



# Weeds of the North Coast of NSW

a guide to identification and control 2013



## Acknowledgements

Written & researched by:	Pia Dollmann
Design & Layout:	Pia Dollmann, Robin Ellis
Prepress:	Macman and Robin, robinellis@westnet.com.au
Photos:	Contributed by Terry Inkson, Pia Dollmann and many other photographers (see as marked)
Reviewers & Contributors:	Craig Stehn, Kris Hely, Kara Smith
Printed by:	Print Works. Paper: ISO 14001, 60% post-consumer waste recycled, 40% FSC virgin fibre. www.printworks.net.au

The production of this booklet has been coordinated by Coffs Harbour Regional Landcare with funding from the Australian Government's Caring for our Country program. The information has been drawn from a large number of sources, included on page 8. Further printing beyond the scope of funding became possible thanks to the contribution of the Landcare organisations at Bellingen, Clarence and Hastings, the Orara Project and the Jaliigirr Project, the Northern Rivers Catchment Management Authority, Bellingen Shire, Clarence Valley, Coffs Harbour City and Nambucca Valley Councils and Far North Coast Weeds.



### Coffs Harbour Regional Landcare Inc.

Except where otherwise noted, this work is licensed as Attribution – Share-Alike under <http://creativecommons.org/licenses/by-sa/3.0/>. You may copy, adapt or modify and distribute this work, provided that you credit the author, the title and the licence the work is under. Any new work produced using this material must be made available under the same terms.

Contact: [chr1@westnet.com.au](mailto:chr1@westnet.com.au) Website: [www.coffsharbourlandcare.org.au](http://www.coffsharbourlandcare.org.au)

## Disclaimer

This booklet was prepared by the authors in consultation with regional Weeds Advisory Committees and other professionals, in good faith and on the basis of information available at the time. While all care was taken to ensure the accuracy of the information provided, the authors accept no responsibility for any claim, loss, damage or liability arising out of the use of this booklet.

**Chemical herbicides:** Always read the label and any permit pertaining to the specific application of a product before using chemical herbicides and strictly comply with the directions on the label and conditions of the permit. Users are not absolved from compliance with such directions by reason of any statement made or omitted in this publication.

Front cover: Common Lantana (*Lantana camara*), Glory Lily (*Gloriosa superba*) – Terry Inkson  
Morning Glory (*Ipomea indica*), Tobacco Bush (*Solanum mauritianum*) – Pia Dollmann

**Coffs Harbour Regional Landcare Inc (CHRL)** is an incorporated, not-for-profit community organisation acting as the umbrella group for land-caring groups in the Coffs Harbour Local Government Area. CHRL assists individuals and groups involved in land, water, and vegetation management, and sustainable farming practices. CHRL provides support and assistance through access to funding programs, information and training, networking, and advocacy. CHRL promotes the principles of ecologically sustainable development, and seeks to foster cooperation between local landholders and land managers in the prevention and treatment of natural resource degradation and the uptake of sustainable land management practices.

[coffsharbourlandcare.org.au](http://coffsharbourlandcare.org.au)

**Caring for our Country** is the Australian Government’s natural resource management initiative. The initiative supports regional natural resource management groups, local, State and Territory governments, indigenous groups, industry bodies, land managers, farmers, landcare groups and communities.

[www.nrm.gov.au](http://www.nrm.gov.au)

## Contents

About this booklet.....	2
Herbicide Application Methods.....	3
Plant parts – Terminology.....	5
Noxious Weeds.....	6
Weeds of National Significance.....	7
Further Reading .....	8

<b>GROUND LAYER</b>	<b>9</b>
<b>GRASSES</b>	<b>22</b>
<b>VINES &amp; SCRAMBLERS</b>	<b>32</b>
<b>TREES</b>	<b>48</b>
<b>SHRUBS</b>	<b>67</b>
<b>AQUATIC PLANTS</b>	<b>85</b>
<b>GLOSSARY</b>	<b>94</b>
<b>INDEX</b>	<b>95</b>

# About this booklet

By definition, a weed is a plant growing in the wrong place. The selection of weeds described in this booklet has been made to provide information to farmers, volunteers and professionals who are working in environmental restoration in the coastal part of the Northern Rivers Catchment Management Region. It is not an attempt to comprehensively describe all weeds that occur in this region, but instead to concentrate on weeds that present a threat to local natural environments, and those that are an emergent threat.

## Integrated Weed Management

This term describes activities and measures that combine/integrate to reduce the occurrence, re-occurrence and impact of weeds. These include the initial removal of the weed, the provision of an environment that encourages native and other desirable plants to take up the vacant space, biological controls, farm/site hygiene, follow-up weed control and more. Good weed management always takes more than one action or approach to deal with a weed.

## Use of herbicides

Only two types of active ingredients of herbicides are recommended in this booklet: Glyphosate and metsulfuron-methyl.

The product strength assumed for the recommended herbicides is 360g/L for glyphosate and 600g/kg for metsulfuron-methyl. Metsulfuron-methyl must always be applied with a non-ionic surfactant/wetting agent as recommended on the label.

Herbicides are either sprayed onto the foliage to the point of run-off, painted onto a cut or scrape within seconds, or injected into a wound within seconds.

For information about other herbicides and their applications, consult with your local weeds officer or publications by the NSW Department of Primary Industries.

*Personal Protective Equipment* is very important when using herbicides. Gloves, long sleeves and pants as well as boots are the minimum required.

The Department of Primary Industries publishes the *Noxious and Environmental Weed Control Handbook*, which is available online at [www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/publications/noxious-enviro-weed-control](http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/publications/noxious-enviro-weed-control). It contains detailed application rates and methods for herbicide use to control particular weeds.

## Weed control methods

Manual, mechanical and chemical weed control can complement each other. Chemical methods should only be employed where non-chemical methods are not effective, feasible or realistic.

In manual weed control, all sections of the plant capable of reproducing must be removed. This can include seed, tubers, parts of the stem and even leaves and it is plant specific.

Follow up is the key to successful restoration after the initial weed control and is essential.

## Herbicide application methods

Herbicides should only be applied to plants that are actively growing and have good foliage. Weak, dry or frosted plants will not absorb and translocate the herbicide well and the herbicide will have little or no effect.

### Stem Scrape

(e.g. *Madeira Vine*, *Morning Glory*)

- Scrape the bark off the vine stem for 15–30cm to expose vascular tissue in strips.
- Don't ringbark the entire stem.
- Start at ground level and work up as high as you can reach.
- Create a staggered pattern with the scraped strips.
- Apply glyphosate with a brush onto the wounds immediately (within 10 seconds).
- Leave plant in place until completely dead and re-apply if necessary.

See [www.sydneyweeds.org.au](http://www.sydneyweeds.org.au) for demonstration.

### Cut & Paint

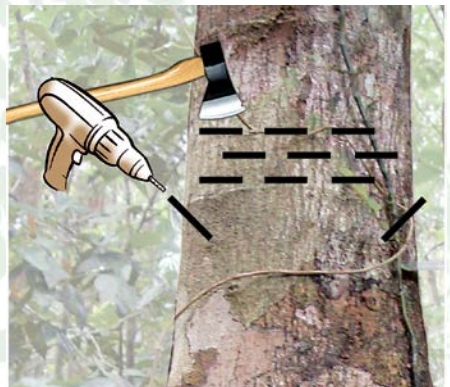
(woody weeds, shrubs, some vines, small trees)

- Cut stem horizontally close to the ground and below the first branch.
- Apply 100% glyphosate with a brush or dropper bottle to the cambium layer (between bark and wood) immediately (within 10 seconds).

### Stem Inject

(larger woody weeds, camphor laurel, privets)

- Cut horizontally into the cambium layer with a small axe or drill.
- Drill or cut at 45° to the ground to avoid herbicide dripping out again.
- Apply 1–2 ml of 100% glyphosate immediately into cuts or holes.
- Cut or drill at 10 cm intervals for a minimum of two rows around the entire stem below the first branch.
- Stagger the cuts/holes and don't create a continuous cut like a ringbark. Large trees or trees with multiple stems may require additional injection points for effective control.



## Foliar Spray

*(shrubs, grasses and other ground covers)*

- Most suited for certain shrubs, grasses and other ground covers.
- Glyphosate is a non-selective herbicide and will affect all plants it is sprayed on.
- Metsulfuron-methyl is selective for woody weeds and does not affect grasses and many other plants (see product label).
- When mixing herbicide with water, always use clean water as herbicide may break down and become inactive when in contact with soil particles/mud.
- Only prepare as much herbicide as you will use at the time.
- Spray foliage to the point of run-off, when every leaf is wet.

Consult with your local weeds officer for details of equipment and follow the label.

**Always wear suitable clothing and gloves to prevent herbicide contact with your skin.**

## Splatter Gun Method

*(for thickets of woody shrubs, particularly Lantana)*

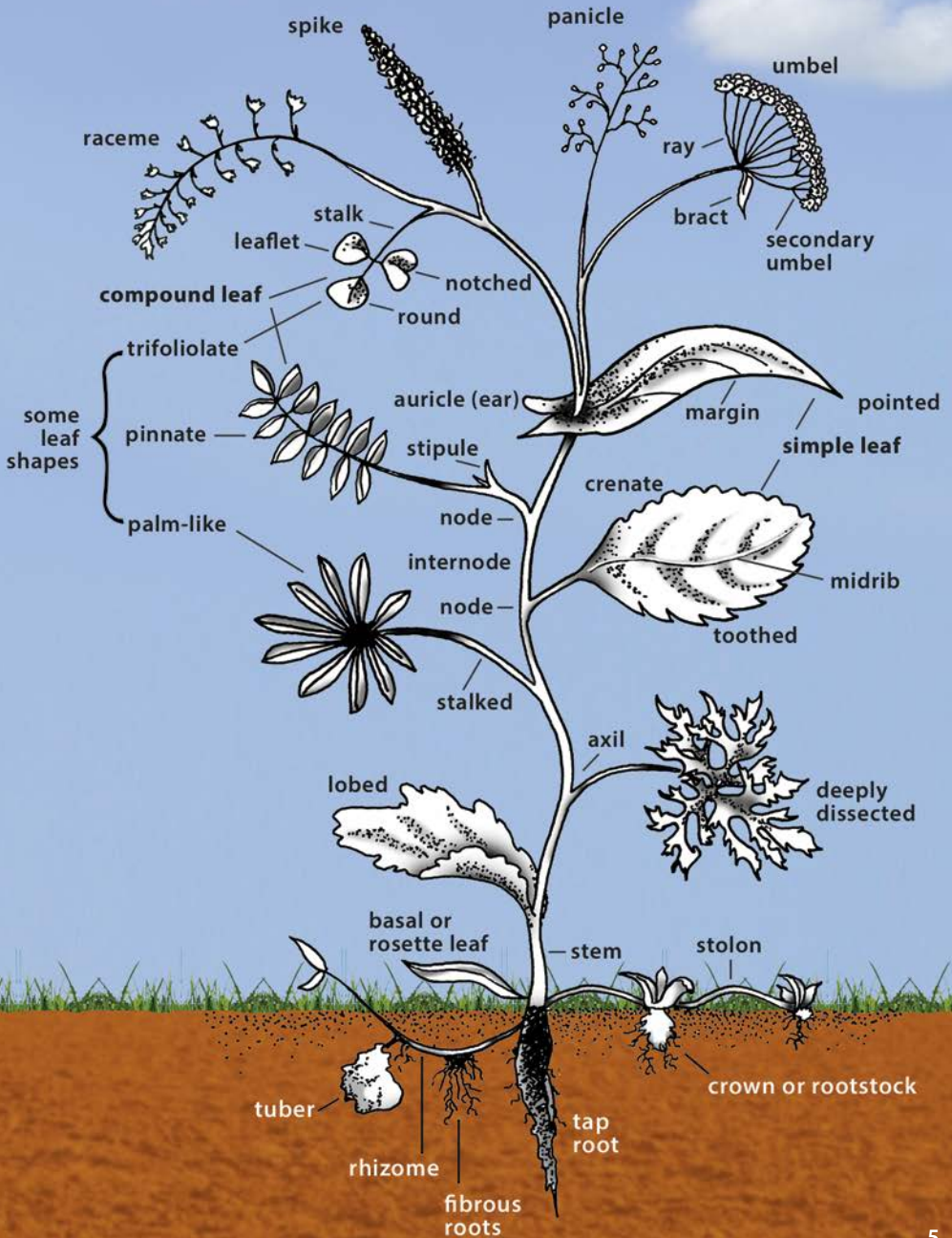
This method involves a high concentration of herbicide in the mix and a nozzle that produces a stream, not a spray.

- Angle the spray gun at 45 degrees and arc the stream of herbicide over the top of the bush and down the front face of the infestation.
- When treating dense walls of Lantana, apply one vertical spray line every two strides, with an occasional horizontal pass low across the front edge of the bushes to treat any low growth.
- Apply the recommended volume of herbicide (for glyphosate that is two squirt lines of 2 ml chemical mix per half meter of plant height – approximately 16 ml of mixed herbicide in total for a 2 m bush).
- Do not spray to the point of run-off as you would with conventional foliar spray techniques. Application of too much chemical at this concentration will put the plant into shock and inhibit herbicide uptake.
- A specialized nozzle that produces large droplets of herbicide mix must be used to achieve the desired low volume, high concentration application. A fine spray or mist will not be effective.

See [www.weeds.org.au/WoNS/lantana/docs/65\\_Splatter\\_gun4.pdf](http://www.weeds.org.au/WoNS/lantana/docs/65_Splatter_gun4.pdf) and <http://www.bmad.com.au/splattergun.html>

# PLANT PARTS – TERMINOLOGY

Illustration adapted from: Efficient Weed Management, Protecting your investment in the land. (adapted from Healy 1982)



## Noxious Weeds

Some serious weeds are required by law to be controlled by all landholders in a specified area. These are known as noxious weeds and the law that controls these in NSW is the *Noxious Weeds Act 1993*.

Weeds that are declared noxious are those weeds that have potential to cause harm to the community and individuals, can be controlled by reasonable means and most importantly, have the potential to spread within an area and to other areas. A weed is declared noxious because its control will provide a benefit to the community over and above the cost of implementing control programs.

Many 'bad' weeds do not meet the criteria for declaration. Noxious weeds will have limited distribution with the potential to become more widespread and will cause impact on agriculture, human health or the environment.

In New South Wales the administration of noxious weed control is the responsibility of the Minister for Primary Industries under the *Noxious Weeds Act 1993*. The Act is implemented and enforced by the Local Control Authority (LCA) for the area, usually local government.

### **The Act imposes obligations on occupiers of land to control noxious weeds declared for their area.**

There are five classes of noxious weeds identified in the Act:

- CLASS 1 Most stringent category, State prohibited weeds. The plants must be eradicated from the land and the land must be kept free of the plant. The weeds are also 'notifiable' and a range of restrictions on their sale and movement exist. (e.g. Water Hyacinth)
- CLASS 2 *Regionally* controlled weeds. Same obligations as Class 1 weeds but applied to the *region* instead of the *state*. (e.g. Tropical Soda Apple)
- CLASS 3 *Regionally* controlled weeds. The plant must be fully and continuously suppressed and destroyed.\* (e.g. Kudzu)
- CLASS 4 Locally controlled weeds. The growth of the plant must be managed in a manner that reduces its numbers, spread and incidence and continuously inhibits its reproduction.\* (e.g. Camphor Laurel)
- CLASS 5 Plants that are likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State. Restrictions on their sale and movement exist. There are no requirements to control existing plants of Class 5 weeds.

Class 1, 2 & 5 Noxious Weeds are notifiable weeds.

\* *In some cases the following wording has also been inserted 'the plant may not be sold, propagated or knowingly distributed'.*

Check specific weeds' status at NSW DPI website.



## Weeds of National Significance WoNS

Under the National Weeds Strategy, a number of introduced plants were identified as Weeds of National Significance (WoNS). These weeds are regarded as the worst weeds in Australia because of their invasiveness, potential for spread, and economic and environmental impacts. National management strategies have been developed for these weed species and information is available at the Weeds Australia website [www.weeds.org.au](http://www.weeds.org.au)

### Environmental Weeds

Not all environmental weeds are declared noxious weeds or Weeds of National Significance. They may or may not cause economic losses but they are invasive and they have a significant impact on natural ecosystems. Environmental weeds reduce plant diversity by occupying spaces and overwhelming existing native plants. This is particularly true for vine weeds which climb over and smother other plants.

They can cause habitat loss or alteration for native animals, suppress natural regeneration of indigenous plants, alter soil chemistry and increase soil erosion risk.

Garden escapees: 65% of our environmental weeds originated in and have escaped from home gardens.

## Further Reading

*Coastal Dune Management Manual*: [www.planning.nsw.gov.au/rdaguidelines/documents/Coastal%20Dune%20Management%20Manual.pdf](http://www.planning.nsw.gov.au/rdaguidelines/documents/Coastal%20Dune%20Management%20Manual.pdf)

*Garden Escapees & Other Weeds of Bushland & Reserves*, 2009 Mid North Coast Weeds Advisory Committee, Great Lakes Council

*Noxious and Environmental Weed Control Handbook*, NSW DPI Management Guide. Online at [www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/publications/noxious-environmental-weed-control](http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/publications/noxious-environmental-weed-control). Hard copies available from DPI.

*Rainforest Restoration Manual*: [www.bigscrubrainforest.org.au/online-store/subtropical-rainforest-restoration](http://www.bigscrubrainforest.org.au/online-store/subtropical-rainforest-restoration)

*Recognising Water Weeds*, 2009 Plant Identification Guide, NSW DPI [dpi.nsw.gov.au/agriculture](http://dpi.nsw.gov.au/agriculture)

*Restoring Natural Areas in Australia*, 2009 Robin Buchanan

## Websites with excellent relevant information

Australian Association of Bush Regenerators  
[www.aabr.org.au](http://www.aabr.org.au)

Far North Coast Weeds County Council  
[www.fncw.nsw.gov.au/](http://www.fncw.nsw.gov.au/)

Lantana Splatter Gun instructions  
[www.weeds.org.au/WoNS/lantana/docs/65\\_Splatter\\_gun4.pdf](http://www.weeds.org.au/WoNS/lantana/docs/65_Splatter_gun4.pdf)  
<http://www.bmad.com.au/splattergun.html>

Look Learn Act weed awareness by the North Coast Weeds Advisory Committee  
[www.looklearnact.com](http://www.looklearnact.com)

North Coast Weeds Advisory Committee  
[www.northcoastweeds.org.au](http://www.northcoastweeds.org.au)

NSW Department of Primary Industries  
[www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/](http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/)

Plant Information Network System of The Royal Botanic Gardens and Domain Trust  
[www.plantnet.rbgsyd.nsw.gov.au/](http://www.plantnet.rbgsyd.nsw.gov.au/)

Queensland Department of Agriculture, Fisheries & Forestry  
[www.daff.qld.gov.au](http://www.daff.qld.gov.au)

Save Our Waterways Now  
[www.saveourwaterwaysnow.com.au](http://www.saveourwaterwaysnow.com.au)

Sydney Weeds Committee  
[www.sydneyweeds.org.au/category/videos/](http://www.sydneyweeds.org.au/category/videos/)

Weeds Australia  
[www.weeds.org.au](http://www.weeds.org.au)