

Lord of the Weeds



Leeming Senior High School

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Lord of the Weeds

The area of Leeming Senior High School that has a significant weed problem is located on the northeast corner of the school grounds. Its boundaries are Findlay road to the east and Aulberry Parade to the North. The southern boundary is the school soccer field and three transportable classrooms. On the west is a service road entering the school. The area measures approximately 100metres by 150metres. On the eastern and northeastern side of the area are two storm water drains. The drains are at the bottom of a steep bank, which is about 3metres high at its highest point. The banks and the lower ground take up about 60% of the total area and have little natural vegetation.

There are mainly couch and veldt grass growing in the area, although large gum trees have been planted along the border of the streets. There are also gumtrees scattered throughout the bushland. The main trees on the oval side are Sheoaks and Banksias. The strip of high ground closest to the service road occupies the most natural vegetation; including banksias, melaleuca, wattles, Balga trees and “woolly bushes”(Adenanthos sericeus). This strip that has been the least invaded by weeds reflects what the rest of the area once looked like. If this section of the school could be restored and brought back to its natural state, it would match the other natural bush areas in the school grounds. This would encourage the return of many species of native birds to the area.

The main problem weeds that have been identified in the bushland are Flatweed (*Hypochaeris Glabra*), Wild Oats (*Avena Fatua*), Veldt Grass (*Ehrharta Calycina*), Couch (*Cynodon Dactylon*), Rose Pelargonium (*Pelargonium Capitatum*) and Guilford Grass (*Romulea Roseaa*).

Hypochaeris Glabra commonly known as Flat Weed or Smooth Cats ear belongs to the Astera Ceae family. Smooth Cats ear is a small, dandelion-like plant with a rosette of leaves and several erect, flowering stems that are sometimes branched. The narrow, spear-shaped leaves, with occasional teeth, are broader near the tip than at the base. They are hairless, normally 1-8cm long, but sometimes as long as 20cm. The stems are usually 5-15cm tall, but can reach 40cm, and have scale-like bracts rather than leaves. The flower head is 0.5-1.0cm in diameter and is made up of a cluster of tiny flowers which only open in bright morning sunlight and close by noon.

Each flower has a single eye-catching yellow petal about twice as long as broad. The reddish-brown seeds are 4-5mm long. The seeds formed at the centre of the flower have a long beak while the outer seeds do not have a beak. *Hypochaeris Glabra* is an annual weed. It is a common weed of lawns, horticultural areas, roadsides and bushland throughout the southwest of Western Australia. Flat Weed can flower all year round, but is most common in spring. *Hypochaeris Glabra* is native to Europe and has since migrated to Australia to become an invasive weed.

This weed is a problem because of its flat spreading leaves that steal space and sunlight from plants around it. Eventually the surrounding plants die. Another problem is that the fine feather light seed is carried easily on the wind and passing people and animals. The spread of this weed is fast.

The best methods for reducing the number of this plant would be steaming and removal by hand (ensuring that the whole root system is removed). It is important to remove the plants before they seed (which is most commonly in spring) to reduce the spread of the species and repeat this for several years as new plants grow from seeds already dispersed. These methods would be the most effective, as they don't involve the use of herbicides. This is important due to the close proximity of children and the fact that these methods are not harmful to the native plants. It can also be done on the relatively small site with the help of the school community.



Hypochaeris Glabra

Avena Fatua commonly known as Wild Oats is a member of the Poaceae family. A mature plant of *Avena Fatua* when erect is up to 1.7metres tall and has green tufted hairy stems, with several growing from the base of the plant. The leaves of the plant are blade shaped, flat and hairless (or slightly hairy at the base and sometimes rough to touch). The youngest emerging leaf is often twisted anticlockwise. The flowers are on both sides of the stem and are loose and awned. The seeds colour can range from dark brown to grey to yellow, gold or brown hairs at the base.

Wild Oats are annuals that germinate in autumn and winter and flower during August and December. *Avena Fatua* frequently crosses with other *Avena* species to create a very varied complex of biotypes. Wild oats can be found on a wide range of soils from light to heavy in texture and can tolerate both acid and alkaline conditions.

This species is native to Southern Europe and is an abundant and widespread weed throughout southern Western Australia. Wild Oats have a highly competitive nature being a near equal competitor with wheat to produce crops, have staggered germination and the ability to produce a large number of seed. These attributes make Wild Oats an important weed of winter cropping systems in Australia. Seed contamination of the grain sample and cleaning costs are estimated at one million dollars per year.

Wild Oats are one of the main hosts of diseases such as rust of cultivated oats, cereal cyst nematode, stem nematode, rhizoctonia, crown rot and root lesion nematode. They also host the bacteria that are associated with annual ryegrass toxicity. *Avena Fatua* is spread widely throughout the world being found in almost every cereal growing region. In Australia Wild Oats rank as the most important weed in the northern grain region.

Two thirds of cereal farms in Australia have Wild Oats, with 40% of these farms increasing. The annual cost of the weed to the Australian industry is estimated to be \$80 million, consisting of \$60 million on herbicides and their application and approximately \$20 million due to wheat yield losses from Wild Oat competition.

It has been seen in farming areas that wild oats are highly competitive plants that will take over crops. Therefore if left in this area of the Leeming High School bushland they will take over the native plants. An herbicide can be used to kill the oats in sections that have dense weed growth as this will kill the plants completely but in sparser weed areas steaming would be more effective as the steam can be directed onto the weeds and not harm native plants.

Great caution is needed when using herbicides to reduce chances of killing native plants or harming animals and humans. Spraying should be done when students are not at school and on a still dry day. The sprayer needs to wear a protective mask and clothing. Steaming will need to be done annually for 3years, as this is how long seeds can be dormant in the soil.



Avena Fatua

Cynodon Dactylon commonly known as Couch belongs to the Poaceae family. This well-known grass is adaptable and is found almost worldwide, from deserts to the lawn in your garden. Couch is a perennial grass that forms thick mats by means of stolons and rhizomes. The stems take root at the lower nodes. The leaf blade is flattened with a sharp tip, and is hairy or glabrous (hairless). The leaf sheath is round and glabrous and the ligule has a ring of hairs or a short membrane. The leaves are bluish-green and the inflorescence of two to seven digitate, purplish spikes of flowers are produced in late spring and summer. Couch is widely planted as a lawn grass and

invades wetlands and river edges in Southern Western Australia. *Cynodon Dactylon* is native to the Kimberly and the tropics worldwide.

Couch can be a serious weed by rapidly invading cultivated land, and it is difficult to eradicate. Animals and people that walk through the grass aid in the dispersal of the grass, which is essentially wind-pollinated.

The thick rapidly spreading mat of couch suffocates and robs native plants of nutrients wiping them out completely. Couch grows most densely in the lower sections of the site, as this area would have had all native plants removed. It is also well watered by the drain outlets and run off from the banks. This area would be far too difficult to hand weed and the couch will need to be killed by a systemic herbicide that will travel through the whole plant to kill it.

Other plants in the area where there are native plants will require regular hand removal. Unfortunately this may be an ongoing problem as all houses and the school oval on 3 boundaries all have couch lawns. Unless these lawns are mowed regularly to prevent seeding the wind will continue to carry seeds onto the site. To overcome this problem during native plant regeneration a hessian fence should be erected around the site to quarantine the area and protect it from air born weed seeds. Couch is a very common weed.



Cynodon Dactylon



Ehrharta Calycina, commonly known as Veldt Grass is a member of the Poaceae family. Veldt Grass is a tufted perennial that grows up to 80cm tall. The inflorescence is a drooping erect panicle of reddish-purple flowers, which are 7- 22cm long. This species flowers only in spring. It is a widespread weed of roadsides and bushland on

sandy soils, from Geraldton to Esperance in Western Australia and is especially common on the Swan Coastal Plain.

Ehrharta Calycina spreads almost entirely by seed, although rhizomes are occasionally present. The species seeds germinate following winter rains. Plants become dormant in summer in response to the temperature, which causes the plants to dry out and the stems and leaves to lean over forming a dense thatch.

Perennial Veldt Grass is a major problem because it takes over native plant areas but also in its dry dormant stage creates a fire hazard. On the site Veldt Grass grows mainly where there are few small native plants, here an herbicide such as Fusillade 212 or Glyphosate could be used. This is best done before seeds develop, that is when the plants are actively growing and green. If a backpack sprayer is used on the banks where the Veldt Grass grows then minimal damage will be done to the native plants.

Veldt Grass growing in the thicker bush area to the west will have to be hand removed with care taken to remove the base of the plant so resprouting doesn't occur. Manual removal will need to be repeated as new plants emerge from the soil. This will need to continue for about 2 years.

Veldt Grass



Pelargonium Capitatum, commonly known as Rose Pelargonium belongs to the Geraniaceae family. Rose Pelargonium is a straggling, shrubby or bushy, low-growing perennial. It is softly hairy with compact heads of pink flowers. It grows to a height of about 0.3metres and about 1.5metres wide. The sprawling or erect stems of the plant are soft-wooded. Individual side branches can grow to a length of 0.6metres.

The stems and leaves are sweetly scented when bruised and are covered with long, soft hairs of variable density. This species is a common weed of beach dunes, Banksia and tuart woodlands from Cervantes to Esperance in



Western Australia. This weed was originally native to South Africa.

The Rose Pelargonium is a common weed and large plants compete with native plants for sunlight, water and nutrients in the soil. There are not as many Rose Pelargoniums as grasses and they are easier to remove by hand. However it is important to remove all parts of the plant from the site as even segments of stem can propagate to form a new plant.

Rose Pelargonium

Romulea Rosea, commonly known as Guilford Grass is a member of the iridaceae family. Guilford Grass is native to South Africa and grows from corms. Their leaves are mostly cylindrical. *Romulea Rosea* is the most common species of the *Romulea* breed. The flowers have petals up to 1.8cm in length and open first at ground level. As the plant matures, the flower stem elongates and bends over, eventually pushing the seed capsule back under the surrounding vegetation.

Guilford Grass is a common lawn and pasture weed and is also a pest in most woodlands, granite rocks, limestone heath and clay wetlands throughout the southwest of Western Australia. There are two varieties of *Romulea Rosea*, the more common variety *Australis* that has pale pink flowers and the other variety *Communis* which has slightly larger dark pink flowers.

Guilford grass is widespread throughout the site and is a very common weed. On farms it is harmful to grazing animals because eating too much of it can create fibre balls that can build up internally in the animal. Because this plant can be spread by seed and by corms it can take over sand areas quite quickly.

Glyphosate can be used to kill Guilford grass but is also harmful to other plants so it can only be used where there are few native plants. Hand removal is the best option for other parts of the site. It is very important to dig out all of the corms to stop resprouting. This will need to be continued over several years.

Romulea Rosea



The bushland area was vulnerable to weed invasion because the natural bush had been cleared and replaced with sand banks. This allowed the weeds to establish and prevented natural species from re-growing in this area. A weed control program is necessary to restore the original habitat and control the ongoing weed invasion. Panetta and Hopkins in 1991 stated that a weed control program should involve the following steps:

1. Accurately mapping the boundaries of weed populations.
2. Selecting an appropriate herbicide or other method of weed control after determining which weeds are present.
3. Controlling weeds that pose the greatest threat to the community in the early stages of invasion where possible, eg invasive perennial grasses
4. Rehabilitation through reintroduction of local native species where areas are no longer capable of regenerating following weed control.

Six problem weeds have been identified in the Leeming bush site. The total area to be treated is fairly small and manageable. The first part of the strategy is to get rid of the weeds by hand removal and steaming. With the addition of spraying a selected herbicide to kill the couch grass (*cynodon dactylon*), veldt grass (*Ehrharta Calycina*) and Guilford grass (*Romulea Roseaa*) that covers a large part of the lower area. A systemic herbicide would be the best option for these grasses as this type herbicide moves through the plant into deep taproots and underground rhizomes to kill the entire plant.

Banksia trees should then be planted in large numbers to eventually create a thick tree canopy. A tree guard in soil cleared of the herbicide should protect each planting. A thick mulch layer should be spread over this area to prevent any weed seeds germinating while the Banksia trees become established. Then a ground cover or low bush, native to the area should be planted to cover the ground under the Banksia trees.

In the remaining area the flatweed and wild oats could be killed with steam spray. The rose pelargonium could be removed by hand. This area of bush already has native plants that are well established. When the weeds are removed more of the same native plants could be planted, surrounded by some mulch.

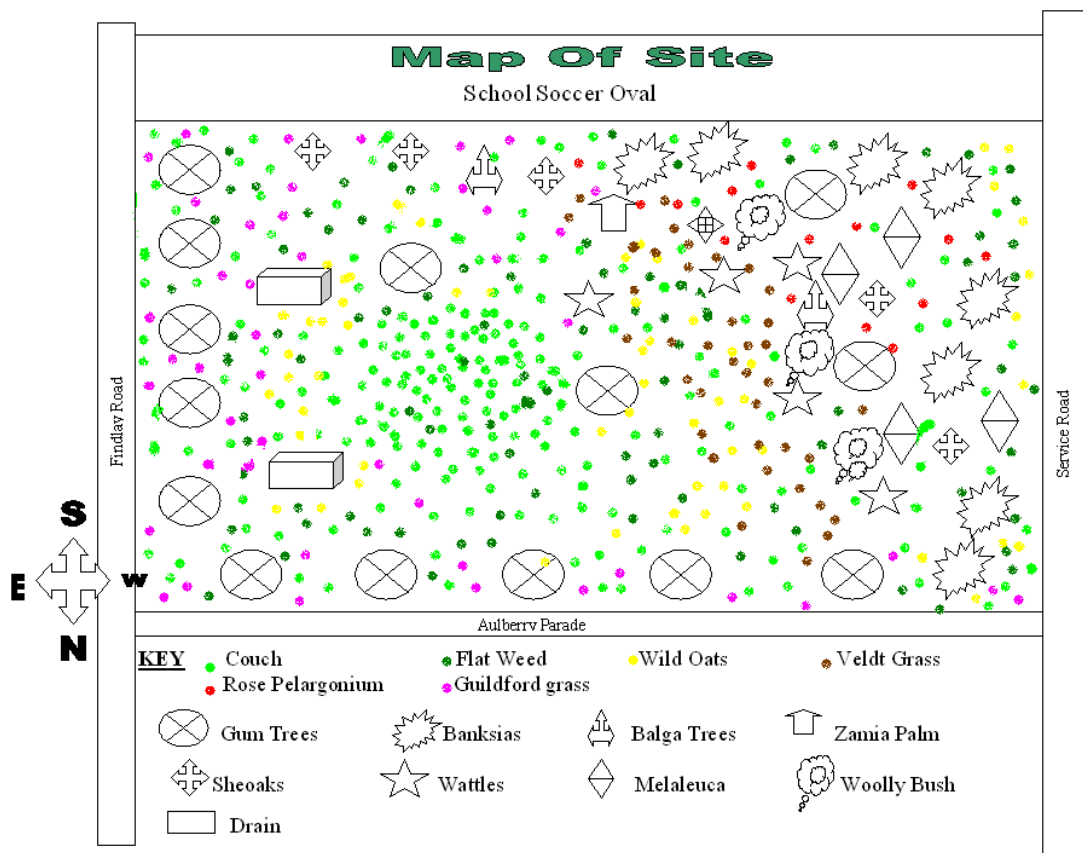
The planting program should take place at the end of winter and early spring to allow for the new plants to become established before summer. The following winter the area will need to be checked for regrowth of weeds. Steam spray should control any new weeds. Some plants that did not survive the summer may need to be replanted.

This project could be successfully taken on by a community group involving students from Leeming Senior High School as part of their study program. This would help local people have ownership of this area, which would more likely result in future care and maintenance. A committee could be formed to raise money and report grants to fund the project. They would be able to contact Melville council, CALM and the department for agriculture for advice, use of equipment and donations of plants and mulch.

Local nurseries may also be asked to donate plants and equipment. The school newsletter could help raise awareness of the importance of regenerating this bush area and how the whole community can play its part in not spreading weeds. The local newspaper could feature a story about the area and follow the progress being made.

If this group is able to successfully implement the weed control strategy and re-establish the natural bushland it will lead to many benefits. The natural bushland will provide a more appealing landscape for the school and surrounding occupants. More native birds and animals are likely to return to the area. An area of natural bush will

be protected for future generations. A source of weeds with the potential to spread would have been eradicated and possibly the greatest benefit would come from a community group working together to achieve a positive change for the environment.



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