The Shire owns and manages a large number of assets, including:

- 531 km of sealed road
- 395 km of unsealed road
- 175 km of paths and trails
- 144 km of stormwater pipes
- 188 Shire buildings
- 38 playgrounds
- 3,750 ha of Shire reserves, parks and sports fields

The Shire manages weeds to protect these assets and maintain their viability and integrity in the long term.

Health and Safety

Shire use of any chemical pesticides to control weeds is in accordance with established health and safety standards. The WA Department of Health administers the *Health (Pesticides) Regulations 2011*, which provide for the safe use and application of pesticides, including herbicides, through appropriate registration and licensing of businesses and persons involved in weed control. All Shire employees and contractors that use herbicides for weed control are required to adhere to these regulations. In addition, the Department of Health's *A Guide to the management of pesticides in local government pest control programs in Western Australia* provides advice on when and how herbicides should be used.

Why use an Integrated Weed Management approach?

Integrated weed management is a holistic approach that integrates ecological factors with a range of different weed control methods to manage and ideally reduce weed species. It is defined in the International Code of Conduct on the Distribution and Use of Pesticides as *"the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimise risks to human health and the environment"* (Food and Agriculture Organisation of the United Nations, 2002).

The Shire's use of an integrated weed management approach on the land it manages allows for a combination of weed control techniques to be used to best manage weeds according to location, type of weed, extent of the weed infestation and level of risk to biodiversity, infrastructure, and public health and safety.

The following outlines the types of weed management methods that are currently implemented on lands managed by the Shire.

Prevention and early intervention

The prevention and treatment of new weed infestations is the most successful, cost effective and least damaging means of weed control. The Shire undertakes regular inspections of reserves to detect new weed infestations, and applies resources towards managing new infestations where possible in order to avoid a long-term management problem. The Shire also asks community groups and individuals to report on new weed infestations in Shire managed lands and investigates control of these where possible.

The Shire, along with Nature Conservation Margaret River Region and the Capes Regional Environmental Weed Management Group, also maintains a list of Alert Weeds, which are weeds that are in the early stages of establishment within the Shire and that have the potential to become a significant threat if not managed. As these types of weeds are detected in the Shire it is important they are controlled as early as possible to prevent the need to manage a larger infestation at a later time.

The early prevention approach is preferable to allowing a weed infestation to establish and spread as it requires less resources, is more successful and is less likely to expose the community and environment to stronger weed control methods that may be required over several years, such as chemical herbicide.

Weed hygiene

Preventing the establishment and spread of weeds by using hygienic work practices is a very effective means of ensuring existing weed infestations do not become a bigger problem than they already are. Weed seeds and weed material, if left on equipment and earth moving machinery, can spread to new areas resulting in new weed infestations. Using clean equipment and machinery in Shire-managed reserves and parks is a way of reducing the risk of weeds being introduced or spread to new areas. Where possible the Shire will blow down mechanical equipment to prevent the spread of weeds particularly if working in a particularly weedy area or entering and area of high conservation value.

Transportation of weed material that has been manually removed from an area should also be minimised to reduce the risk of weeds spreading to other areas. If possible, weeds that have been cut or pulled are left in the bush if possible. In instances where weeds cannot be left on-site (e.g. in parks or on roadsides), weed material is appropriately contained and transported to suitable disposal facilities.

Education and awareness raising

About 65% of weeds invading reserves and bushland areas have originated from gardens, often termed 'garden escapees'.

These weeds become difficult and expensive to control, and compromise the health of the ecosystem. Raising awareness about the impacts of illegal dumping of garden refuse, and educating the community about responsible gardening and planting less weedy species in gardens are ways to reduce the risk of garden escapees spreading to bushland areas and becoming problem weeds.

Photo of Barrett St reserve following 2012 burn

Post fire weed control

Weed species can often germinate first after a fire, utilising newly available nutrients in the ash bed well before new native species re-sprout or germinate from seed. After a fire or prescribed burn is an opportune time to control weeds, as weeds are actively growing and therefore take in herbicide very effectively. The bush is easier to physically move through, the weeds are easier to spot in an open and burnt landscape and there is often a lesser chance of off-target damage because the weeds are up and thriving while the natives are dormant below ground. This provides the opportunity to remove a greater majority of the weed population than would otherwise be the case and, importantly, stop the weed populations from dramatically increasing in a boom flowering and seeding year. Weed control should be undertaken after the target species are actively growing (i.e. re-sprouting or germinated and with a reasonable amount of leaf surface area). This is usually before, or soon after, the first rains of autumn. Appropriate planning and sufficient resources are needed prior to burning to ensure appropriate follow up weed control can be carried out.

Steam treatment

The Shire has trialled steam weeding for weeds on footpaths and around garden beds in town centres. It works by heating water under pressure to 98-103 degree Celsius then applying the water to the surface of the leaves. The heat and force break down the cell structure killing the crown of the plant within a matter of hours or days. Successful on annuals, this control has little effect on the root system of plants with rhizomes, bulbs or corms as the boiling water only penetrates approximately 5mm below the ground surface. In most situations where the weed crown has died repeated treatments on a regular basis are necessary to maintain weed free pavements and roadsides.

The steam weeding uses a truck and diesel motor to heat the steam which can be both loud and smelly in its application and requires traffic management. The application process is expensive in comparison to other weed treatment options and requires regular follow up treatments. There are limited services available within the Shire.

Alternative organic weed treatment

The Shire has trialled the use of several alternative weed control products including pine oil, pelargonic acid, slasher and bioweed, all of which are acidic treatments. The Shire staff have found some of these products difficult to use and irritating to the eyes of the operators. The products are expensive to buy as they require little dilution and often require several follow up treatments.

The Shire will continue to trial new alternative products as they become available.

Biological control

Biological control of the environmental weed bridal creeper was released in the Shire in 2009.

This control, released by the CSIRO, has been effective in managing this invasive environmental weed without the need for additional chemical control methods.

Manual Control

Methods include:

- **Complete removal** often contractors and or friends of reserve volunteers are able to hand pull and completely remove some weed species from Shire reserves.
- **Cut and paint technique** can be used for some vines and woody weed species which can be cut and the stump painted with chemical to prevent reshooting. This is often used in the bushland reserve by contractor and volunteer groups and provides a very targeted and effective control method.
- **Solarisation** uses physical barriers such as black plastic or weed mats to exclude sunlight, heating the soil and controlling weeds. Volunteer groups have used this method to control weeds close to waterways prior to revegetation of an area. This can be slow but works well in small areas that are able to be monitored regularly by volunteers.

Effective manual control requires specialised knowledge of plant ecology and root type, seed viability and dispersal, growing season and location.

The use of manual controls over the last five years have shown that while some species may be completely removed successfully, it takes a long-term commitment for effective containment or eradication.

Mechanical control

Within the Shire, slashing or mowing/brush cutting are mainly used to control grasses and some small herbs. However this control method requires ongoing repeated treatments and does not eliminate the weed, only its biomass. This type of control will often require traffic management, increases the risk of starting a fire and can cause damage or injury by throwing rocks and other objects.

Management Plans for Shire Reserve

The Shire has funded the preparation of Reserve Management Plans (RMPs) for a number of its reserves. Reserves are generally prioritised based on biodiversity conservation values and also the values placed on the reserve by the community. Weed management is generally a key focus of most RMPs, requiring a works program to direct future weed control works required within the reserve to protect the biodiversity values.

Friends of Reserve volunteers

A number of Friends of Reserve Groups have been established across the Shire where community members are involved in the active management of a Shire reserve. Reserves with strong community interest and high environmental values are generally made a higher priority and will often attract greater funding in order to assist volunteers with active weed management.

Friends Groups are usually formed for reserves within townsites and volunteers are often those people who neighbour the reserve or walk in the reserves on a regular basis. These people can act as the eyes for Shire staff, reporting new weed infestations or actively managing new problems themselves, with guidance from Shire staff. A large amount of volunteer hours are contributed annually by the Friends Groups undertaking manual weed control works. It was estimated that approximately 700 hours of work was undertaken by volunteer groups in 2018-19.

When a Friends Group is involved in the management of a reserve the first step is to prepare a weed management plan for the reserve, that can be used to direct the works of the volunteers. Friends Groups are required to register as volunteers of the Shire and follow guidelines set out in the Shire's environmental volunteers manual. This ensures the volunteers are adequately protected by the Shires insurance policy. Some groups meet weekly while others meet on an as needed basis, depending on the management issues and interests of the group.

The Shire actively support the formation of Friends Groups, the development of management plans and assigns weed contractor time to tackle spraying requirements for large and onerous tasks.

Replacing the space – follow up revegetation

The Shire currently uses mulch and revegetation techniques to replace the space where weeds once grew. If a space is available, an opportunity exists for a weed to fill that space. If this revegetation step is not included, it is likely that repeat weed treatments will be required, far into the foreseeable future. Replacing the space can be achieved by the use of mulch or planting of indigenous species, or by altering site conditions to favour the natural regeneration of indigenous plants over weed species (i.e. give the indigenous plants the competitive edge over the weeds). How to best achieve this replacement of weeds with indigenous plants will vary from site to site, and various methods may achieve long term success

Retention of roadside vegetation

The Shire is fortunate to have many well-vegetated rural roadsides including some high quality flora roads. The vegetation supports corridors for wildlife movement and maintaining the rural character of the area and limits the amount weed control that would be required.

Shire staff have undertaken training with the Roadside Conservation Committee in best practice management of vegetation in transport corridors. The training covered the following issues:

- understanding the values of roadside vegetation to a range of stakeholders
- the requirements of relevant legislation (the Biodiversity Conservation Act 2016 and the Environmental Protection Act 1986)
- minimising negative impacts of maintenance activities
- Understanding the benefits of enhancing roadside vegetation as resources allow

Chemical control of Weeds in Augusta Margaret River Shire

Given the large number of reserves managed by the Shire, chemical free alternatives are not always feasible and a herbicide may be selected for use. Herbicides are applied in a safe and responsible manner and in accordance to label directions and recommendations from the Western Australian Department of Health.

It has been calculated that the Shire purchases less than 5% of the chemical/glyphosate sold by a single large retailer within the Shire. Glyphosate is a widely used product for home gardens through to large-scale agricultural industries.

The Shire uses glyphosate for weed management in natural areas, spot spraying in parks and gardens and weed spraying on kerbs, footpaths, medians and shoulders of rural roads. Other Chemicals are also be used at times, depending on the target species and setting.

Chemical control of weeds is necessary for the Shire to meet its obligations under the Biosecurity and Agricultural Management Act 2007, and Road Traffic Act 1974. It also protects the biodiversity values of road reserves and bushland areas and maintain the publics safety and aesthetic values of urban parks.

Weed Management Techniques

- Early prevention and treatment
- Good weed hygiene
- Post-fire weed control
- Manual removal
- Mechanical control
- Steam weed control
- Organic weed treatment
- Biological control
- Chemical control

Chemical Application

When applying chemicals, all Shire operators and contractors follow requirements of the Occupational Health and Safety Act. Products are mixed and applied in accordance with the product label. Chemicals are applied in a safe and responsible manner and in accordance to label directions and best practice from the Western Australian Department of Health.

The Shire is aware that chemical use is often scrutinised by the public and is careful to ensure safety and public health obligations are met.

Shire staff performing chemical weed control course TLID2003 handle dangerous goods and hazardous substances. The training teaches staff to be aware of the dangers when using chemicals in concentrated form and spraying.

Shire Staff and contractors follow the Shire's safe work method statement. This meets the standards required under the

- *WA Occupational Health and Safety Act 1984*
- *WA Occupational Health and Safety Regulations 1996*
- *National Standard for Manual tasks 2007*
- *National Code of practice for the prevention of Musculoskeletal Disorders and performing manual tasks 2007*
- *Health (pesticide) regulations, Amendment Regulations 2016*

Staff are supplied with and wear the appropriate personal protective equipment, display signage and will only apply chemicals in the appropriate weather conditions.

New technologies

The Shire and contractors have been trialling shrouds on spray equipment to minimise spray drift and have installed wind-monitoring equipment on vehicles to ensure chemicals are only applied under appropriate weather conditions. The Shire's contractor is also trialling new nozzles and sensors on spray equipment that help detect the presence of weeds and only spray infected areas. This is useful for roadside areas and reduces chemical use.

Signage

When applying chemical, signage is displayed so people who wish to avoid the areas can do so. The signage also displays the name of the product that is being applied

Signage remains in place until the product has been applied and is touch dry in accordance with the Health (pesticide) Regulations 2016.

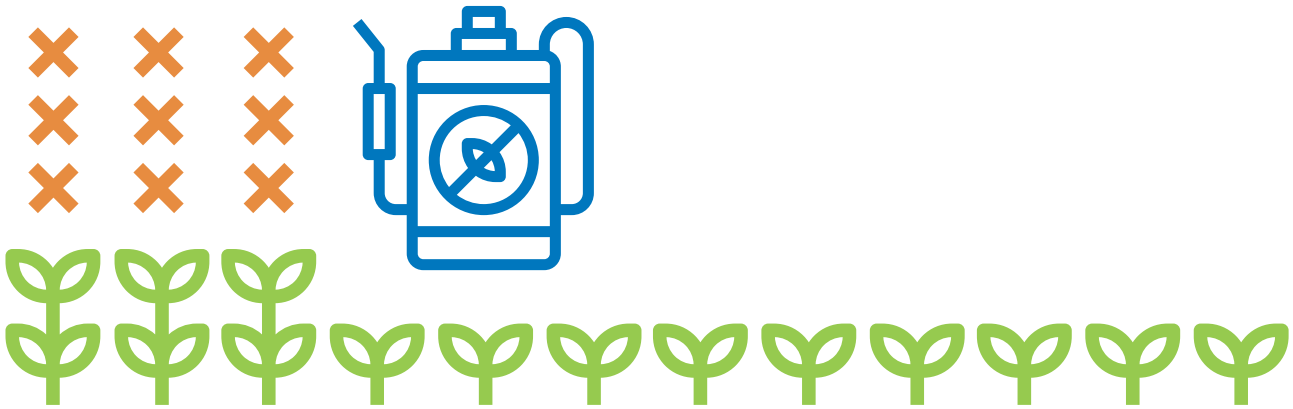
Advanced Warning

Weed control needs to be completed under suitable climatic conditions therefore it is not always possible to plan treatment in advance or provide advanced warning. Favourable weather conditions need to be utilised to ensure there are no off-target impacts due to wind drift and to ensure effective results.

Residents registered as multi-chemical sufferers will receive advanced warning, but this can only be achieved within a broad timeframe.

People on the Multi Chemical Sufferers list must contact the Shire on an annual basis to maintain their registration and to keep their contacts up to date. To register on the list requires medical evidence.

The Shire will still maintain the ability to spray in your area, but the resident will be more aware to avoid the area if they see signage.



Zones of Use

Parks

The Shire currently limits chemical in the following high-use parks

- Memorial Park, Margaret River
- Rotary Park, Margaret River
- Reuther Park, Margaret River
- Pioneer Park, Cowaramup
- Margaret River Skate Park
- AMR Shire Admin Building

These are parks serviced fortnightly by Parks and Gardens staff and weed control can be managed by manual means.

Most other parks are serviced once per month, but in order to maintain these areas, some chemical control is required.

Townsite garden beds

Limited chemical weed control is sometimes undertaken in town site garden beds. Staff also use manual control and mulch as a weed suppression tool in these areas.

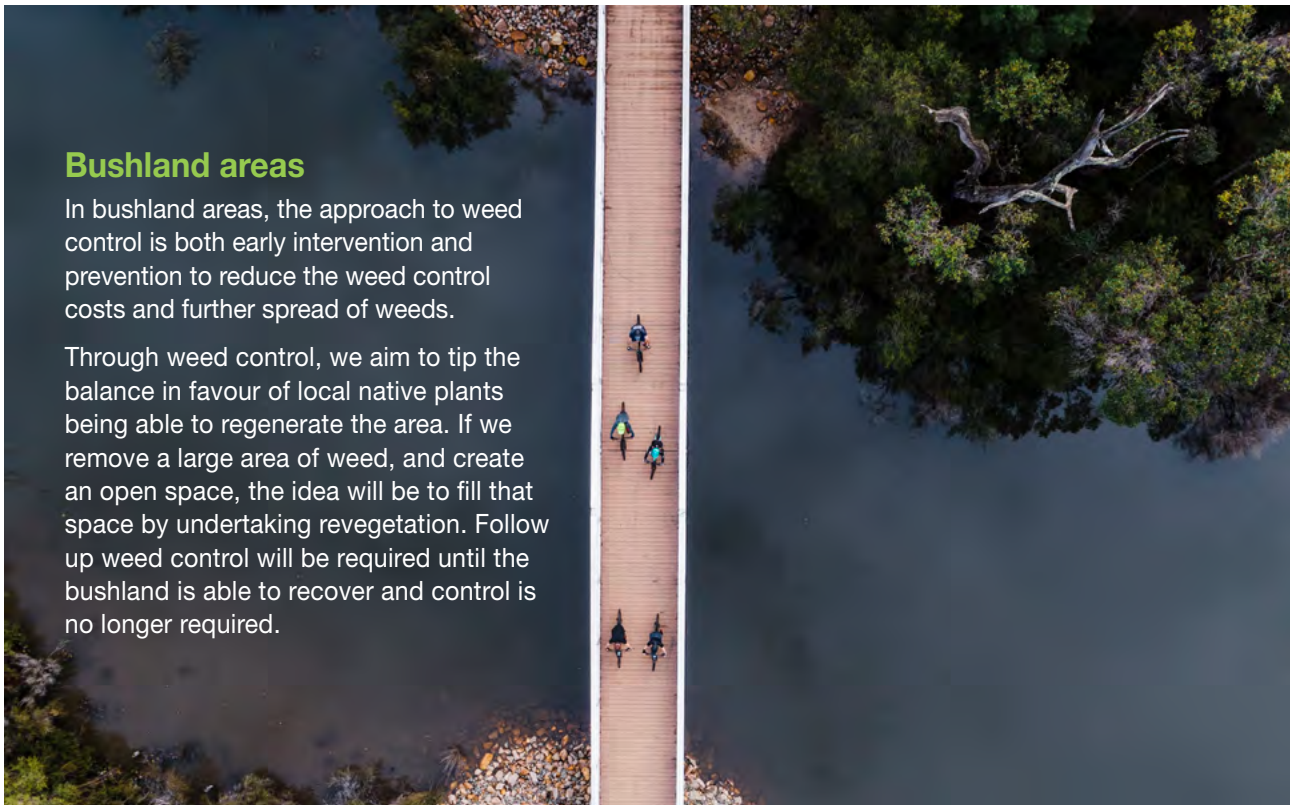
The Shire's Parks and Gardens teams are responsible for managing a large area of town parks with limited resources. It is simply not possible to maintain every garden bed in all our towns and subdivisions to the same standard as the developer while the lots were being sold. Chemical weed control is sometimes required as a quick and effective means to keep garden beds in good order and important tool for meeting community standards in a cost effective manner.

Community members who would like to reduce chemical use or want to see the garden maintained to a higher standard are free to volunteer to do this. This can be achieved under the Shire volunteer registration process.

Kerbs and footpaths

Spot spraying is often undertaken along footpaths and kerbs to protect the structure of the pathway and prevent trip hazards, the lifting of infrastructure and unmaintained areas. This application is limited to very small areas and only applied where required. Steam weeding has been used by the Shire in some areas but is significantly more expensive, slower, requires repeat treatment and a lot of energy in (the form of diesel) to heat the steam. In the future, the Shire may choose to invest more resources into this type of control for pathways, but more research into the cost and benefits of this needs to be undertaken.

The spraying on verges close to school sites will be limited to school holiday period.



Bushland areas

In bushland areas, the approach to weed control is both early intervention and prevention to reduce the weed control costs and further spread of weeds.

Through weed control, we aim to tip the balance in favour of local native plants being able to regenerate the area. If we remove a large area of weed, and create an open space, the idea will be to fill that space by undertaking revegetation. Follow up weed control will be required until the bushland is able to recover and control is no longer required.

Photos show a spreading thicket of Victorian Tea Tree removed on Scott River Road.

Rural Road reserves

One of the major causes of weed spread in the Shire is via wind and vehicle transport of seeds along transport corridors. Weed control in these areas is required to protect roadside biodiversity and neighbouring agriculture/private land from new weed invasion as well as maintaining site lines for road safety. Most weed control is focused along the road shoulders, but we will address other weeds if they pose a threat to local biodiversity.

Roadside weeds can also spread into nearby private property and bushland reserves affecting agriculture and private landholders. The encroachment of weeds on roads can undermine the road surface creating potholes and dangerous road conditions

Chemical control of weeds on road shoulders is the most feasible option for managing weeds, as it allows the operator to quickly and efficiently apply minimal rates of chemical to the area. The alternative option is roadside slashing, which requires ongoing maintenance, has the risk of creating fire, requires traffic management, and in many cases will introduce weeds into new areas.

The Shire's weed control contractor has recently introduced a new sensor onto their spray equipment that can detect the presence of vegetation. This reduces the volume of chemical that is used by only applying chemical to the affected area

The Shire is fortunate to have many rural road reserves that are rich in biodiversity with intact roadside vegetation. This reduces the area of weed control required and provided corridors, which native species can use to move amongst other larger areas of bushland.

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- TTY users phone 133 677 then ask for 08 9780 5255
- Speak and Listen users phone 1300 555 727 then ask for 08 9780 5255
- Internet relay users connect to the NRS (www.relayservice.com.au) then ask for 08 9780 5255