

WEED CONTROL METHODS

Because of their ability to compete for light, nutrients and space, many weeds have devastating impacts on our natural vegetation, decreasing biodiversity and resulting in habitat loss for our native plants and animals. Agriculture and amenity are also significantly impacted, with reduced productivity and large financial costs involved in control. In order to combat the weed issues present in our catchment a strategic approach to control is required.

Effective weed management requires a coordinated approach to weed control and consideration of broader land management objectives and requirements relevant to your property. Consulting your neighbours, your local Landcare or Parkcare Group and your local council/Parks Conservation and Lands ACT is a good first step. It is also crucial that you plan for and carry out revegetation to avoid causing erosion and ensure habitat is replaced. This includes identifying appropriate native species for your local area, ordering adequate numbers in advance, and planning your weed control so that the seasons are right for follow up planting.

Focusing your attention on preventing new weed infestations and on the priority weeds for your individual patch of land will ensure that you save on financial costs and time, conduct a more effective control program and minimise future infestations.

An essential aspect of successful weed management is a commitment to ongoing monitoring and maintenance. Keeping an eye out for unfamiliar species, or outbreaks of known weeds, and controlling them as soon as possible will prevent the re-establishment of large infestations, making the initial control program worthwhile and long lasting.

A coordinated approach

Coordinating weed control with your neighbouring land managers will allow for a broader scale strategic approach whereby priority weeds can be targeted collectively. This weeds package should become a well used resource to help you understand your important role in protecting our land, water and vegetation from weeds and in so doing, become good neighbours and stewards for our catchment.



Greening Australia

Landholders at Spring Valley Farm learning how to distinguish between weeds and natives

Preventing new infestations

Preventing the introduction of new weed species is the first priority in weed management. If you own an urban block, your priority should be sourcing garden plants that are not prone to invasiveness and avoiding those plants with known weed potential. Discussing plant selection with your local nursery can help you identify suitable species for your garden.

If you manage a rural residential block or larger agricultural property, you will need to implement a range of strategies. Sound land management practices such as: maintaining property hygiene; sourcing 'clean' fodder; quarantining new stock until undesirable weed seed has passed through their system in the contained area for later control; early identification of weed species; and coordination of weed control with neighbours and official land managers will help prevent the introduction of new species and ensure that management of existing species is effective.

The recent drought has created greater opportunities for weed invasions due to the feeding of drought fodder in which weeds can be imported, and due to the increase in bare ground where weeds can readily colonise when conditions improve. The actions mentioned in the above paragraph should be taken to ensure full drought recovery.



Lynton Bond

Accurate plant identification is essential before conducting weed control. Take a close look and if you don't know what it is – don't remove it

Control methods

There are a multitude of control methods available to manage weeds. Integrated weed management (the use of a combination of a range of different methods) is the most effective way of managing weeds and reduces both the reliance on chemicals and the potential for herbicide resistance. When designing your control program, consideration should be given to the weed species present on your property, the terrain, the time and financial costs, and the off-target damage that may occur to native species present in the area.

In some areas, weeds will be the only vegetation present, and complete removal would result in a loss of what little habitat the weeds provide. For this reason, it is essential that all weed control programs involve revegetation and/or are staged to reduce the impacts on local fauna and the potential for erosion. A good strategy is to kill the plants but leave them on site until desirable species establish themselves.

The control method you choose will be determined by a range of factors, however, a good place to start is assessing the size of the weed infestation. For example, if you have a small patch of horehound (e.g. restricted to an area of 20sq/m) you may wish to avoid chemical application by using mechanical control such as hand pulling or digging. Alternatively, if the infestation is widespread, you may wish to apply chemicals to kill the plants and then cultivate and sow desirable species. Natives could be planted for environmental enhancement or if wishing to harvest a crop or utilise a pasture, a desirable species could be cultivated. If working over a larger area you might spray the horehound then spread the seed of a sterile, fast growing grass species (such as sterile rye) which will stabilize the soil and allow for further chemical control using a broad leaf specific herbicide to kill out any re-emergent weeds.

Golden rules for weed control:

- **Ensure accurate weed identification** to avoid killing natives incorrectly identified as weeds
- **Coordinate weed management with your neighbours, friends and Landcare or Parkcare Group**
- Consider **mechanical control** as your first option
- If using herbicides, **choose the least toxic herbicide** and always follow instructions to prevent damage to the environment/human health
- **Apply chemicals when plants are actively growing** to achieve the best results
- **Avoid unnecessary disturbance** to land, as this provides a 'seedbank' for further germination
- **Avoid total removal of vegetation** in an area as weeds may provide habitat value: stage removal with re-vegetation in mind
- **Conduct controls before the weed sets seed** to stop the weed cycle
- **Revegetate treated areas** by direct planting and direct seeding of local species, or staging control and relying on natural regeneration if seeding plants are available. Use perennial pasture species, including native grasses, for treated farmland
- **Keep a sharp eye out for new infestations and control re-emergent seedlings immediately**

Weed Control Methods *(continued)*

A number of the most common and effective control methods are explained below. Refer to the individual weed fact sheet and the Weed Control Calendar for advice on which control methods to select for each species and information about timing. Parks, Conservation and Lands ACT or your local council are fantastic resources for specific weed control information, as is the NSW Department of Primary Industries (www.dpi.nsw.gov.au).

Mechanical control

Mechanical control is the physical removal of a plant. There are a number of different methods.

- **Hand pulling and digging.** Suitable for small, shallow rooted plants. This method can be time intensive and therefore is generally used for small infestations or sparsely scattered weeds (e.g. weedy tussock grasses and horehound). A mattock is useful for digging out many weed species.
- **Cutting.** Using secateurs, a hand saw or chainsaw is often an effective method of controlling woody weeds and for some species can be done without the use of chemicals (e.g. pines and Cootamundra wattle).
- **Grazing management.** Animal selection, stocking rates and rotational grazing assists weed management by ensuring pastures are not overgrazed (as this usually results in weed invasions due to the increase in bare ground).
- **Competitive pasture.** Promoting competitive pasture by selecting suitable perennial plant species will help prevent weed establishment and can assist in reducing existing weed infestations by providing competition to undesirable species.
- **Other mechanical control** methods include slashing, ploughing, tree felling machines and machines that pull out woody weeds.



Christine Bond

Mechanical weed control: using a mattock to dig out sweet brier

Chemical control



Queanbeyan City Council

Weeds Officer spraying Paterson's curse and blackberry

A range of chemicals suitable for weed control are available from your local nursery or farm supplies store. When selecting a chemical, it is essential that you read the label and discuss your choice with the staff - the label is a legally binding document. It is especially important to wear protective clothing.

Chemicals are registered for use at certain concentration rates and for certain locations/application situations. For example, the use of some chemicals in watercourses can have adverse effects on stream health and therefore use in an aquatic area is illegal.

Once a chemical has been selected, there is a range of safety considerations involved during the application process. Care must be taken to ensure there are no negative impacts on human and stock health and that drift and off-target damage to native or other desirable species is minimized. Personal protective equipment should be worn at all times.

- **Cut and paint.** Cutting the plant close to the ground and then immediately 'painting' the stump with a suitable chemical (using a brush, sponge, or bottle with a small nozzle) is a simple and easy form of weed control. It is suitable in situations where you are happy for the plant to be cut down and then left on site or entirely removed.
- **Drill and fill/stem inject.** This technique involves drilling a hole, or chipping a notch, into the cambium layer of the trunk (i.e. the thin layer of generative tissue lying between the bark and the wood), then immediately applying chemicals. It is suitable for tree species where you want to kill the plant but do not wish to immediately remove it from the landscape (e.g. you may wish for it to remain in place for its habitat functions until other species establish).
- **Spraying.** Spraying weeds with a hand held spray bottle, a backpack or a boom sprayer is an effective weed control technique, often more suitable for larger infestations.

For chemical application rates and detailed control method explanations refer to the “*Noxious and Environmental Weed Control Handbook*.” (NSW DPI 2007). This book is a great resource for anyone attempting to eradicate weeds from their property and has been developed after a long period of trial and error – use the experience of the experts to your advantage by referring to this publication and contacting the department for further advice and/or site visits to determine the required methods for your situation.

Territory and Municipal Services ACT



Willow removal after the trees have been killed with chemicals

Biological control

A range of biological controls have been trialed and released throughout Australia. The results have varied from highly effective to little or no impact. Individual weed fact sheets outline whether or not a biological control is available for that species and whether there is a need to introduce it to our area. The NSW Department of Primary Industries and CSIRO continue to conduct research on biological control agents to identify suitable species for release.

Lynton Bond



Leaf-feeding beetle, a biological control, eating the leaves of a young St John's wort plant