CENTRE FOR
INVASIVE SPECIES SOLUTIONS

BEST PRACTICE MANAGEMENT FOR THE CONTROL OF Scotch broom (*Cytisus scoparius*), Montpellier broom (*Genista monspessulana*) and flax-leaf broom (*G .linifolia*)

ADDENDUM TO THE WEEDS OF NATIONAL SIGNIFICANCE BROOM MANAGEMENT MANUAL

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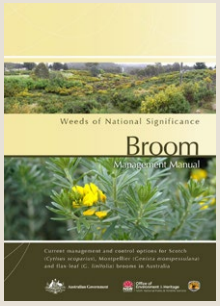
Cover images

Front — Scotch broom, Barrington Tops.
Image by NSW Department of Primary Industries.

Back — Sweet broom close up. Image by J Hosking, NSW Department of Primary Industries.

How to use this addendum



The broom management manual **(PDF, 15.5 MB) was published in 2014 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 2014 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 brooms and their management.

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

Section 2: Managing rubber vine

Reducing the risk of infestation

Page 8 — Managing grazing to maintain soil cover and land condition is important and will also suppress rubber vine seedling emergence and survival. Maintenance of land condition limits soil erosion and allows for land-management options (such as the use of fire) to be considered.

Planning

Page 9 — Revegetation generally is recommended component of a best practice weed management program (to assist with future suppression of weed regrowth), but it is not normally practical in the extensive rangelands situations where rubber vine occurs. It may still be practical in situations where sensitive environments are threatened by rubber vine infestations that are small but dense.

Section 4: Control methods

Integrated weed management

Page 66 – Best practice broom management requires an integrated approach that combines: preventative actions, such as good hygiene practices and the identification of early incursions; the use of control techniques best suited to the context; and long-term, repeated follow-up management.

In remote and isolated areas, the long-term success of weed-management programs can be greatly enhanced by detecting new incursions early using helicopters and drones during the flowering season. A key consideration in your overall management plan should be the prevention of further spread and controlling regrowth on individual plants, especially after fire.

Mechanical and physical options

Hand cutting without herbicide

Page 67 – To improve the success of controlling mature plants using this method, it is essential to cut as close to the ground as possible, below any green part of the plant. Note that plants can still resprout, particularly if cuts are made above any green part of the plant. This technique, while not always effective, has been proven to be successful year-round in certain contexts, including work undertaken in the Barrington Tops National Park (B. Carney, personal communication, 5 December 2022).

Mechanical clearing

Page 68 – Remote-controlled mowers/slashers can be useful in bushland areas where heavier machinery, such as traditional slashers, are restricted in their use due to site inaccessibility and the requirement to minimise disturbance in sensitive environments, wet areas or steep terrain.

Mechanical hand tools such as brush cutters, chainsaws and electric pruners are useful tools for managing dense thickets, with chainsaws particularly useful for cutting large, mature plants low to the ground. These methods can be integrated with foliar spraying for follow-up post-mechanical removal.

Chemical options

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

Safety and training

Page 72 – 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

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

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	archive.dpi.nsw.gov.au/__data/assets/pdf_file/0011/319448/riparian-habitat-management-guide.pdf (PDF, 1.1 MB)
Qld	https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/sustainable/chemical/ground-distribution-herbicide/laws
SA	https://www.epa.sa.gov.au/files/477387_pesticide_water.pdf (PDF, 1.7 MB)
Tas	https://nre.tas.gov.au/Documents/herbicide_guidelinesFINAL2012.pdf (PDF, 689 kB)
WA	https://www.water.wa.gov.au/__data/assets/pdf_file/0016/3355/12149.pdf (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	https://water.dpie.nsw.gov.au
SA	Landscape SA, including 8 regional boards	https://www.landscape.sa.gov.au
Vic	Catchment management authorities	https://viccatchments.com.au/about-us/our-cma-regions
	Department of Energy, Environment and Climate Action — Forests and Reserves	Riparian management licences – www.forestsandreserves.vic.gov.au/__data/assets/pdf_file/0016/31426/Riparian-management-licences.pdf (PDF, 160 kB)

Herbicides for use on brooms

Page 74 – A range of herbicides are registered for the control of brooms (Table 5) and minor use permits are available (Table 6).

Table 5. Herbicides permitted for use brooms under registration

STATE/ TERRITORY[2]	APPLICATION METHOD	SPECIES	SITUATION	ACTIVE INGREDIENT	COMMERCIAL PRODUCT EXAMPLES[1]	RATE	COMMENTS
All	High-volume spraying	*C. scoparius* *G. monspessulana* *G. linifolia*	Agricultural non-crop areas, commercial and industrial areas, forests, pastures and rights of way	triclopyr[3,5] (600 g/L)	Garlon® 600	170–340 mL/100 L water	As per label instructions
	High-volume spraying	*C. scoparius* *G. monspessulana* *G. linifolia*	Agricultural non-crop areas, commercial and industrial areas, forests, pastures and rights of way	picloram[4] + triclopyr (100 + 300 g/L)	Nufarm Conqueror®	250–350 mL/100 L water	As per label instructions
	High-volume spraying	*C. scoparius* *G. monspessulana* *G. linifolia*		aminopyralid + picloram[4] + triclopyr (8 + 100 + 300 g/L)	Grazon® Extra	250–350 mL/100 L water	As per label instructions
	Cut and paint	*C. scoparius* *G. monspessulana* *G. linifolia*	Native vegetation, conservation areas, gullies, reserves and parks	aminopyralid + picloram (4.5 + 45 g/L)	Vigilant® II	Neat gel	Apply a 3–5 mm layer of gel for stems less than 20 mm. Apply 5 mm layer on stems above 20 mm.
	Foliar application: high-volume (knapsack or handgun)	*C. scoparius*	For general weed control in domestic areas (home gardens), commercial and industrial areas, public service areas, agricultural buildings and other farm situations, forests, pasture	glyphosate[3] (360 g/L)	Weedmaster® Duo	10–13 mL/L	Spray to wet foliage. When using the low rate add Pulse (2 mL/L spray solution) to improve coverage. At full leaf only the high rate can be used without Pulse.
	Paint	*C. scoparius*	Urban areas	glyphosate + triclopyr3 (16 + 4 g/L)	Zero Ultra Tough Weedkiller	Neat	As per label
	High-volume spraying	*C. scoparius* *G. monspessulana* *G. linifolia*	Agricultural non-crop areas, commercial and industrial areas, forests, pastures and rights of way	picloram[4] (240 g/L)	Adama Picoflex®	104 mL + 100 mL triclopyr (750 g/L)/100 L water	Spring to mid-summer prior to podding
						145 mL + 140 mL triclopyr (750)/100 L	Autumn application

STATE/ TERRITORY[2]	APPLICATION METHOD	SPECIES	SITUATION	ACTIVE INGREDIENT	COMMERCIAL PRODUCT EXAMPLES[1]	RATE	COMMENTS
Victoria	High-volume spraying	*C. scoparius*	Agricultural non-crop areas, commercial and industrial areas, forests, pastures and rights of way	picloram4 + 2,4-D (75 + 300 g/L)	Tordon® 75-D	300 mL/100 L water	Thoroughly wet foliage and soil around base of plant.
	High-volume spraying	*C. scoparius*	Agricultural non-crop areas, commercial and industrial areas, forests, pastures and rights of way	picloram[4] (240 g/L)	Adama Picoflex®	95 mL + 145 mL 2,4-D (625 g/L)/100 L water	Thoroughly wet foliage and soil around base of plant.
SA	High-volume spraying	*C. scoparius* *G. monspessulana*	Agricultural non-crop areas, commercial and industrial areas, forests, pastures and rights of way	picloram[4] + 2,4-D (75 + 300 g/L)	Tordon® 75-D	300 mL/100 L water	Thoroughly wet foliage and soil around base of plant.
	High-volume spraying	*C. scoparius* *G. monspessulana*	Agricultural non-crop areas, commercial and industrial areas, forests, pastures and rights of way	picloram[4] (240 g/L)	Adama Picoflex®	95 mL + 145 mL 2,4-D (625 g/L)/100 L water	Thoroughly wet foliage.
	Cut stump	*C. scoparius*		glyphosate[3] (450 g/L) + triclopyr3 (600 g/L)	Gladiator® CT + Garlon® 600	333 mL + 33 mL/L water	Off-label

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

Table 6 lists currently registered APVMA permits by state. Several permits are for 'environmental' or 'declared' weeds, which may not specifically mention brooms in the weed list. In these instances, only refer to 'woody weeds' in the weed column of the tables when determining herbicide and rate for controlling broom. If in doubt contact the relevant permit holder for more information.

Table 6. Herbicides permitted for use on brooms under minor use permits

EXPIRES	PERMIT HOLDER	ACTIVE INGREDIENT	COMMERCIAL PRODUCTS[1]	RATE	COMMENTS
NSW					
PER11916					
Control of various weeds in urban bushland, forests and coastal reserves. *Cytisus scoparius*					
31 March 2025	NSW DPI	glyphosate (360 g/L) only + metsulfuron-methyl (600 g/kg)	Roundup® Biactive	Undiluted to 1:6 Cut stump/drill/axe Cut/inject	Persons generally
PER83324					
For the control of certain weeds in aquatic situations (non-potable), *Cytisus scoparius*					
31 August 2025	Snowy Monaro Regional Council	metsulfuron-methyl (600 g/kg) + glyphosate (360 g/L) registered for aquatic situations.	Macspread Metmac 600 herbicide only + Roundup® Biactive	10 g + 200 mL/100 L Knapsack or handgun up to 600 L/ha	Employees and contractors employed by the Snowy Monaro Regional Council, Queanbeyan Palerang Regional Council, South East Local Land Services, Landcare groups and local weeds groups, who are trained and experienced in the preparation and use of agricultural chemicals and under the direction of the permit holder
PER12363					
Control of various environmental weeds in natural ecosystems using helicopter or unmanned aircraft vehicles spot-spraying equipment, *Cytisus scoparius*					
31 March 2026	National Parks and Wildlife Service	glyphosate (360 g/L) only	Weedmaster® Duo	As per permit	Staff or contractors employed/contracted by the National Parks and Wildlife Service or agencies/organisations represented on NSW Local Land Services Regional Weeds Committees

EXPIRES	PERMIT HOLDER	ACTIVE INGREDIENT	COMMERCIAL PRODUCTS[1]	RATE	COMMENTS
Queensland					
PER11463*					
Control of environmental weeds in non-crop areas, non-agricultural areas, bushland, forests, wetlands, coastal and adjacent areas; *Cytisus scoparius, G. monspessulana, G. linifolia.* Persons generally.					
30 April 2027	Biosecurity Queensland	glyphosate (360 g/L) only	Weedmaster® Duo	Undiluted to 1:2 water 1 mL per 2 cm of hole or cut	Drill, frill, axe or stem injection.
		metsulfuron-methyl (600 g/kg)	Associate®	2 g per 1 L water at 1 ml per 2 cm of hole or cut	Drill, frill, axe or stem injection.
		fluroxypyr[3] (333 g/L)	Starane® Advanced	45–135 mL/15 L 300–900 mL/100 L water	Knapsack High-volume spot spraying
				300–600 mL/10 L	Low-volume/high-concentration application e.g., splatter gun
				135–450 mL/15 L water or 900 mL–3 L/100 L diesel or 6 mL undiluted per plant for specific weed application as per label	Basal bark or cut stump/brush-cutter application
		triclopyr + picloram + aminopyralid (200 + 100 + 25 g/L)	Tordon® RegrowthMaster Hebicide	75 mL/15 L water or 500 mL/100 L water	Knapsack or High-volume spot spraying
				1:4 L water	Drill, frill, axe or stem injection
				750 mL/15 L water	Cut stumps to less than 10 cm above the ground and immediately paint stump OR spot spray cut stump after cutting.
		triclopyr + picloram (240 + 120 g/L)	Access®	250 mL/15 L diesel or Biosafe®	Paint stump immediately after cutting/paint stem/spray basal bark.
				1 L per 10 L diesel	Thinline application method: Spray the bark around the stem from ground level up to 5 cm high. Refer to product label for further instruction.

EXPIRES	PERMIT HOLDER	ACTIVE INGREDIENT	COMMERCIAL PRODUCTS[1]	RATE	COMMENTS
30 April 2027	Biosecurity Queensland	aminopyralid + picloram[4] + triclopyr (8 + 100 + 300 g/L) or picloram[4] + triclopyr (100 + 300 g/L)	Grazon® Extra or Nufarm Conqueror®	53–75 mL/15 L or 350–500 mL / 100 L water	Knapsack spot spraying where residual weed control is required Add a wetting agent or spray oil according to label instructions
		triclopyr (600 g/L) only	Garlon® 600	17 mL/L diesel	Basal bark spray or cut stump application
		glyphosate[3] (360 g/L)	Roundup® Biactive	Undiluted to 1 L/2 L water at 1 mL/2 cm cut or hole	Drill, frill, axe or stem injection
				Undiluted to 1 L/12 L water	Paint stump immediately after cutting, or paint basal green bark and/or crown.
South Australia					
PER91974 For the control of woody weeds in non-crop situations, *Cytisus* and *Genista* spp.					
31 January 2027	Primary Industries and Regions South Australia	triclopyr (600 g/L) only	Garlon® 600	1 L:30 L diesel Cut stump or basal bark.	Persons generally Nature reserve and other native vegetation, roadsides, urban open space and forests
PER13371 Chemical products for the control of environmental weeds in South Australia, *Cytisus* and *Genista* spp.					
30 April 2027	Primary Industries and Regions South Australia	glyphosate[3] (450 g/L)	Gladiator® CT	1:1 cut stump	Persons generally Non-crop areas, rights of way, roadsides and easements, forest and conservation areas. See permit.
				100 mL/10 L spot spray	
		glyphosate[3] (360 g/L)	Roundup® Biactive	1:1 cut stump	
				100 mL/10 L spot spray	
		glyphosate[3] (360 g/L) + metsulfuron-methyl (600 g/kg)	Roundup® Biactive + Associate®	1 L + 3 g/100 L water + surfactant Spot spray	
				200 ml + 10 g/ 100 L water Spot spray – cape broom	

EXPIRES	PERMIT HOLDER	ACTIVE INGREDIENT	COMMERCIAL PRODUCTS[1]	RATE	COMMENTS
Tasmania					
PER84775 *					
Control of environmental weeds in non-crop and bushland situations, *Cytisus* and *Genista* spp. Persons generally.					
30 September 2025	Dept. Primary industries, Parks, Water and Environment	metsulfuron (600 g/L)	Associate®	1 g/L + Pulse® Penetrant 2 mL/L	Gas gun
				10–15 g/100 L water	High-volume spot spray or knapsack
		triclopyr[3] (600 g/L)	Garlon® 600	1:60 diesel	Cut stump
				170 mL/ 100 L	Spot spray
		aminopyralid + picloram[4] + triclopyr (8 + 100 + 300 g/L) or picloram[4] + triclopyr (100 + 300 g/L)	Grazon® Extra or Nufarm Conqueror®	53–75 mL/15 L	Knapsack spot spray
		triclopyr + picloram (240 + 120 g/L)	Access®	1:60 diesel	Cut and paint
		glyphosate[3] (360 g/L)	Roundup® Biactive	Undiluted per hole	Drill/axe
				1:5	Cut stump

EXPIRES	PERMIT HOLDER	ACTIVE INGREDIENT	COMMERCIAL PRODUCTS[1]	RATE	COMMENTS
Western Australia					
PER13333*					
Control of environmental weeds in various situations: Agricultural non-crop areas, Non-crop areas, Commercial and industrial areas, Wetlands, bushlands and forests. *Cytisus* and *Genista* spp. Persons generally					
Brooms not specified – covered under 'woody weeds'					
31 March 2025	Forest Products Commission	glyphosate[3] (360 g/L)	Roundup® Biactive	As per permit 2 mL/hole or cut	Drill, frill, axe or injection.
				Undiluted to 1 L/5 L water	Paint stump immediately after cutting or paint basal bark.
		clopyralid[4] (300 g/L) only	Genfarm Clopyralid 300®	500 mL/100 L + organosilicone adjuvant	Spray active growth, spring to summer. High-volume spot spraying
		triclopyr + picloram[4] (240 + 120 g/L)	Access®	1:60 diesel	Paint stump immediately after cutting. Or paint or spray basal bark.

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

2 Products may be registered for use on broom 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 ingredient triclopyr are available with 50, 600 750 and 755 g/L. concentrations. Check the label for application rates.

4 Picloram remains active in soil for extended periods and may leach into groundwater. Clopyralid also remains active in the soil for extended periods. Avoid high application rates where possible.

5 Users of Agriculture Victoria restricted-use chemicals must hold an Agricultural Chemical User Permit (ACUP) or be working under the direct and immediate supervision of an ACUP holder and must make and keep certain specified records of use for two years. For more information: https://agriculture.vic.gov.au/farm-management/chemicals/offlabel-chemical-use/restricted-use-and-restricted-supply-chemicals

* When interpreting permits for declared or environmental weeds only refer to 'woody weeds' in the weed column of the tables when determining herbicide and rate for controlling broom.

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.

Foliar treatments – chemical control

Page 89 – Treatments should be delivered before seed-pod formation to prevent another generation of seed entering the seed bank. The most appropriate time of year for foliar treatments will vary depending on local conditions and timing of flowering.

Fire and grazing

Fire

Page 95 – Fire can effectively support the management of broom by reducing plant biomass and stimulating mass germination of the seed bank, but requires careful consideration. A 'control-burn-control ' approach can be most effective, with long-term follow-up the key to success. In some areas, fire is best used when the goal is pasture regeneration rather than restoration with native species.

Biological control

Page 95–100 – Four agents have been released in Australia for Scotch broom (*Cytisus scoparius*):

- twig-mining moth – Scotch broom twig miner (*Leucoptera spartifoliella*)
- leaf-feeding psyllid – broom psyllid (*Arytainilla spartiophila*)
- seed beetle – broom seed beetle (*Bruchidius villosus*)
- gall mite – broom gall mite (*Aceria genistae*).

One agent is present on Montpellier (Cape) broom (*Genista monspessulana*):

- Cape broom psyllid (*Arytinnis hakani*).

Flax-leaf broom (*Genista linifolia*) is an approved candidate for biological control in Australia, but no agents have yet been tested or released.

The following text is sourced from: Harvey KJ, McConnachie AJ, Sullivan P, Holtkamp R and Officer D (2021) *Biological control of weeds: a practitioner's guide for south-east Australia*, Department of Primary Industries, NSW. Approval from the New South Wales Department of Primary Industries to use this information is gratefully acknowledged.

Effectiveness of agents

Twig-mining moth

Scotch broom twig miner has had minimal impact on Scotch broom, possibly due to parasitism.

Leaf-feeding psyllid

Broom psyllid was first released from 1994 but its establishment was poor, and it has not been seen in the field since 2010.

Seed beetle

Broom seed beetle has established at several sites. Its impact in Australia is not known; however, seed-predation levels of up to 84% have been recorded in New Zealand.

Gall mite

Broom gall mite currently offers the best biocontrol solution for Scotch broom. Under favourable conditions, shrubs may die due to the gall mites' impact. The efficacy of the mite may be climatically limited in cooler areas.

Cape broom psyllid

The Cape broom psyllid is now reaching damaging populations at sites in South Australia, Tasmania and parts of Victoria, with indications that repeated defoliation is causing a decline in plant health. There are some indications that the psyllid is negatively impacted by hot summers, though the population will persist at low numbers (probably from shady refuges) (S Ivory, personal communication, 28 February 2023).

Redistribution of agents

Continued redistribution and impact evaluation of the gall mite, seed beetle and Cape broom psyllid is warranted.

Further information on collecting, rearing and monitoring biological control agents on broom can be obtained from the NSW DPI biological control practitioner's guide (Harvey et al. 2021).

Integration with other control methods

Biological control on its own will not successfully control broom and is just one of the control options that can be incorporated into an integrated management approach. These include management of small, often outlying, broom infestations by killing adult/reproductive plants using chemical or mechanical techniques, and the use of biological control in larger, core infestations to suppress plant health and reproduction. Discuss this with your local weed or biosecurity officer.

Biocontrol Hub

Information-sharing is vital to the success of biological control of weeds. Recording what weed species you are controlling, and the locations of agent-release sites can assist others obtaining access to the right agents for their infestation.

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

The 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 and
- 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: biocollect.ala.org.au/biocontrolhub

Contacts

STATE/ TERRITORY	DEPARTMENT	PHONE	EMAIL	WEBSITE
National	Australian Pesticides and Veterinary Medicines Authority	02 6770 2300	enquiries@apvma.gov.au	www.apvma.gov.au
ACT	Parks and Conservation	13 22 81	ACTBiosecurity@act.gov.au	www.environment.act.gov.au/parks-conservation/plants-and-animals/Biosecurity/invasive-plants
NSW	Department of Primary Industries	1800 680 244	weeds@dpi.nsw.gov.au	www.dpi.nsw.gov.au/biosecurity/weeds
NT	Department of Environment, Parks and Water Security	08 8999 4567	weedinfo@nt.gov.au	www.nt.gov.au/environment/weeds
Qld	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
SA	Department of Primary Industries and Regions	1300 374 731	invasivespecies@sa.gov.au	www.pir.sa.gov.au/biosecurity/weeds
Tas	Department of Natural Resources and Environment	1300 368 550	biosecurity.tasmania@nre.tas.gov.au	www.nre.tas.gov.au/invasive-species/weeds
Vic	Agriculture Victoria	13 61 86	Refer to www.agriculture.vic.gov.au/about/contact-us for contact options	www.agriculture.vic.gov.au/biosecurity/weeds
WA	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

Best practice management manual: brooms. Office of Environment and Heritage (2014). https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Pests-and-weeds/broom-management-manual-140406.pdf (PDF, 15.5 MB)

Weeds Australia brooms profile. Weeds Australia (2019). https://weeds.org.au/profiles/broom-english-scotch/

Biological control of weeds guide for south-east Australia. Department of Primary Industries, NSW (2021). https://www.dpi.nsw.gov.au/biosecurity/weeds/weed-control/biological-control/biological-control-of-weeds-manual

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