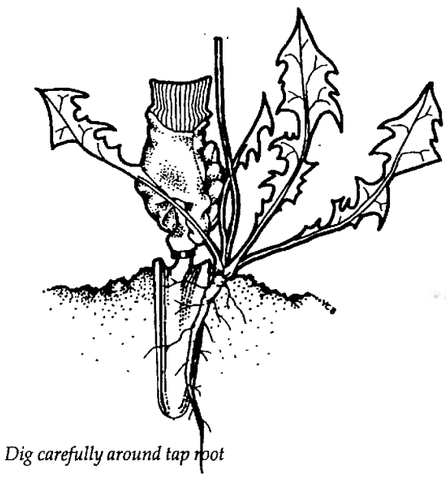
SOFT LEAFY PLANTS WITH UNDERGROUND REPRODUCTIVE PARTS

These include weeds with tap roots (Dandelion and Catsear), rhizomes (Asparagus Fern and Ginger Plant) bulbs and corms (Oxalis, Onion Weed, Watsonia and Montbretia) and tubers (Turkey Rhubarb or Rumex)

Method 1 - Removal of plants with a tap root with a knife or trowel

This technique is useful for small, soft, leafy plants with a larger root system or tap roots, or for hardy perennials which rely on a swollen root system.

Weed examples: Plantain, Dock, Catsear, Flatweed.



Dig carefully around tap root

1 Push a narrow trowel or knife into the soil next to the plant and loosen the soil. Repeat around the taproot.

2 Carefully remove the plant. You may need to gently rock the plant back and forth.

3 Gently knock off any soil clinging to the roots.

Method 2 -The crowning (or pudding basin) cut

This is especially useful for Asparagus Fern and other weeds which have their growing points below the surface (crowns, corms, rhizomes and clumped or tufted fibrous root systems).

Weed examples: Exotic grasses such as Paspalum, Pampas Grass; Asparagus Fern,

1 Grasp the leaves or stems and hold them tightly so that the base of the plant is visible. Plants with sharp leaves or stems should be cut back first, before you attempt to get in close to the base.

The growing points of the Asparagus Fern must be removed below the surface. The numerous water tubers can be left in the ground, as they contain no food and the plant cannot reproduce from them.

2 Insert either knife or lever close to the base of the plant at a slight angle, with the tip well under the crown.

3 Cut through the roots close to the crown or rhizome.

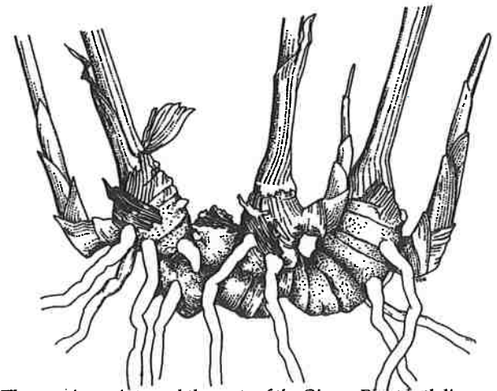
4 Remove the plant. Make sure that the hard "crown" or base of the plant where the roots begin is completely removed. If part of this is left in the ground, it will usually re-shoot.

Note: The water tubers of Asparagus Fern can be left in the ground once the crown has been removed, as they contain no food and cannot reproduce.

Method 3 - Digging out the entire plant

a) Plants with bulblets

Plants with bulbs, corms or small tubers must be completely removed from the soil. These reproductive parts can form small off-shoot bulbs or growing points which can form a new plant if broken off.



The growing points and the roots of the Ginger Plant both lie below the surface of the soil. Roots must be severed before the plant is removed.

Weed examples: Oxalis, Onion Weed, Watsonia.

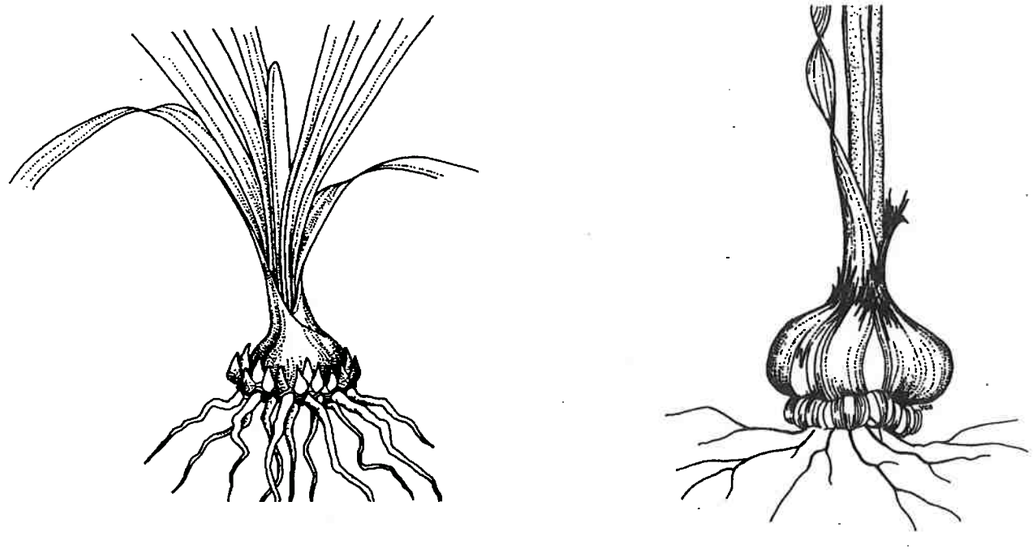
1 Prepare the area by moving back mulch and other vegetation.

2 Using a trowel or larger spade, dig down next to the stem until the main bulb is reached. Remove the bulb.

3 Check the soil for adjoining bulblets. If present, they must be removed with a substantial quantity of soil, and the whole lot bagged.

4 Periodically check for regrowth, and retreat.

The main bulbs should be dug out



Onion Weed (left) and Watsonia (right) are both plants which must be completely removed from the soil if they are to be cleared out of a bushland area.

Method 1 Cut stump Method

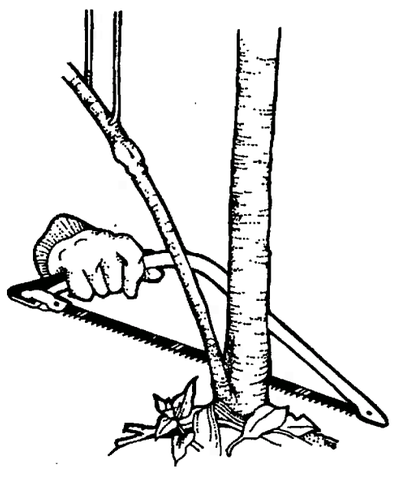
This is useful for all small to medium sized woody weeds, and some soft, leafy perennials.

Weed examples: Privet, Lantana, Wild Olive, Cotoneaster, Camphor Laurel, Ginger, Bamboo, Arundo.

1 For larger specimens, remove the top of the plant for easy access

2 With an appropriate tool (secateurs, loppers or bush-saw), cut the base of the plant close to the ground with a straight, flat cut. The cut must be horizontal so that the herbicide rests on the cut area while being absorbed, rather than running away down the side of the stem. The cut should be as close as possible to the ground as stumps are unsightly and dangerous to regenerators carrying out secondary work.

Painting herbicide around the rim of the cut surface.



Cutting the trunk parallel to the ground.

3 Apply herbicide immediately to the exposed flat surface (the sap ceases to flow once the tissues are severed). For convenience, use a paintbrush, eye dropper or small squeeze bottle. For larger specimens, wipe the poison around the outer rim of the cut stem only, as this is the part of the stem which transports the herbicide.

Note: If plants re-shoot, repeat the method

Plants growing in damp areas or treated during dry spells, may require special attention as they are likely to re-shoot.

Method 2 - Stem scrape

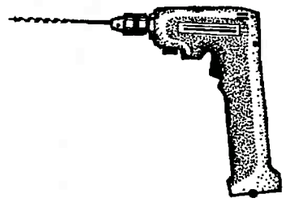
This method is useful for some plant species, for example *Ochna serrulata* (Mickey Mouse Plant) which do not respond well to the cut stump method. The stem scrape method allows the herbicide to circulate more thoroughly through the plant.

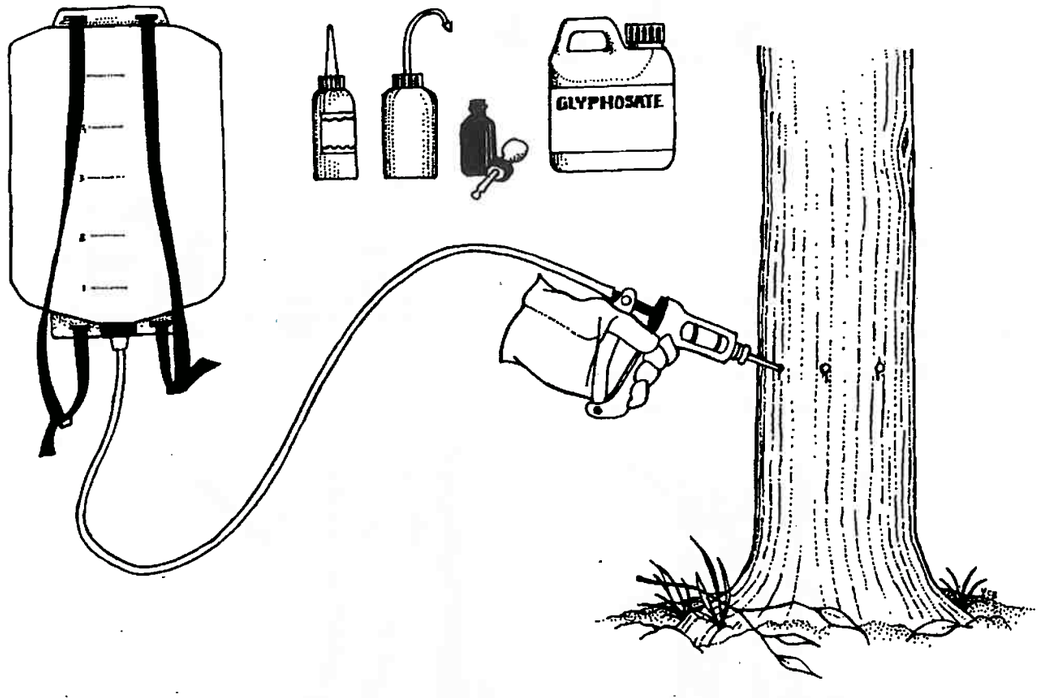
A shallow scrape into the sapwood, 15 to 20 centimetres long, is made each side of the stem and the exposed areas painted with herbicide. Placing the scraping below branches can be most effective.

Method 3 -Tree injection or frilling or chipping

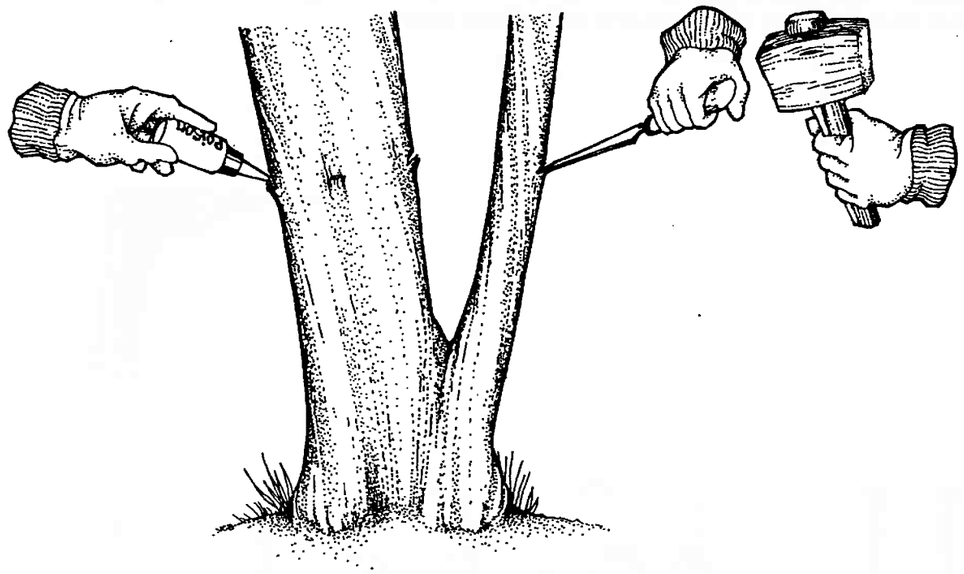
Tree injection or frilling or chipping is best in a number of situations. It can be used in inaccessible sites where rubbish removal is a problem, where the weed tree is to be left in situ to provide perches and roost sites, or as a preliminary measure in sites which are awaiting extensive primary work. It is especially useful to carry out injection of woody weeds surrounding existing remnant canopy trees prior to more extensive primary work. The canopy trees respond well to the additional light and the increase in soil temperature which occurs after the killing of adjacent woody weeds.

1 **Injections**: Drill holes at a downward angle into the sapwood at regular intervals (5 centimetres apart) around the tree, using a cordless drill or brace and bit.



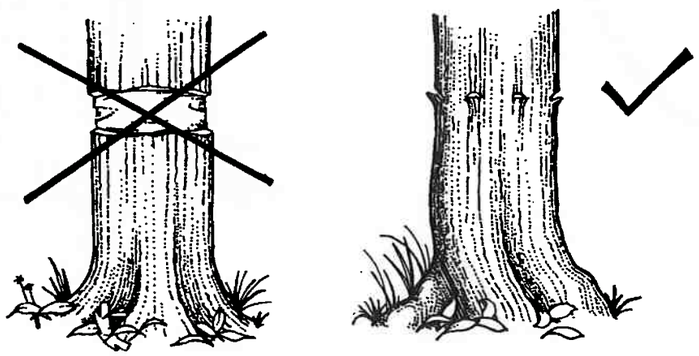


Frilling /Chipping: With a sharp chisel or axe, make a deep cut into the sapwood at regular intervals around the base of the tree. Take care not to ringbark the plant. (A saw can also be used to make cuts into the sapwood).



2 Place the correct dose of herbicide into each hole as it is cut. If necessary, wait until the liquid subsides then apply the remainder. It is important to follow the manufacturer's recommendations for the correct dose.

Note: For multi-stemmed plants, inject or chip below the lowest branch or treat each stem individually.



Method 4 -Minimal disturbance

Herbicide treatment is quick and effective, but herbicide is not always available, or the regenerator may prefer not to use it. For small to medium-sized shrubs, this technique may be more appropriate.

Weed examples: Privet, Lantana, Wild Olive.

1 A variety of tools can be used: a trowel, small narrow spade or lever. Make sure that the tools are sharp. Do not damage adjacent plants, especially the roots of nearby natives.

2 For large shrubs, remove the top portion of the plant but leave sufficient stem to grasp when removing the plant from the soil.

3 Push back the mulch to expose the base of the plant, then dig to expose the surface roots. Cut the lateral roots as close as possible to the main stem. Gently remove the lateral roots by pulling them back towards the centre of the plant. If necessary, use pliers for a more secure grip.

4 Take hold of the tap root and move it back and forth to loosen it. This may reveal lower lateral roots. Cut through them. It is not necessary to remove them from the soil as long as they are buried at a depth equal to three times their diameter.

5 Lift out the tap root and replace the soil in the same order it was excavated - subsoil below, topsoil on top. Replace the mulch.

CLIMBERS AND SCRAMBLERS

The stems of many climbers or scramblers develop roots and new shoots from the nodes, so broken portions should not be left in or on the ground. Such vines include : Honeysuckle, Morning Glory, Jasmine, Cape Ivy.

Others, including exotic grasses have a remarkable ability to grow from fragmented parts of their underground stems or rhizomes These include: Couch, Kikuyu, Buffalo Grass, Fishbone Fern.

Method 1 - Hand removal

1 Take hold of one runner and gently pull it along the ground towards you. Small fibrous roots growing from the nodes along the runners can be cut with a sharp knife as long as there is no stem tissue attached.

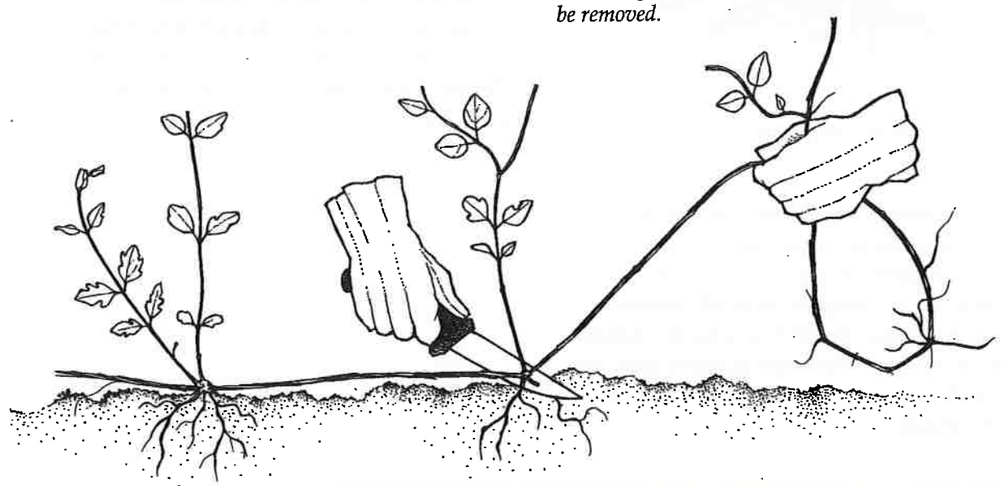
2 With a narrow trowel, trace along the length of underground stems or rhizomes. Once again sever the small fibrous roots with a sharp knife.

3 Follow the runners until the main root system is located. Either remove it manually or cut and paint it with herbicide

4 Check for and remove broken pieces of stem and large roots which may have been overlooked. Replace the mulch.

5 Follow up regularly. Regrowth from underground roots can be sprayed with herbicide or removed manually.

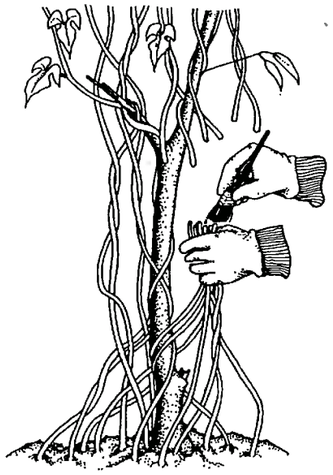
Note: Rampant vines such as Honeysuckle often have several major nodes with numerous runners branching in all directions. All of these runners must be removed.



Method 2 - Herbicide treatment

a) Cut and Paint

Stems can be cut with secateurs and the cut ends closest to the root of the plant painted with herbicide. The fine stems of many vines can be gathered in handfuls, cut and the ends dipped in herbicide.



b) Stem scrape

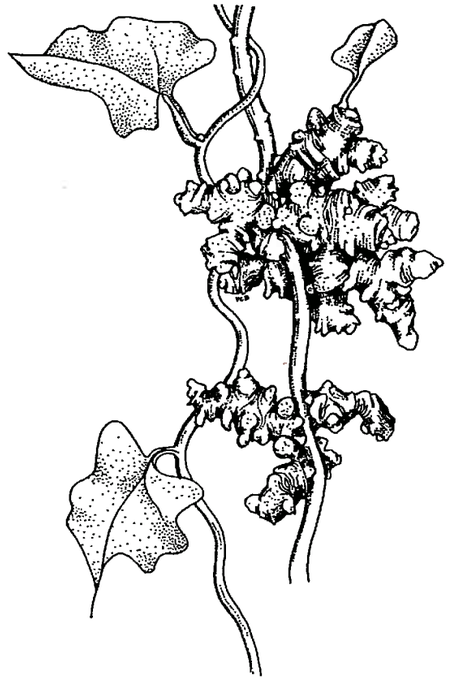
Shallow scrapes around 15 centimetres long are made along opposite sides of the stem into the sapwood and the exposed surfaces painted with herbicide. Care needs to be taken to ensure that stems are not cut too deeply or severed.

c) Spraying

Major infestations of rampant vines can be sprayed with herbicide. Where vines have reached the canopy, the stems can be cut and the on-ground parts of the vine sprayed.

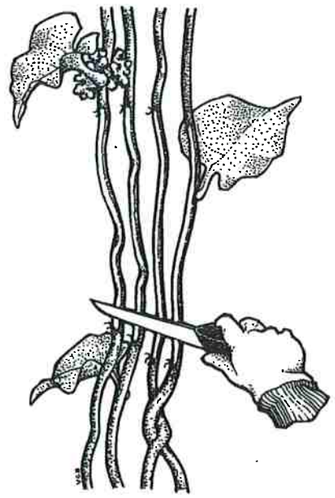
Madeira Vine (Anredera cordifolia)

Madeira Vine is a fleshy subtropical vine which climbs into the canopy and smothers native vegetation. Rather than producing underground tubers, Madeira Vine has aerial tubers. The tubers which are seen on the ground or buried are the aerial tubers which have developed along the stem and fallen from the plant. These tubers will establish new plants.



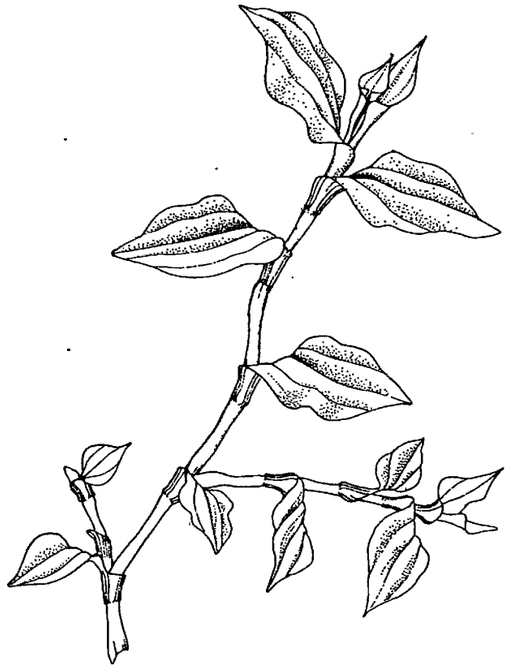
1 For seedlings and small plants without aerial tubers, use the hand-removal technique or spray with herbicide.

2 For mature vines with aerial tubers, scrape the stem and apply herbicide. The aerial tubers will slowly rot, so do not disturb the vine until all the tubers have shriveled and fallen. This may take weeks or even months. Do not remove the roots from the soil, as this will prevent the herbicide from circulating through the whole plant.



Wandering Jew and other plants with brittle or readily fragmented stems

Wandering jew and other weeds in this group need careful weeding and regular follow-up.



Any fragmented piece of stem that bears a node can regenerate. Ideally all plants should be bagged and removed from the site. If this is not possible or practical, the weed can be piled on "rafts" and the piles sprayed from time to time to prevent reinfestation.

A number of techniques are available to the bush regenerator.

Method 1 -Hand Pulling

Use this method if you are working entirely by hand.

1 Take hold of one runner and pull it gently along the ground towards you.

2 When the runner disappears under vegetation or mulch, stop pulling and scrape back the mulch until you get another grip further along the stem. Continue to pull gently until the runner comes away from the soil, then bag it immediately. If the runner breaks, trace it out.

This method is suitable for isolated or moderate infestations, particularly those which are tangled with more desirable species. If the infestation is dense, however, several more efficient methods are available.

Method 2 -Rolling

When Wandering Jew is growing thickly on a hard surface, such as a rock-face or on compacted soil, the weed can be rolled up like a carpet.

1 Locate a convenient starting point and two side boundaries. Use a sharp knife to cut along these three sides. This weed has very shallow roots which hold little soil so it is possible to roll the "carpet" up into convenient lengths.

2 Cut the roll off and bag/remove the lot (or pile and spray). Continue in this manner until the weed is completely removed.

3 If necessary, return to the site and hand-pull all the small pieces that were missed or broken off. A stiff broom will finish the job.

Method 3 -Raking

If no native ground-cover plants are present, large infestations can be raked up and removed. This method is probably the most efficient for large infestations on a base of soil. It is important to return to the site several times and remove the small portions that were passed over. Maintenance and perseverance are the key to eradicating this weed.

Note: other weed species growing amongst the Wandering Jew should be removed using the appropriate method.

Method 4 -Spraying

Wandering Jew has been successfully controlled with herbicide. The results vary greatly according to light intensity, season, chemical dosage rate and coverage. Herbicide appears to be most effective when spraying is carried out on overcast days during mild weather.