Camphor laurel and Dyschoriste depressa

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Agriculture Assignment

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1. Introduction

The two weeds I will be covering in this report are *Cinnamomum camphora* (Camphor laurel) and *Dyschoriste depressa* (no common name). These weeds have both taken over areas in the permaculture site and along the banks of Kedron Brook at Ferny Grove State High School (refer Appendix A for map).

Camphor laurel was introduced into Australia during the early 19th century and has since affected our waterways. *Dyschoriste depressa*, on the other hand, is a new weed to Australia that is thought to have been introduced only 2 years ago. Both of these weeds have the potential to cause serious damage to our environment. To raise awareness on these weeds, I have included background information on Camphor laurel and *Dyschoriste depressa*, problems associated with them, their control methods and management strategies suitable for use at Ferny Grove State High School.

2. Camphor laurel *Cinnamomum camphora (Lauraceae)*

2.1 Background Information

Camphor laurel is a large, attractive evergreen tree that can grow to a height of up to 20 metres. It bears glossy, waxy leaves which, when crushed smell distinctly of camphor (refer Appendix B for leaf specimen). The tree was introduced into Australia in 1822 from Asia as a garden ornamental. Its masses of white flowers and black fruits made this fast growing tree a popular plant among gardeners. Camphor laurel commonly grows along watercourses and damp areas. During the autumn and winter seasons its fruit is incredibly popular with birds, which are a major contributor to its spread. As the trees commonly grow along watercourses, the seeds are often dropped into the water and transported to other areas along the bank.

2.2 Problems

Camphor laurel can be a major problem in agricultural, bushland and urban areas. Its ability to germinate and grow quickly, and spread effectively means this weed can block drains and other watercourses, replace native vegetation and cause considerable complications in the agricultural industry. In agricultural and urban areas the spread of Camphor laurel can result in the damage of fencing and over-head powerlines. It is not uncommon for the weed to germinate under such areas where birds often rest and deposit the seed. The root system of large Camphor laurel trees often cause blockages in watercourses and can crack large concrete areas.

Camphor laurel has also been proven to have serious affects on Australian wildlife. Koalas and platypuses are among the worst affected animals. Connections have been found between the absence of the platypus and the invasion of Camphor laurel trees into their habitat. In September 2002 a mass of deaths of platypus were reported along the banks of the Coomera River in Queensland, an area heavily infested with Camphor laurel trees. Large amounts of camphor in the body's organs and a decrease in food as a result of the trees seemed to be responsible for their deaths. Other areas in northern New South Wales such as the Richmond River and Goolmangar Creek have also been reported with having similar incidents.

In South East Queensland the native blue gum, a popular source of food for koalas, is being replaced by Camphor laurels. This and other disruptions of native habitat could lead to possible food shortage for Australia's indigenous wildlife. Not only could Camphor laurel take over large expanses of natural forest it could destroy many of the native habitats and shelter for Australia's wildlife.

Camphor laurel is also a health risk for humans. Research shows that continuous exposure to camphor oil could be fatal for infants and young children. Exposure can also result in serious skin rashes. A survey conducted on millers who worked with Camphor laurel wood showed that 50 percent were suffering from skin and mucous membrane afflictions due to inhaling the fumes from the freshly cut Camphor laurel wood.

2.3 Control Methods

The two main methods for controlling Camphor laurel are mechanical and herbicidal. A mix of different methods will obtain a better result. With all methods, however, the problem weed is always best tackled earlier on, as there is less labour required and it is more cost effective.

Mechanical: For small Camphor laurel seedlings, hand pulling is an easy and effective way to control the weed. For larger trees, bulldozing may be required to remove the roots and the crown.

Herbicide: Herbicide is a popular control for larger trees and requires less labour than the mechanical method. Large trees with numerous heavy branches may need to be cut back before poisoning to ensure that no rotten branches fall and cause damage later on. The three methods of herbicidal control are shown in Appendix B and the registered herbicides available for the control of Camphor laurel are shown in Appendix C.

2.4 Management Strategy

The area I am focusing on is along the creek bank. This area is constantly littered with Camphor laurel seeds from a massive tree at the end of the oval near the sheep pen. As this is large tree of cultural significance, it may not be able to be removed and even if it could, the cost would be prohibitive. For the control of minor Camphor laurel trees at Ferny Grove High School I have devised the following plan. As with all weeds, "a stitch in time saves nine", so the earlier you start controlling the weed, the less labour there is required.

Step 1: Remove any minor weeds affecting the area mechanically (pulling out)

Step 2: When removing larger Camphor laurel trees wait until the spring/summer months of the year, as at this time they are not producing seed. The chemical methods in Appendix B can be combined or used singularly depending on the size of the weed. Appendix C also shows the registered chemicals for the removal of Camphor laurel. Be sure however, to cut away any heavy limbs that could cause damage after poisoning the plant.

Step 3: Replant the cleared area with native shrubs and trees to prevent further spread of the weed in to the vicinity. Be sure to include plants that provide a source of food and protection for local wildlife.

Step 4: To maintain a weed free area regular examinations (i.e. fortnightly) should be conducted and any weeds that are found are to be removed using the appropriate method.

2.5 Evaluation

After all the Camphor laurel trees have been removed, the effectiveness of this strategy depends on regular examinations. Although this is a reasonably labour intensive method, I feel that, if undertaken correctly, it would significantly reduce the impact of Camphor laurel trees at Ferny Grove State High School. It would be a problem for the Camphor laurel trees that are too large to remove and other measures would have to be taken into account to control the weed. There would be a need to continue monitoring the spread from these remaining large trees.

3. *Dyschoriste depressa (Acanthaceae)*

3.1 Background Information

The name *Dyschoriste depressa* is not far from the truth; *dyschoriste* a Greek word meaning separated, with difficulty and *depressa* meaning depressed, sunken. It is flowering ground cover (refer Appendix D for plant specimen) only recently introduced into to Queensland within the past two years. Numerous emails to government departments showed that little was known about this weed. Not only has it spread from its home country, South Africa, into Australia but there have also been reports from areas in India that are suffering from this weed. In South Africa *Dyschoriste depressa* is a waterway plant, favoured for its ability to hold soil on the riverbank, therefore preventing erosion. Animals such as bushbuck are often found grazing on it.

3.2 Problems:

Although there is not much known about this weed, areas such as Toowong and Fig Tree Pocket have sections covered with large infestations of *Dyschoriste depressa*. This weed is very effective at spreading and will soon form a mat over an uncovered area by re-shooting from little nodules along its stem. These thick mats can prevent other plants from growing in that area which could be problem in Australia as it could result in a food shortage for our indigenous wild life and an absence of native plant species. *Dyschoriste depressa* is also an effective spreader by seed, which are often dispersed shortly after flowering.
Other problems associated with this weed include its strong resistance to mowing, being heavily trod on and its ability to survive, submerged in water. It can grow in both sunny and shady positions, but prefers damper areas such as riverbanks and wetlands.
In South Africa, *Dyschoriste depressa* is popular grazing material among herd animals such as bushbuck. As Australia does not have such grazing animals, it will be hard to keep *Dyschoriste depressa* under control.

3.3 Control Methods:

As *Dyschoriste depressa* thickly mats, it is almost impossible for the weed to be removed mechanically. Roundup is an effective chemical control however although it does kill the plant, the seeds can still survive and germinate. The best time to spray with "Round up" is before the plant begins to flower, as this will reduce the risk of any seeds escaping and germinating into another infestation. For those who prefer gardening organically, layers of newspaper can be spread thickly over the plant followed by a dense layer of bark-chip mulch. The newspaper should be overlapped at least 7 cm to ensure that the weed will not grow through any gaps.

3.4 Management Strategy:

The areas affected by *Dyschoriste depressa* at Ferny Grove State High School are at the bottom of the permaculture compound and along the creek in the council area. To control *Dyschoriste depressa* I have devised the following plan, which is a combination chemical spraying and the paper and mulch method (the paper and mulch method is suitable for use around the permaculture site, as this is an organic area). It should be undertaken before the weed begins to flower:

Step 1: To spray the area with Roundup, first cover the native trees or any plants you do not want affected by the spray with plastic sheeting.

Step 2: Spray the *Dyschoriste depressa* and remove plastic after one week.

Step 3: Cover the area sprayed with a thick layer of newspaper and mulch and leave for a few weeks.

Step 4: Checking is required to ensure that there is no germination o the *Dyschoriste depressa* through paper and mulch.

3.5 Evaluation:

Dyschoriste depressa is such an efficient spreader and is so resistant to a number of extreme conditions that it is a very hard plant to remove. Although I think that my devised method would temporarily eradicate the weed, it may eventually grow back from remaining seed. As with the Camphor laurel, regular checks need to be conducted so that the weed can be tackled early.

4. Conclusion:

Camphor laurel and *Dyschoriste depressa* may seem to be two very different weeds but when compared with each other, one can see that many of the characteristics are shared: their adaptability, effectiveness at spreading, their fondness of waterways and damp areas and most of all their potential to cause considerable damage to Australia's natural ecosystems. Awareness needs to be raised on both these weeds so that any

further damage can be prevented. Publicity will enable people to identify the weed and choose the most effective control for both young and mature Camphor laurel trees and *Dyschoriste depressa*. Although the use of chemicals and other organic methods can be very effective, the key to success in controlling, Dyschoriste depressa and Camphor laurel is ongoing maintenance. I hope this report has provided an insight into the problems associated with these weeds and allowed consideration of the different methods of controlling them.

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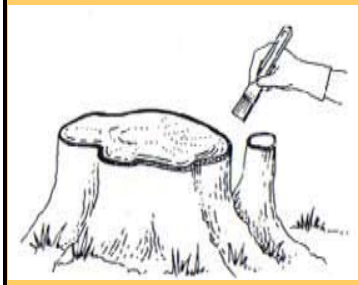
Appendix A

Map of areas affected with Camphor Laurel and *Dyschoriste depressa*

Appendix B

Camphor Laurel leaves

Appendix C Table 1: Methods of Removing Camphor laurel

Symbol	Information	Method of removal	Herbicide application
	Cut stump and paint method This method is ideal for woody plants.	Cut the stem close to the ground. Then immediately apply glyphosate to the cut surface. Avoid using brushes to apply herbicide as they may cause splashes to the eye. A small squeeze bottle is ideal. As a safety precaution use a dye to monitor stumps that have been painted.	Use 1 part Glyphosate to 1.5 parts of water.
	Basal Bark method Suited to trees and shrubs. This method is used to kill shrubs and trees that may safely be left in place to rot.	Using a small axe make a shallow cut under the bark close to the ground and below the lowest branch. The cut should penetrate the green growing tissue leaving a lip extending from the trunk. Apply herbicide immediately to the exposed area allowing soaking before applying a second dose. Repeat procedure around the trunk at the same level leaving a 5cm gap between them. Apply herbicide to each cut before making the next.	Use 1 part Glyphosate to 1.5 parts of water.
	Tree Injection Best Results are achieved with plants that are actively growing. The success of the herbicide relies on the plant's normal physiological activities to move through its tissue	Drill holes at a downward angle into the sapwood of the tree. Drill at regular intervals (every 5 cm) around the tree, using a cordless drill or brace and bit. Apply herbicide using a small squeeze bottle to each drill hole.	Tree injection is considered the safest control method for the eradication woody weeds. Small quantities of chemical are required and this chemical is placed inside the tree's tissue, away from the public.

www.greeningaustralia.org.au/weedguide/BrisWeedGuide/Pages/weeds/weed11.htm

Appendix D

Table 2: Herbicides Registered for the Control of Camphor laurel

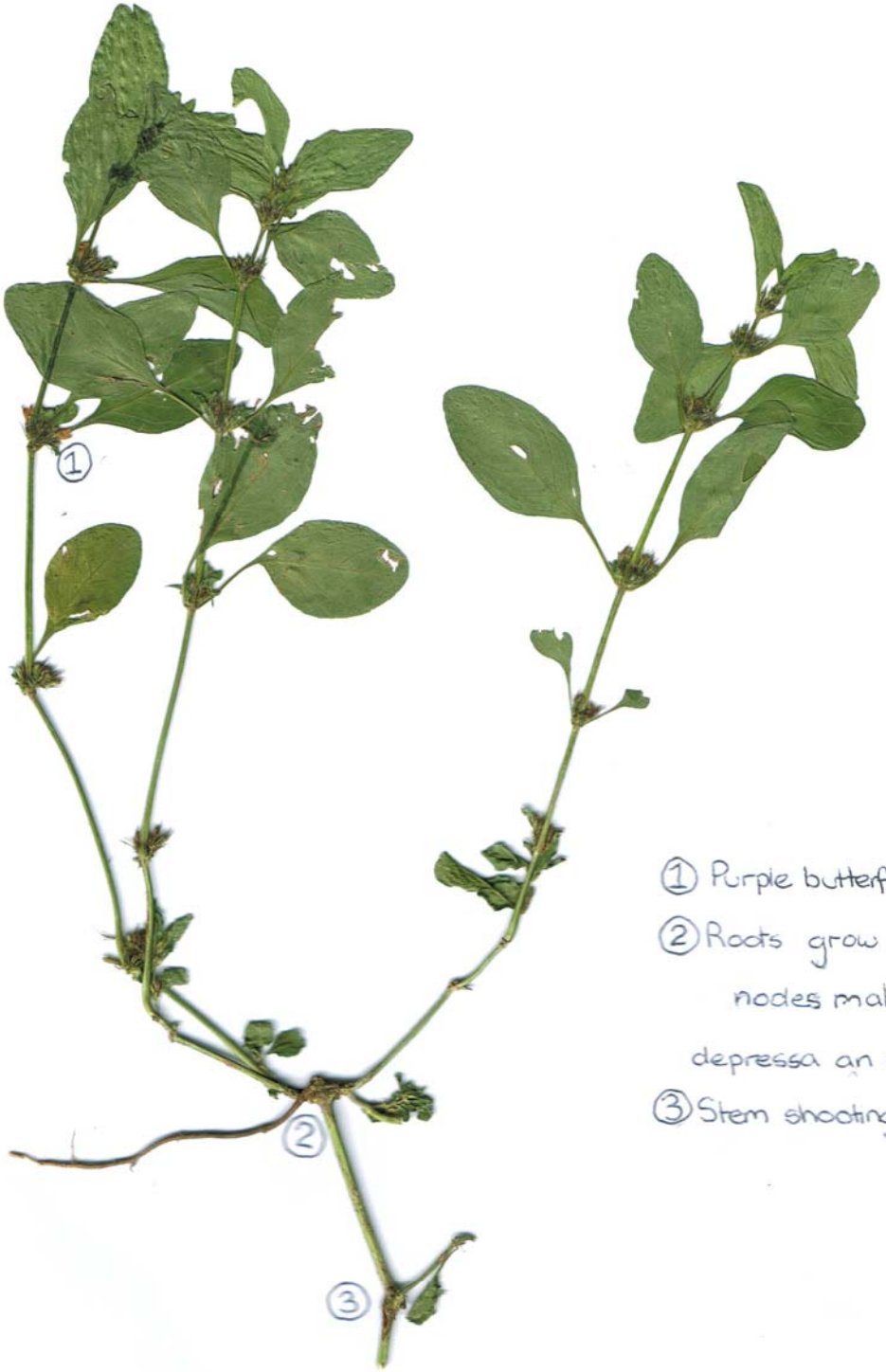
Situation	Herbicide	Rate	Comments

Pastures; non crop; forestry; rights of way; aquatic areas	Triclopyr-butotyl + picloram e.g. Grazon DS	350-500 mL/100L water	High volume spray for trees up to 3m tall. Higher rate for > 2m tall
		2.5/100L water	Air blast/mister Foliar spray
		1:20 water	Gas un or sprinkler sprayer Foliar spray
Pastures; non crop; forestry; rights of way; aquatic areas	Triclopyr-butotyl e.g. Garlon	170 mL/100L water	High volume foliar spray up to 3m tall
		1L in 60 L diesel	Basal bark for trees up to 6m tall and 30 cm stem diameter or cut stump
Pastures; non crop; forestry; rights of way; aquatic areas	Gly phosphate-IPA	2 mL of 1;1 mix with water	Stem injection for trees up to 25 cm diameter
		2 mL undiluted	Stem injection for trees 25-60 cm diameter

http://www.nrme.qld.gov.au/factsheets/pdf/pest/PP46.pdf

Appendix E

Dyschoriste cutting



① Purple butterfly attracting flowers

② Roots grow from each of the nodes making Dyschoriste depressa an effective spreader

③ Stem shooting from nodes