

# Yellagonga Regional Park and Lake Joondalup



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# Introduction

Weeds; they're a frustrating thing. Generally most people would agree with this statement but never take the time out of their busy lives to actually identify these problems and do something to get rid of them. Firstly we need to distinguish what a weed actually is. A weed is typically a plant that grows in a place where it is not wanted. It may be considered a weed in one area and yet not in another. Why is this so? It normally depends on the quantity of that plant and the effect it has on its surrounding environment. Weeds have both their negative and positive points about them. However it is fairly unlikely for the positives to over-right the negatives, and hence the plant is still considered a weed. Some of the negatives can range from the destruction they may cause in reducing the quality and quantity of other plants competing for sunlight, water and nutrients in the soil to sheltering diseases and insects that may damage large areas of crops or plants, as well as some weeds being harmful to humans and animals.

Weeds can be categorised into three different areas that determine the rate in which they grow. These being:

- Annuals Biennials-starting from seed in the springtime and flowering to make new seeds within that same year,
- Perennials- a plant that lives for longer than two years
- Biennials- when a plant requires roughly two years for it to reach its full development

One of the main problems with weeds in general is how they move/spread and the abilities or adaptations they possess. Weeds, being plants travel in normal circumstances, i.e. by birds and other animals scattering seeds, by water, by way of humans/machinery or may be introduced into other countries deliberately. However many possess the ability of rapid growth, which allows them to spread more easily, or reproduce quickly so if a person were to get rid of a weed physically, its roots may grow back that very week, if not removed properly.



# Yellagong Regional Park

Hundreds of years ago Yellagong Regional Park was used as a camping ground for members of an Aboriginal tribe. Now it is one of just eight national parks in the metropolitan area that are being taken care of by the Department of Conservation and Land Management (CALM). The area contains roughly 1400 hectares and is home to several native flora and fauna. It is well used by the local community for various activities including picnics and bird watching, as well as bush walking. Despite the mass of visitors it receives each year, the majority of the public are unaware of the severity of the weeds and their detrimental effect on the native flora, and even fauna in the area. The park is an important part of the community and is an excellent place for schools, families and various organisations to visit for an educational and recreational purpose and has been since its construction. It has importance in a cultural and natural manner.



It is home to various species of flora including Paperback *Melaleuca quinquenervia*, Jarrah *Eucalyptus marginate*, and Banksia *Banksia aemula* trees. As well as several fauna including white ibis *Threskiornis molucc*, blue-winged shoveler *Anas rhynchotis*, the protected Camaby's cockatoo *Calyptorhynchus latirostris*, the long-necked tortoise *Chelodna longicollis*, six different species of frogs and many more. Many of these species thrive and depend upon the diversity of natural Park habitats for their seasonal resources. Lake Joondalup and the Yellagong Regional Park are actually on the Register of the National State. This means that the area is one of the natural and cultural heritages that needs to be kept for future generations.



However, as unfortunate as it may be, the area must deal with the intolerable weed problem. The Yellagong Regional Park is also home to a colossal amount of weeds. Some of which include the dandelion *Taraxacum officinale*, the golden wreath wattle *Acacia saligna*, Chilean needlegrass *Nassella neesiana*, and deadly nightshade *Atropa belladonna*.

# Identification of Weeds and the problems/significance of the weeds found in the area

## Deadly nightshade (*Atropa belladonna*):

The deadly nightshade is part of the nightshade family and is a resilient perennial shrub.

It is originally from Europe, North Africa, West Asia and North America, but has unfortunately made its way to Australia and in particular, throughout parts of the Yellagonga Regional Park, as well as other areas in the metropolitan. It is known to be one of the most harmful plants in Australia. Reasons for this, being that the plant, especially the roots and berries contain poison that is toxic to humans, and even animals and the entire plant contains tropane alkaloids (an organic compound and a naturally produced amine by plants).



## Description:

Its leaves are generally dull/darkish green in colour and it has bell-shaped flowers that are purple in colour for most of the year and small black berries that are roughly a cm in size. It can grow up to about 1m tall and is a herb shrub.

## Problem:

Despite the fact that deadly nightshade requires a low level of sunlight and a moist atmosphere, as well as other conditions to grow, it is still considered a weed in Western Australia and the country as it can grow quickly and last for quite some time as it is a perennial plant. Hence it may be difficult to actually stop the growth of.

## Dandelion *Taraxacum officinale*:

The dandelion is part of the Asteraceae family and has numerous different types of dandelions. It is a biennial or perennial (generally depending on the environment and species in particular) and are tap-rooted herbaceous (characteristic of a non-woody herb or plant part) plant. They originated from the northern hemisphere as they were native to the temperatures there. The name dandelion actually means "lion's tooth" as for its sharply lobed leaves on the plant.

Description: When in the flowering season, the dandelion has a yellow flower head, which opens during the day. The leaves are made



up of milky, sap-like substance inside and can grow anywhere between 5-25cm. The shoots can grow to be between 4-30cm.

Problem: When the leaves begin to grow they shoot downwards against its surrounding vegetation, e.g. grass, hence they end up killing this as it cuts off the sunlight. When the flower is mature it grows into a globe that is made up of fine thread-like shoots which are usually transported by wind, therefore carrying the quantity of seeds inside also. The dandelion is able to succeed in more than one way. That is, their seeds are able to be taken away into the air to transport them to a new location, but they also grow several inches below the ground. Their roots, being taproots are easily broken and hence it could be difficult to eradicate the plant by hand if parts break off as you do so, which ultimately means that they will regenerate.

Golden wreath wattle *Acacia saligna*:  
It is part of the Fabaceae family and is a type of shrub. It is actually native to the south west of WA but is considered a weed. It is a noxious weed that was introduced. It is also considered to be a weed in South Africa.

Description: It is a standard sized shrub that can grow up to about 10m high and 6m wide. Its branches bend downwards (pendulous) and it produces bright golden flowers that grow in smooth brown pods.

Problem: It grows extremely fast and can typically be used for erosion problems in parks and other areas. However, due to its fast-paced growth and the fact that it can regenerate well from seed spreading, it is still regarded as a weed.



Chilean needlegrass *Nassella neesiana*:

Chilean needlegrass is a type of grass and is part of the Poaceae family. It was originally from South America, in particular Brazil, Argentina, Chile, Bolivia, Uruguay, and Ecuador. However, it too, along with several other plants, has somehow made its way to Australia, possibly by way of animals or humans unintentionally. It typically grows during autumn and spring and can be found all throughout Australia, along with other countries.



Description: It is a perennial plant that grows to be about 1m high, it has nodes (like small bumps) along the stems that are covered in short fine hairs. It produces flowers in spring and autumn that grow to about 40cm in length.

Problem: It is able to spread by the seeds that it produces in the seed-heads and underneath leaf-sheafs that are above the nodes of flowering shoots and at the stem base. It is able to reproduce even if it is under to produce flowers. It is a definite pest and can spread fairly quickly and last for a long period of time.

# Appropriate Strategy to Manage the Weeds

As Yellagonga Regional Park and Lake Joondalup are a strong part of our community, it is suitable to say that the community and the local schools, in particular Mater Dei College should come together to construct ideas and go about doing them for the good of the area. C.A.L.M, together with the local government and the City of Joondalup, as well as countless volunteers have already contemplated several management strategies and acted upon them in an effort to create a better environment for the people who have taken up residence in the area and the native flora and fauna that live there. It may be a large area, but with the aid and support of the public and the funding from schools and the government, Yellagonga Regional Park could soon be free of one less problem.

As in all instances of removing weeds and preventing further growth, there are four steps a person may take, depending on the type of weed/area, the availability of resources and the knowledge; this will determine which steps are to be used in order to eradicate a weed. These four steps or ways include:

- Cultural- to make efficient crop production in order to prevent the weeds from growing.
- Mechanical- the destruction of weeds mechanically or manually, i.e. pulling them out, along with their roots.
- Biological- using natural enemies of the weed that grows in a specific area, i.e. a beetle that may eat the plant.
- Chemical- control in the use of chemical compounds called herbicides.

As Yellagonga Regional Park is part of the community within a metropolitan area, we are unable to do the cultural step of eradicating weeds. However the mechanical, biological and chemical methods may all be appropriate in this situation.

It is possible to eradicate weeds, or maintain their growth rate without using the aid of chemicals. Firstly we could apply landscape fabrics because they serve as clean, resilient weed barriers, but they also allow for air, water and nutrients to penetrate to the soil. Also, a layer of organic mulch applied over landscape fabric will decompose more slowly than it would if it was allowed to come into direct contact with the soil.

However, if it is possible to use chemicals, ie herbicides for the Yellagonga Regional Park, then there are plenty available and compatible with the area and the weeds needing to be removed.

Another step they can be taken is the replanting of native plants in the area that may be able to grow in an aid of cutting down the growth of weeds.

1. Deadly Nightshade: Generally the hands on approach would be considered the best and cheapest possible option. This method may be taken if the people

removing the plants by hand use safety equipment, i.e. gloves etc as the plant is deemed slightly dangerous and may cause harm if a person were to use their hands to touch the plant and then touch their eyes or mouth soon after. The deadly nightshade weed does not like to be moved and requires particular conditions, so therefore pulling this plant out is an effective method and could prevent the regrowth of the weed if done correctly.

2. Dandelion: This weed is a very difficult plant to remove by hand, (mechanically) and hence it is generally advised not to do so and take up other options. However sometimes it is possible to correctly remove the plant by hand and therefore it is still an appropriate strategy. The steps needing to be taken are to firstly water the lawn to dampen the soil to make it easier to pull out. Then cutting with a knife or tool that is on hand and cut down into the soil next to the dandelion taproot. Then move it around in order to loosen the roots and grip the leaves firmly and pull it slightly to see if it will move, if so then you are able to keep pulling, otherwise keep cutting down until this is able to be done.

The other method for killing a dandelion plant would be chemically (herbicides). There are different strategies and depending on the availability of resources and the funding, will decide what is used. Vinegar, Roundup and Weed-B-Gon are just three of the many different chemicals that can be used to eradicate this plant. The most appropriate time to apply these chemicals would be during autumn as the weeds die in winter but the roots remain. Mowing the lawn is one simple way of controlling the absence of weeds, and then leaving the grass clippings.

3. Golden Wreath Wattle: This plant is an urban environmental weed and is considered to be 'Jumping the Garden Fence' according to an Australian WWF report. They are having a detrimental effect on Australian agricultural land and natural ecosystems, including Yellagonga Regional Park. Hence a strategy needs to be constructing quickly to prevent any further damage to the ecosystems. However the most appropriate method would either be to pull them out physically or to use particular herbicides that will affect the plant, but not others or its surrounding environment.
4. Needlegrass: - By removing contaminated soil and basically repatching the plants, as well as land management options there would be less likelihood of a regrowth of this weed. However its genetics means that it only lives for a short period of time until it is regrown and hence action needs to be taken quickly within that timeframe to enable the removal. In terms of chemically removing this particular weed, there are numerous types of herbicides accessible to the school and local community. Two such examples would be:

- Fertilome Over-The-Top Weed and Grass Killer
- Ortho Grass-B-Gon Grass Killer

The final method, which is a more generalised one is to have a council meeting, with members of the community that are willing to help and become involved, if they are not already, as well as student representatives from Mater Dei College, along with members from the various groups or organisations that have already undergone rehabilitation and

weed reduction to the area and members of the Joondalup and Wanneroo council. Therefore with the aid of more people we can create more appropriate ideas in terms of eradicating the weeds altogether and funding that may need to be including in order for equipment or chemicals to be purchased. Also there could be a day each year, just like the yearly rubbish pickup or celebrations in which members of the community or volunteers in general travel down to the park for a day, if not a week of physically removing weeds, as well as planting new native plants. This could be assisted by the Million Trees project being run at our school presently.

# Merits for the Strategy

It would clearly be impossible to remove each and every weed located in Yellagonga Regional Park by mechanical or chemical methods alone. However it would not be suitable for the entire area to receive chemical treatment as there are so many different weeds in the area that not one single herbicide would be able to treat every weed. Also it could possibly cause harm to the native flora and fauna in the area and therefore the mechanical method seems to be the best option.

With the ever improving technology, it is likely that in a few years a new product or method will

have been created in order to eradicate weeds entirely. However that day is not here yet so we must continue with the methods and resources available to us. The weeds above (Deadly Nightshade, Dandelion, Needlegrass and Golden Wreath Wattle) are such a diverse range of plants that one strategy altogether would not necessarily work, unless it was a hands-on type of job. There are also several natural fires in the area each year and we are uncertain of the effect they may have on these weeds. Therefore, all in all, the hands on approach seems as though it is the best option as we are able to record the number of weeds that have been removed and feel a sense of helpfulness after actually uprooting them. Also some of the other methods, ie herbicides, although they may remove the weed, they may also remove several native plants in the area, or even cause harm to the fauna, as well as visitors to the park. Hence it may not be endorsed in the community-like type of area.

There have already been various groups that have helped the area in terms of weed management and plant rehabilitation including:

Friends of Yellagonga, Joondalup TAFE, Woodvale Waters Landowners' Association, Yellagonga Catchment Group and the Kingsley Scouts. C.A.L.M has also done a magnificent job, along with the local councils. Now we would like to add our name to that list to be one of the first schools to actually improve the area because we can't leave all the hard work to other people.



