



CENTRE FOR  
INVASIVE SPECIES SOLUTIONS

## **BEST PRACTICE MANAGEMENT FOR THE CONTROL OF parthenium weed (*Parthenium hysterophorus*)**

ADDENDUM TO THE WEEDS OF NATIONAL SIGNIFICANCE PARTHENIUM WEED MANAGEMENT MANUAL



## weeds.org.au

This publication is licensed under a Creative Commons Attribution 4.0 International license, except for photographic and graphical images contained within it. Photographs and other graphical material must not be acquired, stored, copied, displayed and printed or otherwise reproduced — including by electronic means — for any purpose unless prior written permission has been obtained from the copyright owner.

Copyright of photographs and other illustrations is variously owned by Invasive Animals Ltd, individuals and corporate entities. For further details, please contact the Communications and Marketing Manager, Centre for Invasive Species Solutions.

The Creative Commons Attribution 4.0 International license allows you to copy, distribute, transmit and adapt material in this publication, subject to the exception for photographic and other graphic material set out above, and provided you attribute the work as shown below. The license does not transfer ownership of the copyright. A summary of the license terms is at: <https://creativecommons.org/licenses/by/4.0/>

© Invasive Animals Ltd

**Citation:** Wild Matters (2023). *Best practice management for the control of parthenium weed (Parthenium hysterophorus); Addendum to the weeds of national significance parthenium weed management manual*. A Weeds Australia publication, report to Centre for Invasive Species Solutions.

Print ISBN: 978-1-922971-59-3

Web ISBN: 978-1-922971-58-6

**Published by:** Centre for Invasive Species Solutions

The Centre for Invasive Species Solutions gratefully acknowledges the funding support for this publication through the Australian Government Department of Agriculture, Fisheries and Forestry.

The Centre also acknowledges Wild Matters as the primary author and thanks those who made technical contributions and reviewed the publication, including:

- Kunjithapatham Dhileepan, Senior Principal Scientist, Department of Agriculture and Fisheries, Queensland
- Andrew Storrie, Agronomo Consulting
- Royce Holtkamp, Ecological Horizons, Chair NSW Biocontrol Taskforce
- Kerinne Harvey

**Disclaimer:** The information contained in this publication has been prepared with care and is based on knowledge and understanding at the time of writing (2023). Some of the information in this document is provided by third parties, and all information is provided “as is”, without warranty of any kind, to the extent permitted by law. After publication, circumstances may change and before relying on this information the user needs to take care to update as necessary.

**NO PRODUCT PREFERENCES:** The product trade names in this publication are supplied on the understanding that no preference between equivalent products is intended and that the inclusion of a product name does not imply endorsement over any equivalent product from another manufacturer.

**ALWAYS READ THE LABEL:** Users of agricultural chemical products must always read the label and any permit, before using a product, and must strictly comply with the directions on the label and the conditions of any permit. Users are not absolved from compliance with the directions on the label or the conditions of the permit by reason of any statement made or not made in this publication.

This publication was funded by



**Australian Government**

**Department of Agriculture,  
Fisheries and Forestry**

## Cover images

Front — Parthenium weed with insect damage. Image by NSW Department of Primary Industries.

Back — Parthenium weed seedling. Image by NSW Department of Primary Industries.

# How to use this addendum



The [parthenium weed management manual](#) (PDF, 2.3 MB) was published in 2004 and provides information on the weed and best practice management options. The manual has since been reviewed to ensure currency of best practice management advice and information. Any updates to the information contained within the manual are included in this addendum and should be taken as the most current source of information.

***Note: the addendum is not a standalone document and should be read in conjunction with the 2004 manual.***

The addendum focuses on updates to control options, including mechanical, chemical and biological control methods. It also includes updates on available herbicides and where to go to find additional information on boneseed and its management.

When new or additional information is provided in the addendum, page numbers reference the related text in the original manual.

## Section 2: Managing parthenium weed

### Application of herbicides

**Page 18** – With the wide distribution of parthenium weed in cropping areas in south-eastern Queensland, it is important for landholders there to develop a crop rotation which allows the use of a range of herbicides that are registered for the control of parthenium weed in a range of different crops. Rotating summer and winter crops creates opportunities to use a wide range of: (a) knockdown preplant herbicides, (b) in-crop residuals such as atrazine, and (c) post-emergent herbicides. This will deplete parthenium weed seed banks in paddocks when used in conjunction with effective control along fence lines and in non-crop areas. Discuss the best options with your local biosecurity officer.

Herbicides should be applied before parthenium plants set seed.

### Boom spraying

**Page 19** – Boom spraying, where a long sprayer arm is attached to a vehicle, is recommended to treat large areas of regrowth. Apply herbicide when plants are actively growing.

### Herbicide labels and legislation

The Australian Pesticides and Veterinary Medicines Authority (APVMA) regulates the availability of all pesticides, which includes herbicides. Herbicides are registered with the APVMA for specific applications, as stated on the label. State governments regulate the use of pesticides after sale. A herbicide label is a legal document that defines where, when and how a herbicide can be used on which weed species and at what rate.

*Note: not all registered herbicides are commercially available. Often, companies improve herbicide formulations and only market the new formulation. For example, many herbicides are being marketed in higher concentrations. This reduces transport, storage and container-disposal costs.*

In addition to herbicides being registered and described 'on-label' for specific weeds and situations, herbicides can sometimes be used through permits or 'off-label' use. These situations are described below.

#### Minor use and emergency use permits

APVMA may issue minor use and emergency use permits for herbicide applications that are not otherwise registered for that particular use. Minor use permits are sometimes referred to as 'off-label' permits. Minor use and emergency permits are valid ('in force') for a limited time. See the [APVMA website](#) to find current permits.

Some states also have permits for the control of 'declared' weeds and may not specifically list the weed species to be controlled. These permits will often list a range of herbicides that can be used for the control of declared or environmental weeds. To find these permits for your state:

- go to the [APVMA permits database](#) search
- enter 'declared weeds' or 'environmental weeds' in the SEARCH box
- click the search term 'Pest/purpose'
- click 'Search'.

It is also recommended that if you are unsure which herbicides can legally be used on a particular weed in your state, contact the relevant biosecurity section of your state department of agriculture. When using herbicides in aquatic situations, only use those that are registered or permitted for use in and around aquatic areas.

Any minor use permits relevant to parthenium weed at time of publication are listed in Table 6.

### Off-label use

Off-label use is the use of a registered chemical to address a specific issue that is not covered by the APVMA-approved label. Off-label use is to:

- control a different weed (or pest)
- apply at a different rate (only lower)
- apply in a different manner (not allowed in ACT, NSW and Tasmania).

Off-label use is permitted in all states and territories; however, conditions vary in each jurisdiction (Table 1).

**Table 1. Where to find specific rules relating to herbicide use, including off-label use, in each state and territory**

STATE/ TERRITORY	WEBSITE AND FURTHER INFORMATION
ACT	Agvet chemical use <a href="https://www.accesscanberra.act.gov.au/s/article/pest-and-weed-control-tab-Agvet-chemical-use">https://www.accesscanberra.act.gov.au/s/article/pest-and-weed-control-tab-Agvet-chemical-use</a>
NSW	Pesticides <a href="https://www.epa.nsw.gov.au/your-environment/pesticides/pesticides-nsw-overview">https://www.epa.nsw.gov.au/your-environment/pesticides/pesticides-nsw-overview</a> Weed control and identification <a href="https://www.dpi.nsw.gov.au/biosecurity/weeds/weed-control">https://www.dpi.nsw.gov.au/biosecurity/weeds/weed-control</a>
NT	Chemical use <a href="https://nt.gov.au/industry/agriculture/farm-management/using-chemicals-responsibly">https://nt.gov.au/industry/agriculture/farm-management/using-chemicals-responsibly</a>
Qld	Chemical use <a href="https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/aquaculture/chemicals/registered">https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/aquaculture/chemicals/registered</a>
SA	Rural chemicals <a href="https://pir.sa.gov.au/biosecurity/rural_chemicals">https://pir.sa.gov.au/biosecurity/rural_chemicals</a> Weed control handbook <a href="https://www.pir.sa.gov.au/__data/assets/pdf_file/0020/232382/WEB_8867_PIRSA_Weed_Control_Handbook_2018.pdf">https://www.pir.sa.gov.au/__data/assets/pdf_file/0020/232382/WEB_8867_PIRSA_Weed_Control_Handbook_2018.pdf</a> (PDF, 4.2 MB)
Tas	Agricultural and veterinary chemicals <a href="https://nre.tas.gov.au/agriculture/agvet-chemicals">https://nre.tas.gov.au/agriculture/agvet-chemicals</a> Weeds <a href="https://nre.tas.gov.au/invasive-species/weeds">https://nre.tas.gov.au/invasive-species/weeds</a>
Vic	Off-label chemical use <a href="https://agriculture.vic.gov.au/farm-management/chemicals/offlabel-chemical-use">https://agriculture.vic.gov.au/farm-management/chemicals/offlabel-chemical-use</a>
WA	Using pesticides safely <a href="https://ww2.health.wa.gov.au/Articles/U_Z/Using-pesticides-safely">https://ww2.health.wa.gov.au/Articles/U_Z/Using-pesticides-safely</a>

## Safety and training

**Page 62** – Personal protective equipment (such as protective clothing, eye or face shields, and respiratory protection) must be used in accordance with the recommendations stated on the herbicide label or permit. Chemical-use training is required for people using herbicides as part of their job or business. Training is recommended for community groups and may be required if working on public land. Training courses are run by ChemCert, AusChem and TAFE in each state. Other training courses may be available through state agencies (e.g. AgTrain in Victoria, SMARTtrain in NSW), local councils or non-government organisations.

*By law, you must read the label (or have it read to you) before using any herbicide product. Always follow the label or permit.*

## Chemical user certification

**Page 62** – Commercial weed-control operators need to be licenced in most states (Table 2). It should also be noted that there is now shared responsibility between landholders and their contractors for any breaches of laws and regulations (such as herbicide drift).

*Table 2. Chemical-user certification by state and territory*

STATE/ TERRITORY	WEBSITE
ACT	<a href="http://www.accesscanberra.act.gov.au/s/article/pest-and-weed-control-tab-Agvet-chemical-use">www.accesscanberra.act.gov.au/s/article/pest-and-weed-control-tab-Agvet-chemical-use</a>
NSW	<a href="http://www.epa.nsw.gov.au/your-environment/pesticides/licences-and-advice-for-occupational-pesticide-users">www.epa.nsw.gov.au/your-environment/pesticides/licences-and-advice-for-occupational-pesticide-users</a>
NT	<a href="http://nt.gov.au/industry/agriculture/farm-management/using-chemicals-responsibly/spray-applicator-licences">nt.gov.au/industry/agriculture/farm-management/using-chemicals-responsibly/spray-applicator-licences</a>
Qld	<a href="http://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/chemical-controls/commercial-operators">www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/chemical-controls/commercial-operators</a>
SA	<a href="http://www.sa.gov.au/topics/business-and-trade/licensing/building-and-trades/pest-control-licence">www.sa.gov.au/topics/business-and-trade/licensing/building-and-trades/pest-control-licence</a>
Tas	<a href="http://nre.tas.gov.au/agriculture/agvet-chemicals/licences-and-certificates/ground-spraying-and-pest-management-licences">nre.tas.gov.au/agriculture/agvet-chemicals/licences-and-certificates/ground-spraying-and-pest-management-licences</a>
Vic	<a href="http://agriculture.vic.gov.au/farm-management/chemicals/licences-and-permits/commercial-operator-licence-for-contractors">agriculture.vic.gov.au/farm-management/chemicals/licences-and-permits/commercial-operator-licence-for-contractors</a>
WA	<a href="https://www.health.wa.gov.au/articles/n_r/pest-industry-licensing-and-registration">https://www.health.wa.gov.au/articles/n_r/pest-industry-licensing-and-registration</a>

## Effective use of herbicides

Successful herbicide control is dependent on the right herbicide for the target species, growth stage of the target species, weather conditions during and after spraying, how thoroughly the herbicide is applied, and the herbicide mix and application rate.

For spraying, wind speeds should be low (< 15 km/h) with no rain expected in the following six hours.

Do not apply herbicide to plants that are under any sort of stress, as herbicide will not be absorbed and translocated effectively, resulting in a reduced level of control. Plants may be stressed due to:

- dry soil
- low humidity
- air temperatures above 30 °C
- frost.

Effectiveness of herbicides can be maximised further by:

- mixing dye with the herbicide to help minimise missed areas and prevent overspraying (double spraying)
- using an adjuvant – an additive that improves herbicide uptake (always read the adjuvant’s product labels to ensure that they are compatible with the particular herbicide and there are no restrictions on their use; e.g. most adjuvants should not be used near waterways)
- ensuring spray equipment is correctly calibrated and maintained, including being thoroughly cleaned between uses.

## Spraying in sensitive areas

Herbicide users have a legal obligation to avoid spray drift damage and to ensure that the chemicals applied stay within the target area. Target-weed infestations are often located in areas of native vegetation, so great care should be taken to avoid spraying surrounding foliage and soil. Do not use high pump/sprayer pressures that create small droplets which float in the air. Adjust the nozzle settings to produce coarser droplet sizes.

## Using herbicides near water

Never spray herbicides over bodies of water or plants standing in water. Some herbicides are formulated to be a lower risk when used near water (e.g. Roundup® Biactive). NEVER add unregistered adjuvants to herbicides that will be used near water. Some states have publications explaining the safe use of herbicides near water (Table 3).

Table 3. Safe use of herbicides near water by state and territory

STATE/ TERRITORY	WEBSITE
South-eastern Australia	<a href="https://archive.dpi.nsw.gov.au/__data/assets/pdf_file/0011/319448/riparian-habitat-management-guide.pdf">archive.dpi.nsw.gov.au/__data/assets/pdf_file/0011/319448/riparian-habitat-management-guide.pdf</a> (PDF, 1.1 MB)
Qld	<a href="https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/sustainable/chemical/ground-distribution-herbicide/laws">https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/sustainable/chemical/ground-distribution-herbicide/laws</a>
SA	<a href="https://www.epa.sa.gov.au/files/477387_pesticide_water.pdf">https://www.epa.sa.gov.au/files/477387_pesticide_water.pdf</a> (PDF, 1.7 MB)
Tas	<a href="https://nre.tas.gov.au/Documents/herbicide_guidelinesFINAL2012.pdf">https://nre.tas.gov.au/Documents/herbicide_guidelinesFINAL2012.pdf</a> (PDF, 689 kB)
WA	<a href="https://www.water.wa.gov.au/__data/assets/pdf_file/0016/3355/12149.pdf">https://www.water.wa.gov.au/__data/assets/pdf_file/0016/3355/12149.pdf</a> (PDF, 113 kB)

## Regulations and permits for works in riparian zones

Areas on or near the bank of a river or other body of water (riparian zones) are sensitive habitats, and in some states a licence is required to conduct weed-control works (Table 4).

Table 4. Authorities who can advise about regulations and permits for works in riparian zones

STATE/ TERRITORY	DEPARTMENT	WEBSITE
NSW	NSW Department of Planning and Environment — Water	<a href="https://water.dpie.nsw.gov.au">https://water.dpie.nsw.gov.au</a>
SA	Landscape SA, including 8 regional boards	<a href="https://www.landscape.sa.gov.au">https://www.landscape.sa.gov.au</a>
Vic	Catchment management authorities	<a href="https://viccatchments.com.au/about-us/our-cma-regions">https://viccatchments.com.au/about-us/our-cma-regions</a>
	Department of Energy, Environment and Climate Action — Forests and Reserves	Riparian management licences – <a href="https://www.forestsandreserves.vic.gov.au/__data/assets/pdf_file/0016/31426/Riparian-management-licences.pdf">www.forestsandreserves.vic.gov.au/__data/assets/pdf_file/0016/31426/Riparian-management-licences.pdf</a> (PDF, 160 kB)

## Treating with herbicides

**Page 18** – All herbicides used to control parthenium weed must be registered or ‘permitted’ for that use, and applied in accordance with the directions on the label or minor use permit. These registered herbicides can be found in Table 5 and permits in Table 6, including the state/territory in which these registrations/permits apply.

Table 5. Herbicides permitted for use on parthenium weed under registration as at September 2023

SITUATION	ACTIVE INGREDIENTS	COMMERCIAL PRODUCT EXAMPLES <sup>1</sup>	RATE	STATE OR TERRITORY <sup>2</sup>	COMMENTS
Pastures, rights-of-way and industrial areas	2,4-D amine <sup>3</sup> (625 g/L)	2,4-D Amine 625	320 mL/100 L high volume	Qld only	Apply to actively growing small weeds.
Non-crop areas	dicamba <sup>3</sup> (500 g/L)	Cutlass® 500	40 mL/100 L high volume 10 mL/15 L knapsack	All	Spot spray
Grass pastures and perennial seed crops			280 mL–1.1 L/ha	All	Apply to young, actively growing plants.
Sugar cane – post-emergent			560 mL/ha	Qld, NSW, WA, NT only	Spray when actively growing and before weeds reach 8-leaf stage.
Pastures, non-agricultural, rights-of-way, industrial areas	2,4-D + picloram (300 + 75 g/L)	Tordon® 75-D	125 mL/100 L water high volume	Qld and NSW only	Spot spray rosette stage when plants are actively growing. Use at least 3,000 L water/ha in dense infestations.
Non-agricultural, rights-of-way, industrial areas			3.0 L/ha	Qld and NSW only	Boom application
Agricultural non-crop areas, commercial and industrial areas, pastures and rights-of-way	2,4-D + picloram + aminopyralid (300 g + 75 g + 7.5 g/L)	FallowBoss® Tordon Herbicide	3 L/ha	Qld and NSW only	Boom application
Land before sowing winter cereals			1 L/ha	Qld only	May be applied by aircraft or ground boom. Watch crop plant-back period restrictions.
Non-agricultural areas, rights-of-way, commercial and industrial areas	aminopyralid + metsulfuron (375 + 300 g/kg)	Stinger®	10 g/100 L	Qld and NSW only	Thoroughly wet all foliage.
Maize and sweet corn – dryland and irrigated	atrazine <sup>3</sup> (900 g/kg)	Atralex® WG	2.5–3.3 kg/ha pre- and post-emergent application	All	Add wetter as a post-emergent application.
Sorghum			Pre-emergent 3.3 kg/ha Post-emergent 1.1 kg/ha + 500 mL 2,4-D (500 g/L)	Qld only	Use with a non-ionic surfactant.
Fallow prior to sorghum			2–3.3 kg/ha	Qld and NSW only	Apply to moist soil, or when rain is imminent prior to weed germination.
Roadsides and rights-of-way			3.3 kg/ha	Qld, NSW, NT only	Apply to moist soil, when rain is imminent prior to weed germination, or to small seedlings.

SITUATION	ACTIVE INGREDIENTS	COMMERCIAL PRODUCT EXAMPLES <sup>1</sup>	RATE	STATE OR TERRITORY <sup>2</sup>	COMMENTS
Around agricultural buildings	hexazinone <sup>3</sup> (250 g/L)	Velpar® L, Bobcat® SL	7 mL/10 L/20 m <sup>2</sup> Knapsack (small areas) 3.5 L/ha (large areas)	Qld and NSW only	Apply uniformly over the area. When spraying single plants, treat soil for 1 m around. Do not use within 2–3 times the height of desirable trees.
Pastures, non-agricultural, rights-of-way, industrial.	metasulfuron-methyl (600 g/kg)	Associate®	5 g/ha	Qld only	Apply up to rosette stage.
Wheat, barley, triticale, cereal rye			5–7 g/ha	Qld only	Apply up to rosette stage.
Pastures, non-agricultural, rights-of-way, industrial			5 g/100 L high volume	Qld and NSW only	Thoroughly wet all foliage to the point of run-off.
Direct drilling	paraquat + diquat (135 + 115 g/L)	Spray-seed 250	1.6–2.4 L/ha	Qld, northern NSW, NT only	Apply in 50–100 L clean water.
Public service areas, rights-of-way, market gardens, nurseries, vineyards and forest			2.4–3.1 L/ha ground boom 240–320 mL/100 L spot spray (high-volume)	All	Can be mixed with atrazine for longer term control.

Notes to this table can be found at the bottom of Table 6.

**Table 6. Herbicides permitted for use on parthenium weed under minor use permits as at September 2023**

SITUATION	ACTIVE INGREDIENTS	COMMERCIAL PRODUCT EXAMPLES <sup>1</sup>	RATE	COMMENTS
<p><b>Permit PER10367</b> – Control of parthenium weed by aerial application in Inaccessible areas, Queensland only. Expires 30 June 2028. Biosecurity Queensland – Licensed aerial operators who are trained and experienced in the use of agricultural chemicals and who hold all appropriate State and Commonwealth government approvals for aerial application of agricultural chemicals</p> <p>Non-crop areas considered to be inaccessible to ground-based application methods</p>	metsulfuron-methyl (600 g/kg)	Associate®	7 g/ha	Use a recommended wetter. Apply before seed set.
<p><b>Permit PER13333</b> – Control of environmental weeds in various situations, WA only. Expires 31 March 2025</p> <p>Agricultural non-crop areas, Non-crop areas, Commercial and industrial areas, Wetlands, Bushlands and Forests</p>	metsulfuron-methyl (10 g/kg) + glyphosate <sup>3</sup> (835 g/L)	Trounce Brush-Pack®	173 g pack/100 L water plus wetting agent	Spot spraying.
	metsulfuron-methyl (600 g/kg)	Associate®	10 g/100 L plus wetting agent or spray oil. Or 100 g/ha plus wetting agent or spray oil. Or label rate for specific weed	Spot spraying.
	2,4-D + picloram (300 + 75 g/L)	Tordon® 75-D	1 L/100 L water plus wetting agent. Or 10 L/ha. Or label rate for specific weed	Spot spray. Agricultural use will remove clovers and some broadleaf pasture such as capeweed for at least 12 months.

1 Commercial products listed here are examples only, and many other products containing these active ingredients are registered for use on parthenium weed. Search at <https://apvma.gov.au/node/10831>

2 Products may be registered for use on parthenium weed in all states and territories (shown as 'All'), or only in the specific states and territories listed.

3 Products containing different concentrations of the active ingredients are registered for this use. For example, registered products containing the active dicamba are available with 200, 500 and 750 g/L concentrations, as well as 700 g/kg. Check the label for application rates.

*Note: not all currently registered herbicides are commercially available. Check the company website for a current label.*

*Note: herbicides are not to be used for any purpose or in any manner contrary to the label unless authorised under appropriate legislation. By law, you must read the label (or have it read to you) before using any herbicide product. The same applies for minor use permits. Always follow the label and permit directions.*

## Introducing biological control agents

### Current status of biocontrol agents

**Page 19–20** – Nine insects and two rust fungi have been released in Australia, seven of which are widespread and have had variable impacts (see lists below).

The most widespread and effective agents are the:

- stem-galling moth (released in 1982), *Epiblema strenuana*, which is widespread across all parthenium weed-infested areas and causing significant damage
- leaf beetle (released in 1980), *Zygogramma bicolorata*, which is widespread and significantly reduces plant vigour, reproductive output, weed density and soil seed banks
- summer rust (released in 2000), *Puccinia xanthii* var. *parthenii-hysterophorae*, which is widely established.

Less effective agents are the:

- seed-feeding weevil (released in 1981), *Smicronyx lutulentus*, which causes limited damage over a sporadic distribution
- stem-boring weevil (released in 1982), *Listronotus setosipennis*, which is widespread, but populations are seasonal and patchy
- leaf-mining moth (released in 1984), *Bucculatrix parthenica*, which is widespread across all parthenium weed-infested areas but causes minimal damage
- winter rust (released in 1991), *Puccinia abrupta* var. *partheniicola*, which has only localised establishment and minimal impact
- stem-galling weevil (released in 1995), *Conotrachelus albocinereus*, which has a limited distribution
- root-boring moth (released in 1998), *Carmenta* sp. nr. *ithacae*, which has limited establishment and distribution, and causes minimal damage.

Neither the stem-galling weevil or the root-boring moth are present in sufficient numbers to allow for field collection or redistribution.

It is important to remember that in some states, parthenium may be a target for eradication, and biological control should not be considered as a control option. Speak to your local weeds or biosecurity officer for advice.

## Tips for establishing biological control

Page 21 – See Table 7.

Table 7. Tips for redistribution of biological control agents for parthenium

BIOLOGICAL CONTROL AGENT	TIPS FOR REDISTRIBUTION
<b>Most effective agents</b>	
Stem-galling moth <i>Epiblema strenuana</i>	They do not require collection and redistribution as they have established in all climatically suitable areas.
Leaf beetle <i>Zygotogramma bicolorata</i>	Can be found on parthenium weed leaves and stems. Collect by cutting parthenium plants and placing them in loosely woven bags (not plastic) for transport to the nursery site. Do not leave the bags in the sun. Large numbers of agents should be put out at any one site. This beetle can take a number of years to establish, depending on the occurrence of suitable rainfall.
Summer rust <i>Puccinia xanthii</i> var. <i>parthenii-hysterophorae</i>	Establish by growing cultures under artificially moist conditions and distributing the plants at suitable sites. Nursery sites should be set up during spring and summer.
<b>Less effective agents</b>	
Seed-feeding weevil <i>Smicronyx lutulentus</i>	Larvae are located in the flowering seed head. Rub the parthenium weed flower in your gloved hand to determine whether larvae are present. Collect flower heads or entire plants and leave them at a suitable nursery site.
Stem-boring weevil <i>Listronotus setosipennis</i>	Larvae can be found anywhere in the stem, but especially near soil level. It is necessary to pull up the stems to determine whether larvae are present. The larvae are 'C' shaped and white. Collect entire infested plants and leave them at a suitable nursery site.
Leaf-mining moth <i>B. parthenica</i>	They do not require collection and redistribution as they have established in all climatically suitable areas.
Winter rust <i>Puccinia abrupta</i> var. <i>partheniicola</i>	Establish by growing cultures under artificially moist conditions and distributing the plants at suitable sites. Winter rust nursery sites should be set up in autumn.

### Australian Biocontrol Hub

Sharing information is vital to the success of biological control of weeds. Recording which weed species you are controlling and the locations of agent release sites can also assist others to obtain access to the right agents for their infestation.

The Atlas of Living Australia (ALA) is a national, online biodiversity database that helps share information. The Australian Biocontrol Hub is a portal within the ALA that acts as a one-stop shop for data and information sharing on weed biological control.

The Australian Biocontrol Hub can:

- facilitate recording of biological control agent release and establishment data
- capture observations of biological control agent spread
- ensure biological control agent distribution data is readily accessible
- provide access to biological control extension material.

For further information on how to contribute to or use information on the Australian Biocontrol Hub, visit the website: <https://biocollect.ala.org.au/biocontrolhub>

## Contacts

STATE/ TERRITORY	DEPARTMENT	PHONE	EMAIL	WEBSITE
<b>National</b>	Australian Pesticides and Veterinary Medicines Authority	02 6770 2300	enquiries@apvma.gov.au	www.apvma.gov.au
<b>ACT</b>	Parks and Conservation	13 22 81	ACTBiosecurity@act.gov.au	www.environment.act.gov.au/parks-conservation/plants-and-animals/Biosecurity/invasive-plants
<b>NSW</b>	Department of Primary Industries	1800 680 244	weeds@dpi.nsw.gov.au	www.dpi.nsw.gov.au/biosecurity/weeds
<b>NT</b>	Department of Environment, Parks and Water Security	08 8999 4567	weedinfo@nt.gov.au	www.nt.gov.au/environment/weeds
<b>Qld</b>	Department of Agriculture and Fisheries	13 25 23	info@daf.qld.gov.au	www.daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/plants-weeds
<b>SA</b>	Department of Primary Industries and Regions	1300 374 731	invasivespecies@sa.gov.au	www.pir.sa.gov.au/biosecurity/weeds
<b>Tas</b>	Department of Natural Resources and Environment	1300 368 550	biosecurity.tasmania@nre.tas.gov.au	www.nre.tas.gov.au/invasive-species/weeds
<b>Vic</b>	Agriculture Victoria	13 61 86	Refer to <a href="http://www.agriculture.vic.gov.au/about/contact-us">www.agriculture.vic.gov.au/about/contact-us</a> for contact options	www.agriculture.vic.gov.au/biosecurity/weeds
<b>WA</b>	Department of Primary Industries and Regional Development	08 9368 3333	enquiries@agric.wa.gov.au	www.agric.wa.gov.au/pests-weeds-diseases/weeds

## Further information

NT weed management handbook. Northern Territory Government (2020).

<https://nt.gov.au/environment/weeds/how-to-manage-weeds/weed-management-handbook>

SA parthenium weed profile. Biosecurity SA, Primary Industries and Regions South Australia (2021).

[https://pir.sa.gov.au/biosecurity/weeds/controlling-weeds/parthenium\\_weed](https://pir.sa.gov.au/biosecurity/weeds/controlling-weeds/parthenium_weed)

Qld parthenium weed profile. Department of Agriculture and Fisheries, Queensland Government (2020). [https://www.daf.qld.gov.au/\\_\\_data/assets/pdf\\_file/0004/68602/parthenium.pdf](https://www.daf.qld.gov.au/__data/assets/pdf_file/0004/68602/parthenium.pdf) (PDF, 2.4 MB)

NSW parthenium weed profile. Department of Primary Industries (2021).

<https://weeds.dpi.nsw.gov.au/Weeds/PartheniumWeed>

WA parthenium weed control. Department of Primary Industries and Regional Development, Western Australia (2020). <https://www.agric.wa.gov.au/herbicides/parthenium-weed-control>

NT parthenium weed profile. Northern Territory Government (2020).

<https://nt.gov.au/environment/weeds/weeds-in-the-nt/A-Z-list-of-weeds-in-the-NT/parthenium>

Weeds Australia parthenium profile. Weeds Australia. (2020).

<https://weeds.org.au/profiles/parthenium-weed-bitter/>

**CENTRE FOR INVASIVE  
SPECIES SOLUTIONS**

Building 22, University of Canberra  
University Drive South, BRUCE ACT 2617  
T 02 6201 2887  
E [communications@invasives.com.au](mailto:communications@invasives.com.au)

