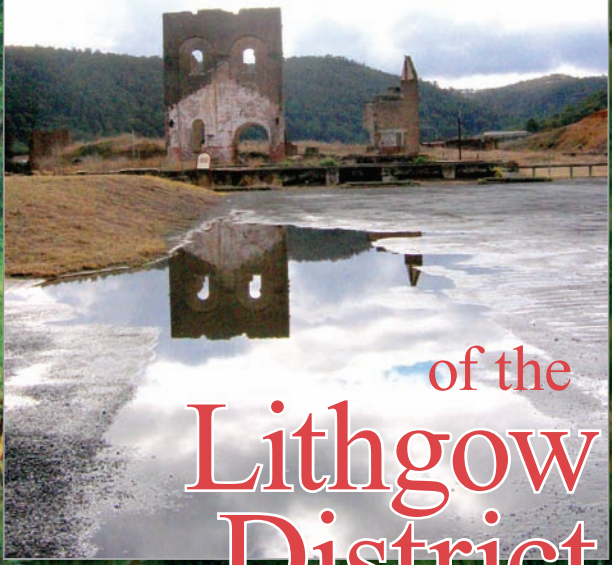
Weeds



of the

Lithgow District

Upper Macquarie County Council

Lithgow City Council

Landcare

Hawkesbury Nepean Catchment Management Authority

Introduction

This booklet has been produced by the Hawkesbury Nepean Catchment Authority Lithgow branch. It provides information on the identification and problems associated with some of the major weeds of the Lithgow District. It contains photos of each weed species, a description, and a list of characteristic features to help you identify each weed. It outlines weed control techniques.

For further information about the weeds of the Lithgow District refer to the contacts list on the back page.

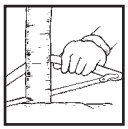
Symbol guide

This booklet uses the symbols below to identify the most appropriate weed control techniques for each weed described. These methods are detailed on the last three pages.

hand remove seedling

hand remove vine

crowning



cut & paint

scrape & paint

stem injection

Weeds

Weeds are plants that grow in areas where they do not occur naturally. They are fast growing, have few enemies, reproduce and spread rapidly, and thrive in disturbed landscapes and bushland areas.

Weeds pose a significant threat to natural environments and agriculture, and are estimated to cost the Australian economy approximately $4 billion per year.

It is important that all members of the community play their part in controlling the weeds within their area.

As a member of the Lithgow Community you can help by

- Learning to recognise weeds.
- Understanding how and why weeds spread.
- Removing weeds from your garden or property.
- Choosing either native or non-invasive species for your garden or farm.
- Joining a Landcare or Bushcare group.
- Choosing to use phosphorus-free detergents.
- Using only slow release fertilisers.
- Keeping garden wastes out of gutters.
- Picking up pet wastes and disposing of them responsibly.

Brooms

Cytisus scoparius & Genista monspessulana

Description

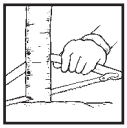
Broom is an erect shrub up to 4m that can form dense single species stands. There are two types of invasive Broom known to occur within the Lithgow district - Scotch Broom (*Cytisus scoparius*) and Cape Broom (*Genista monspessulana*).

Characteristic Features

Scotch Broom can be recognised by its deeply ridged stems and small leaves, which are sparsely spread along the stems.

Cape Broom is very similar to Scotch Broom, but is leafier, with larger, rounder and softer 3-lobed leaves, and numerous slightly smaller flowers clustered on the ends of the branchlets.

Both brooms produce bright yellow ‘pea flowers’ in spring, and a hairy seed pod like a pea pod.



Problem

- Compete with native plants for nutrients and water, and create dense shade that prevents native seed growth.
- Alter nitrogen levels in the soil.
- Spread rapidly, producing up to 6000 seeds per plant per year.
- Seeds can survive in the soil for a decade or more.
- Seeds are easily spread by wind, water, animals, soil and fill which contain seeds, and mud on hiking boots and car tyres.

Scotch Broom

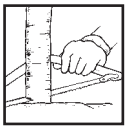
Cape Broom

Gorse

Ulex europaeus

Description

Gorse is a spiky, upright shrub that grows up to 5m in height and can form dense thickets.



Characteristic Features

Stems are sharply branched and have narrow spiky leaves clustered at the base.

Produces clusters of deep golden yellow pea flowers in spring and autumn.

Seeds are held in hairy, oval shaped, greenish-brown pods.

Problem

- Spreads rapidly. A mature infestation can produce up to 6 million seeds per hectare each year.
- Causes acidification of the soil.
- Grows rapidly (to more than 3 metres in less than five years) and out-competes native plants.
- Shades the soil, seriously limiting the establishment of native seedlings.
- Explosive seed pods can fling seeds up to 5m away from the plant. The seeds can also be spread by water, and are often moved in dumped soil and garden waste.
- Seeds can survive in soil for over 25 years.
- Gorse is highly flammable and considered a fire hazard.
- Provides shelter for pests such as rabbits.
- Produces dense and extensive root systems.
- Individual plants are long lived (can live up to 30 years).

Anne Bowman

Flowers

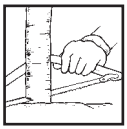
Seed pods and spiky leaves

Honey Locust

Gleditsia triacanthos

Description

Gleditsia is a deciduous, medium sized tree (up to 25m) that has a dense canopy and can form single species stands along watercourses and floodplains.



Characteristic Features

Easily recognisable branched spikes occurring in clusters along the tree trunk and singly on the branches.

Leaves are feathery and divided into small (up to 4cm) oval leaflets.

Fruit is a large, flat, twisted red-brown pod, resembling a twisted bean pod.

Produces small, white-green, fragrant flowers in October-November.

Problem

- Long stout spikes can inflict extremely painful injuries.
- Thickets prevent human and animal access to tracks and watercourses.
- Creates dense shade, suppressing native seedling growth and altering the temperature of water flowing beneath the canopy.
- Seed pods are eaten by animals, particularly cattle. This contributes to the spread of the species.
- Seeds are spread easily by water.

DNRMW Queensland

Seed pods

RH Mohlenbrock USDA-NRCS PLANTS

Spikes on trunk

Privets

Ligustrum species

Description

Privets are large shrubs or small trees which grow quickly and create dense shade. There are two types which are invasive in the Lithgow district: Small-leaf Privet (*Ligustrum sinense*) and Large-leaf Privet (*Ligustrum lucidum*).

Characteristic Features

Small-leaf Privet is a much-branched shrub to 4m. Leaves are small (to 6cm), oval with a pointed tip, dark green on both sides, and often have a wavy margin. Sprays of tiny white tubular flowers are produced in spring, and are followed by small berries which ripen from green to a dull blue-black in winter.

Large-leaf Privet is a large shrub to small tree. Leaves are large (to 13cm), oval, glossy dark green on the upper surface, pale and dull below. Clusters of creamy tubular flowers occur in summer, followed by blue-black berries in winter.

Both species of Privet have small corky dots (lenticels) along the stems. Leaves are opposite. Flowers are strongly scented.

Problem

- Seed is spread rapidly by fruit-eating birds and also washed down waterways.
- Infest waterways and creeklines, shading out and replacing native plant species.
- Grow fast and outcompete native plants.
- Take over large areas rapidly.
- Flowers are allergenic and can cause asthma and hayfever.

Small-leaf Privet

Large-leaf Privet

Willows

Salix species

Description

Willows are a group of deciduous trees that have large root systems and form dense canopies. Many willows have been identified as weeds within the Lithgow District. The most common of these are Crack Willow (*Salix fragilis*) and Pussy Willow (*Salix cinerea*).

Characteristic Features

The flower clusters (catkins) occur in early spring. Male and female catkins are produced on separate trees.

Identifying individual species of willow is difficult because many hybridise (cross with other species) and the key characteristics are not always easily observable. For more detailed information on identifying willows refer to the contact list on the back page.

Problem

- Divert water in creeks and rivers toward banks, creating areas of erosion.
- Create dense shade that prevents native seedling growth, and change the characteristics of in-stream habitat.
- Branches washed or blown downstream can grow roots and become new individual trees (i.e. willows can spread vegetatively).
- Pussy Willow is easily spread long distances by seed and can invade off-stream wetlands.

Pussy Willow catkins

Crack Willow leaves

Briar Rose

Rosa rubiginosa

Blackberry

Rubus fruticosus

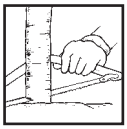
Japanese Honeysuckle

Lonicera japonica

English Ivy

Hedera helix

Description



Blackberry and Briar Rose are deciduous scrambling shrubs with robust thorny stems, which often form impenetrable thickets.

Characteristic Features

Blackberry has dark green leaves divided into 3-5 oval leaflets, with serrated edges and white hairs and small prickles on the undersides. Clusters of small white or pink flowers are produced from November to February. Clusters of fleshy berries appear from December to April, ripening from green to red to black.

Briar Rose leaves have 5-7 oval leaflets with toothed edges, and the lower surface is usually hairy. Leaflets give off a sweet apple-like fragrance when crushed. Single 5-petalled pinkish-white fragrant flowers appear in summer. The flower stalk is hairy with fine prickles. The fruit is a hip, egg-shaped to almost round, maturing to orange-red.

Problem

- Form dense thorny thickets which provide habitat for feral animals such as foxes and rabbits.
- Create dense shade that limits native seedling growth.
- Take over large areas rapidly.
- Spread by birds and other animals eating the fruit.
- The canes of blackberry can send out roots when they touch the ground, effectively growing into another plant.

Blackberry fruit

Briar Rose

Description

Japanese Honeysuckle and English Ivy are scrambling woody vines which are spread mainly by birds, water and the dumping of garden waste. Leaves and fruit of both are poisonous.

Characteristic Features

Japanese Honeysuckle stems are soft and red when young, becoming woody with age. Leaves are oval and opposite with a smooth-edge. Tube-like white to yellow flowers are strongly scented and filled with nectar. The fruit is a small shiny black berry.

English Ivy leaves are dark green, tough and shiny, lobed or rounded. They generally have 3 to 5 lobes but are rounded and unlobed when mature. Flowers are small, greenish and strongly scented, and are followed by clusters of blue-black berries.

Problem

- Eliminate ground flora, smother shrubs and trees.
- Form large mats across the ground and can climb to 10m (honeysuckle) or more than 30m (ivy).
- Seed is spread by birds into new areas.
- Can reproduce from seed, stem roots and stem fragments.
- Engulf and kill branches of host trees by blocking light from reaching the leaves.
- Added weight from vines increases the chance of the host tree blowing over in storms or heavy winds.

Japanese Honeysuckle

English Ivy

Pampas Grasses

Cortaderia selloana, Cortaderia jubata

Description

There are two weedy species of Pampas Grass in the Lithgow district - *Cortaderia selloana* (Common Pampas Grass) and *Cortaderia jubata* (Pink Pampas Grass).

They are tussocky perennial grasses that grow to 4.5m tall and invade roadsides, forest plantations, burnt, open, and mechanically disturbed bushland.

Characteristic Features

Arching strap-like leaves rising from the base are about 2m long and have rough surfaces and edges. Root systems are deep and extensive.

In Common Pampas Grass the feathery summer flowers are white or beige; in Pink Pampas Grass they are pink or mauve. The strong straight flowering stems are 2-6m high.

Problem

- Individuals produce vast quantities of seed which can be dispersed many kilometres by wind and water.
- Can also be spread by slashing, and from dumping in bushland and along stream banks.
- Can grow from rhizomes (root segments).
- Pink Pampas Grass can reproduce without fertilisation.
- Can invade disturbed areas and spread rapidly.
- Provide nesting sites for European wasps and other pests.
- Have the potential to create a fire hazard.

Common Pampas Grass

Pink Pampas Grass

above & left DPIW Tasmania

Cotoneaster

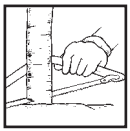
Cotoneaster spp

Common Hawthorn

Crataegus monogyna

Description

Cotoneaster and Common Hawthorn are shrubs which have been widely used for hedges and windbreaks, and which are spread by birds throughout the region.



Characteristic Features

Cotoneaster leaves are oval, often with a covering of fine white hairs on the underside. Clusters of small white or pink flowers are followed by small red or orange-red fleshy fruits.

Common Hawthorn, a large deciduous shrub to small tree, has smooth grey bark with branches terminating in long thorns. Leaves are wedge-shaped at the base with toothed lobes. The main veins on the lower surface of the leaves are hairy. Flowers are fragrant, 8-12mm, and resemble an apple blossom. They occur in clusters and are white or pink. Fruits are red, fleshy, apple-shaped, about 1cm.

Problem

- Dense infestations smother native vegetation.
- Encourage the build up of pest species of fruit-eating birds.
- Both Hawthorn and Cotoneaster can act as the host for bacterial fireblight and other diseases of orchards.
- The berries are slightly poisonous, especially for children.
- Hawthorn can sucker from roots if the parent plant is not treated effectively.
- Hawthorn can also reduce the carrying capacity of pasture and make stock mustering difficult.

Cotoneaster

Common Hawthorn

Alison Roy

Using Herbicides

Many weed control techniques suggested in this booklet involve the use of herbicides. Herbicides are poisons and should be treated with respect. They are easily absorbed through the skin, by breathing the vapours, and by ingestion.

By law, herbicides must be used strictly in accordance with the manufacturer's label. They should be kept well out of reach of children, preferably in a locked cabinet. They should always be stored in the original labelled container.

Use of herbicide: safety precautions

- **Read the label** before opening the container and follow the instructions exactly.
- Wear protective clothing: long sleeves, long pants, sturdy shoes, PVC or rubber gloves, eye protection.
- Always wear waterproof gloves. A respirator is advised when mixing or pouring the liquid.
- Do not eat, drink or smoke while using herbicide. Keep children and pets away.
- Wash skin and equipment afterwards. Wash contaminated clothing separately.
- Clean up any spills, including on your skin, with large amounts of water, or by shovelling up contaminated soil and disposing of it at the tip.

Types of herbicide and timing of treatment

A number of systemic herbicides are registered for use on a range of woody weeds. Recommended herbicides include products based on Glyphosate, Garlon, Picloram and Tricopyr.

In order to maximise the translocation of herbicide to the roots and growing tips of the weed, herbicide should be applied during the growing season of the weed. The plant should not be treated when under stress, for example by drought, waterlogging or extreme temperatures.

Application technique

When treating woody weeds, it is important to apply the herbicide within 30 seconds of tissue damage, otherwise the plants will seal the wound and the herbicide will be prevented from being moved around the tree through the sap.

Herbicides and waterways

The chemicals in herbicides and some additives in them are not safe to use in or around waterways (always read the label for registered use). They have the potential to cause a serious decline in the quality of aquatic ecosystems. If you need to remove weeds, particularly trees, within 20m of a watercourse, even a drain that runs only when it's raining, seek advice and assistance from UMCC, HNCMA or Lithgow City Council. See back cover for contact details.

Weed Control Methods

Minimal disturbance

Hand Pulling: seedlings

Hand removal of weeds can be undertaken to remove seedlings of any weeds (e.g, Willows, Gleditsia, Gorse) and also when removing small soft weeds. It is important that once the weed is removed it is left in an area where it is not in contact with the soil, as it may re-root. Put it on a rock, in the fork of a tree, or in the wheelie bin.

To remove weeds by hand:

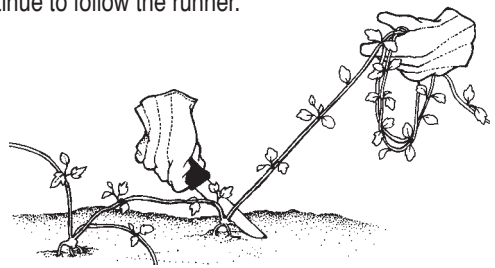
- Gently remove all seeds and fruit and put in a bag.
- Grasp stem at ground level.
- Rock plant to and fro to loosen roots and pull out gently.
- Carefully tap roots to dislodge any soil. Replace soil and pat down.

Hand Removal: vines and scramblers

Hand removal can be used when the stems of vines or scramblers are strong enough not to snap when the runners are pulled.

To remove vines and scramblers by hand:

- Take hold of a runner and gently pull it along the ground towards you.
- At points where the runner resists there are roots growing at the nodes. Remove the roots with a knife or dig out with a trowel and continue to follow the runner.



Crowning

This minimal disturbance technique is used to remove grasses and some herbaceous plants, such as Coreopsis.

Before starting work, remove and bag any flower or seed heads. Grasp leaves or stems together so that the base of the plant (the crown) is visible.

Insert a knife at a 45 degree angle into the ground, under the base of the plant, and twist the knife to cut through all the roots.

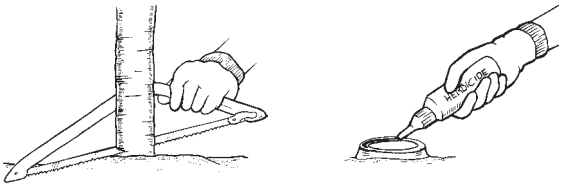
Remove the plant, leaving severed fine roots in the ground.

Cut and Paint: woody weeds

Cut and paint is most effective on small to medium woody weeds up to 10 cm diameter at the base of the trunk. Some plants such as willow, privet and holly can regrow from stem fragments. It is important that cut branches from these species are not placed in an area where they can come into contact with moist soil. Cut branches should be raised above the gound in such areas or removed. If treated plants resprout, cut and paint the shoots after sufficient regrowth has occurred.

To remove weeds by cut and paint:

- Make a horizontal cut as close to the ground as possible with secateurs, loppers or a bush saw.
- Within 30 seconds apply appropriate* undiluted herbicide to the exposed flat stump surface.

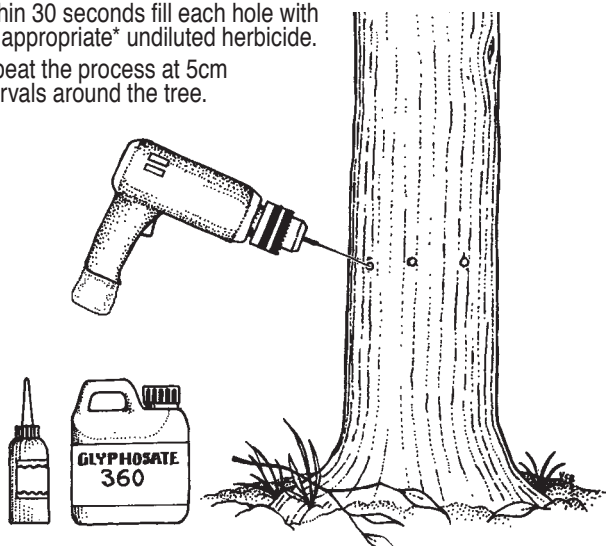


Stem Injection: trees and woody shrubs

Stem injection is best used for the control of large woody weeds with diameters greater than 10cm at the base of the trunk.

To treat weeds by stem injection, using a cordless drill or hammer and chisel:

- Below any branches, drill or chisel holes around the base of the tree into the sapwood, angled down at 45°, and at 5cm intervals.
- Within 30 seconds fill each hole with the appropriate* undiluted herbicide.
- Repeat the process at 5cm intervals around the tree.



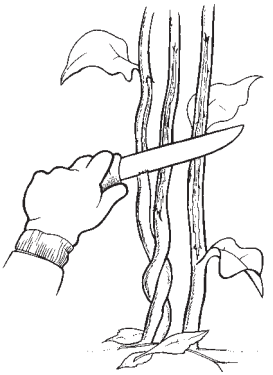
* Weeds respond differently to different herbicides, so selecting the appropriate herbicide to use is critical. Read the label for registered use. To determine the most appropriate herbicide to use, contact the local office of the HNCMA, the UMCC, or the NSW Dept of Primary Industries. See back cover.

Scrape and paint: vines and scramblers

Scrape and paint can be used when hand removal is too difficult. It is the best method to use when stems are large and when vines are climbing on trees and cannot easily be removed by hand pulling. Vines can be left hanging in trees after treatment.

To scrape and paint vines and scramblers:

- With a knife, scrape 15-30cm along the stem from the base, to expose the layer just below the bark.
- Immediately (within 30 sec) apply undiluted herbicide along the length of the scrape.



Things to think about when removing weeds

Whether using herbicide or not, there are a few things to consider when removing woody weeds:

- Plan your removal route in advance to minimise damage to surrounding vegetation.
- Don't cut down plants covered with fruit or seed: unripe fruit or seed can ripen on cut branches.
- Don't carry out plants covered with fruit or seed: this will help spread the weed.
- Some plants grow from branch cuttings, so removal must be undertaken carefully. In many cases, stem injection is an effective alternative removal method.
- When a mature tree is removed it is likely that seedlings from the tree will germinate in the area. It is therefore important to return to areas where mature trees have been removed and pull out any seedlings that emerge. The length of time for follow up will depend on how long the seed of the weed can survive in the soil as well as the environmental conditions present. Nearby populations of weeds may also reinfest the area.
- When removing weeds, especially when they have been removed as large single species stands, the disturbance created provides an opportunity for new plants to colonise. When undertaking such work it is important to consider what species are likely to move into the area.
- Stem injection techniques reduce herbicide damage to the surrounding environment. By placing the herbicide directly into the tree, contamination of soil, water, and damage to off target plants is minimised.
- Trees make good perches when left standing. They will rot and fall eventually. Depending on the area and how many trees there are, you may decide to leave the dead trees standing.

Other weeds occurring in the Lithgow District

Many more weeds occur in the Lithgow area: some are listed below.

Woody Weeds

Black Locust - Robinia pseudoacacia
Radiata Pine - Pinus radiata
Butterfly Bush - Buddleja davidii
Cherry Laurel - Prunus laurocerasus
Tree of Heaven - Ailanthus altissima
Poplar - Populus species
Portuguese Heath - Erica lusitanica

Portuguese Heath

Herbaceous weeds

Coreopsis - Coreopsis lanceolata
Hemlock - Conium maculatum
Montbretia - Crocosmia x crocosmiiflora
St John's Wort - Hypericum perforatum
Scotch Thistle - Onopordum species

Coreopsis

Vines and Scramblers

Cape Ivy - Delairea odorata
English Ivy - Hedera helix
Blue Periwinkle - Vinca major

Montbretia

Grasses

Serrated Tussock - Nassella trichotoma
African Lovegrass - Eragrostis curvula

Contacts

Upper Macquarie County Council
UMCC is the noxious weed control authority and provides technical advice on weed identification and use of chemicals. (02) 6333 3110

Lithgow, Oberon and Blue Mountains Councils
Can provide information and advice in relation to a range of landuse issues, heritage items, legislative requirements for weed control, and bushland management.

Lithgow: (02) 6354 9999 **Oberon** (02) 6336 1100
Blue Mountains (02) 4780 5000

Hawkesbury Nepean Catchment Management Authority
Can provide links to local native plant nurseries, and Landcare and community group activities. Also provides funds for weed control and restoration projects. (02) 6350 3110

Further Information

Weeds Australia: www.weeds.org.au/index.html
NSW Dept of Primary Industries: www.dpi.nsw.gov.au/agriculture
CRC for Weeds Management: www.weeds.crc.org.au
Weeds of Blue Mountains Bushland: www.weedsbluemountains.org.au

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