

Common Weeds of Gippsland

BAW BAW SHIRE



Weed Identification

This book has been made possible through the combined efforts of your local Councils, the Department of Primary Industries, and Landcare. They are pleased to present this Weed Identification booklet to the community in an effort to reduce and control the impact of weeds in our environment.



Department of
Primary Industries



What is a weed?

A weed is a plant that establishes itself outside its normal environment.

ENVIRONMENTAL WEEDS

These are plants which threaten the values of natural ecosystems, can invade native plant communities and out compete them, resulting in reduction of plant diversity and loss of habitat for animals and birds.

AGRICULTURAL WEEDS

Agricultural weeds threaten sustainable productivity, some weeds are toxic to both humans and stock.

Types of weeds

DECLARED NOXIOUS WEEDS

In Victoria these are plants which have been proclaimed under the *Catchment and Land Protection Act 1994*, which requires the Landholder to control or eradicate these weeds. They can be categorised as follows . . .

1. State Prohibited

To be eradicated if possible from within Victoria or excluded from the State, e.g. Water hyacinth.

2. Regionally Prohibited

Are not widely distributed, but are capable of spreading further. It is reasonable to expect that they can be eradicated from a region, e.g. Cape tulip.

3. Regionally Controlled

Are widespread and established in a region. **It is the responsibility of the Landholder to control the growth and spread of these weeds on their land and the adjoining half width of roadside, e.g. Blackberries and Ragwort, except declared main roads & freeways.**

The above groups are all NOXIOUS.



Control

The first step is to precisely identify the weed and the category that it belongs in. Then develop a management program for containment or eradication which . . .

- Adopts a long term approach.
- May use more than one control method (integrated).
- Emphasises strategic rather than continual use of farm chemicals.
- Reduces costs.
- Minimises environmental damage.
- Working with the neighbours.

Disposal of Garden Rubbish

When disposing of garden rubbish or plant cuttings, it is best to compost or burn the plant material. If this is not possible, remove it to a landfill site and have it buried.

DO NOT DUMP YOUR RUBBISH ON THE ROADSIDE OR IN THE BUSH!

- Some chemical products will require an Agricultural Chemical Users Permit.
- Always read the label on the product and follow the directions on usage and handling.
- Always wear protective clothing and use clean equipment.
- If in doubt, ring your local Department of Natural Resources & Environment office.
- Beware of spray drift reaching non-target species.
- Do not spray in strong winds or high temperatures or when wind is blowing towards sensitive areas or crops.
- Control is often most effective during growth season.

USE CHEMICAL CONTROL ONLY IF HAND CONTROL IS IMPRACTICAL.

Reminder – If chemical control is necessary near drainage lines or streams, use extreme caution as the effects on aquatic life can be devastating even in minute amounts. Always seek expert advice.



Methods of control

CHEMICAL

USE CHEMICAL CONTROL ONLY IF NON-CHEMICAL CONTROL IS IMPRACTICAL.

Reminder – If chemical control is necessary near drainage lines or streams, use extreme caution as the effects on aquatic life can be devastating even in minute amounts. Always seek expert advice.



Cut & Paint

Suitable for many woody weeds and some climbing creepers. The plant is cut off close to the ground and herbicide applied immediately to the cut surface. A staggered pruning technique may be used for larger trees with herbicide applied at the last cut.



Drill & Frill

Chips or frills are made into the trunk of a woody weed close to the base of the trunk with an axe or tomahawk with herbicide applied immediately. Cuts to penetrate through the hard outer bark and just into the soft bark. Alternately, an angled hole can be drilled into the sapwood just below the bark and herbicide applied immediately. Refer to the chemical label.



Scrape & Paint

A variation of cut and paint that is more appropriate for treating large woody, vine-like weeds. The outside bark of a vine is removed with a knife and the exposed inner tissue immediately painted with herbicide.



Foliar Spray

An appropriate herbicide is applied as fine droplets to the surface of foliage using a knapsack or spray unit.



African Love Grass

Eragrostis curvula

NOXIOUS

Status: Regionally prohibited

Family: Poaceae

Origin: Southern Africa

Description: Tussock forming perennial grass

Fruit/Seeds: Produces large quantities of seed summer to autumn.

Dispersal: Reproduces by seed. Seed is dispersed by water, wind animals, vehicles, slashing, on clothing and in soil.

Invades: Open disturbed conditions, roadsides, neglected areas, poor quality pastures.

Control Measures:



Agapanthus

Agapanthus praecox

Status: Environmental weed

Family: Liliaceae

Origin: South Africa

Description: A stout, fleshy-rooted perennial which bears a spherical cluster of sky-blue flowers in summer on 1 m high stalks.

Fruit/Seeds: Seeds form after flowering.

Dispersal: Seed is dispersed by birds, wind, water, carried on boots and clothing or vegetatively from dumping of garden rubbish.

Invades: Bushland, coastal areas, roadsides.

Control Measures:





Amsinckia

Amsinckia spp.

NOXIOUS

Status: Regionally controlled

Family: Boraginaceae **Origin:** North and South America.

Description: Free-standing, winter growing herb 20 to 70 cm high covered with long and short hairs. Yellow to orange trumpet shaped flowers August to November.

Fruit/Seeds: The fruit consists of a burr surrounding four nutlets, each containing a single seed. A plant may produce up to 1 600 seeds.

Dispersal: Seed is effectively spread on farm equipment, in contaminated fodder and by birds and animals.

Invades: An agricultural weed, has potential to cover a wide range of soil types and climates. Competes strongly with cereal crops.

Control Measures:



Apple of Sodom

Solanum linnaeanum

NOXIOUS

Status: Regionally controlled

Family: Solonaceae

Description: An erect shrub to 1 m with spines and prickles on the branches, leaves and calyces. Purple to white flowers winter – spring.

Fruit/Seeds: Globular berries, green to yellow when ripe.

Poisonous.

Dispersal: By seed - birds, foxes etc.

Invades: Bushland, roadsides, waste areas.

Control Measures:





Banana Passionfruit *Passiflora mollissima*

Status: Environmental weed

Family: Passifloraceae

Origin: Andean South America

Description: A fast-growing woody-stemmed tendril climber which forms dense layered mats. Long tubed pink flowers in summer followed by edible fruit.

Fruit/Seeds: Fruiting is copious over autumn-winter.

Dispersal: Seed dispersed by birds or from dumped garden refuse.

Invades: Damp or seasonally moist locations. Will grow in moderate shade but is prolific in sunny locations.

Control Measures:



Bathurst Burr

Xanthium spinosum L

NOXIOUS

Status: Regionally controlled

Family: Asteraceae

Origin: South Africa

Description: Course annual weed, dark shiny divided leaves with whitish undersurface. Three yellow spines grow at the base of each leaf stalk.

Fruit/Seeds: Hairy ovoid fruit with numerous yellow-orange hooked spines.

Dispersal: Through burrs carried by animals, clothing, machinery, fodder and in soil.

Invades: Pastures, sale yards, stock yards, woollen mills.

Control Measures:





Blackberry Nightshade *Solanum nigrum* L.

Status: Environmental weed

Family: Solanaceae

Origin: Europe

Description: An annual herb which varies widely in its growth form.

Fruit/Seeds: Small white flowers in spring-summer, with green to black berries.

Dispersal: Seeds are spread by birds and animals.

Invades: Waste places, areas of cultivation, and is a common coloniser where weeds such as blackberries have been sprayed and the area not rehabilitated with appropriate species.

Control Measures:



Bluebell Creeper *Sollya heterophylla*

Status: Environmental weed

Family: Pittosporaceae

Origin: Western Australia

Description: Evergreen, woody based, twining climber with attractive blue flowers. Smothers ground-flora, smaller shrubs and trees.

Fruit/Seeds: Attractive blue flowers spring – summer followed by a sweet sticky green fruit.

Dispersal: A garden escapee with the fruit spread by birds and foxes.

Invades: Prefers lighter soils and is highly invasive in Victorian coastal woodlands.

Control Measures:





Boneseed

Chrysanthemoides monilifera

NOXIOUS

Status: Regionally controlled (Port Phillip)
Regionally Prohibited (East & West Gippsland)

Family: Asteraceae

Origin: South Africa

Description: An erect perennial shrub to 3 m high with dull green paddle shaped leaves. Young leaves often covered in cottony down.

Fruit/Seeds: Bright yellow daisy flowers in winter to summer, green berries in summer which turn into hard black seeds.

Dispersal: A heavy seeder, seeds spread by birds, animals and water.

Invades: Coastal habitats, dry forests.

Control Measures:



Boxthorn

Lycium ferocissimum

NOXIOUS

Status: Regionally controlled

Family: Solanaceae

Origin: South Africa

Description: A large shrub to 3 m with small fleshy oval leaves and spikes along the branches. Plants provide an ideal harbour for rabbits and foxes.

Fruit/Seeds: White to mauve flowers which develop into small red berries.

Dispersal: Seeds are spread by birds and foxes.

Invades: Was first introduced for hedgerows, occurs commonly on wastelands, agricultural land, roadsides and coastal areas.

Control Measures:





Broom – English

Cytisus scoparius

NOXIOUS

Status: Regionally controlled

Family: Fabaceae

Origin: Europe, Mediterranean

Description: Erect shrub to 2 m high with long dark green angular branches and small inconspicuous leaves. Large pea shaped flowers in Oct. to Nov.

Fruit/Seeds: Flat black seed pods are produced, each containing 6-16 seeds which are ejected forcibly when ripe. Parts of the plant, especially flowers and seeds are **toxic**.

Dispersal: Seed is spread by birds, ants, stock, water, machinery, slashing, in soil and garden refuse.

Invades: Highly invasive, commonly establishing in disturbed bushland margins, agricultural land and along roadsides & railway lines. Regenerates after fire.

Control Measures:



Broom – Flax-leaved

Genista linifolia

NOXIOUS

Status: Regionally controlled (Port Phillip & West Gippsland)

Regionally prohibited (East Gippsland)

Family: Fabaceae

Description: Erect woody shrub, light green slender leaves, smooth above and silky-white below. Clusters of bright yellow pea-like flowers late spring – summer.

Fruit/Seeds: Two to three seeds in flattened silky pods. Seeds are ejected forcibly from the pods when ripe.

Dispersal: Seed is spread by birds, ants, stock, water, machinery, slashing, in soil and garden refuse.

Invades: Highly invasive, commonly establishing in disturbed bushland margins and along roadsides & railway lines. Regenerates after fire.

Control Methods:





Capeweed

Arctotheca calendula

Status: Agricultural weed

Family: Asteraceae

Origin: Africa

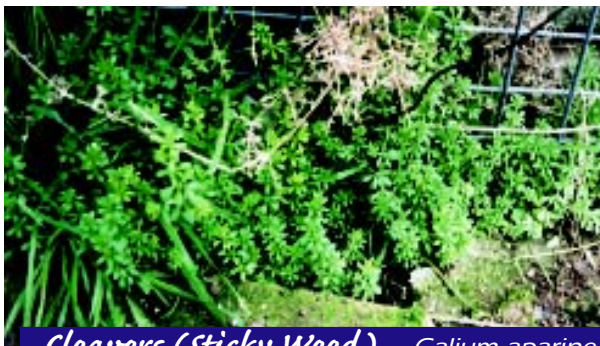
Description: A widespread annual herb with divided, spreading leaves and yellow, daisy like flowers spring-summer.

Fruits/seeds: Seeds covered in a pink, tangled woolly covering.

Dispersal: Seeds spread by animals, wind and machinery.

Invades: Bare areas in paddocks and waste places.

Control Measures:



Cleavers (Sticky Weed)

Galium aparine

Status: Environmental weed

Family: Rubiaceae

Origin: Europe and Asia

Description: An annual climbing herb with square stems covered with small prickles which give the plant a sticky feel.

Fruit/Seeds: Small white flowers in summer followed by a round sticky seed pod.

Dispersal: By the seed which readily sticks to clothing and animals.

Invades: Gardens and roadsides in high rainfall areas.

Control Measures:





Cotoneaster

Cotoneaster spp.

Status: Environmental weed

Family: Rosaceae

Origin: China

Description: Popular evergreen garden shrub or small tree with green oval leaves and small white flowers in spring followed by orange-red berries.

Fruits/seeds: Large orange-red berries, potentially **poisonous**.

Dispersal: Seeds dispersed by birds, foxes and in garden refuse. Will sucker if cut down.

Invades: Invasive in a range of natural habitats. Tolerates wet and dry conditions. Will grow in lightly shaded or sunny areas.

Control Measures:



Dolichos Pea

Dipogon lignosus

Status: Environmental weed

Family: Fabaceae

Origin: South Africa

Description: A widely cultivated perennial vine with pink, purple or white pea shaped flowers in spring-summer.

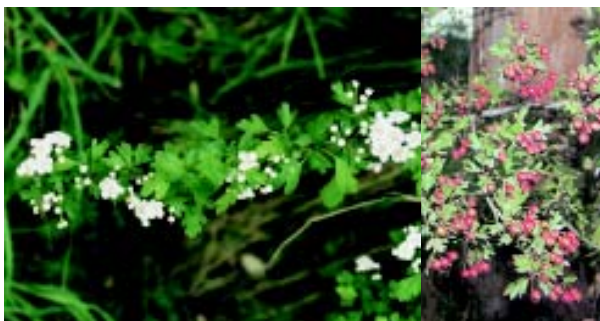
Fruits/Seeds: Seeds are contained in pods and can be ejected many metres from the parent plant.

Dispersal: Seed is dispersed by birds, in soil and garden refuse.

Invades: Highly invasive in woodlands, heathlands and dune systems.

Control Measures:





Hawthorn

Crateagus monogyna

NOXIOUS

Status: Regionally controlled

Family: Rosaceae

Origin: Europe

Description: Erect deciduous small shrub to tree with thorny branches and small serrated bright green leaves. Once widely used for hedges.

Fruit/Seeds: White or pink flowers in spring followed by red berries in autumn.

Dispersal: Reproduces by seed which is dispersed by birds, foxes, possums, stock and water.

Invades: Invasive along creeks, rivers and roadsides.

Control Measures:



Hemlock

Conium maculatum

NOXIOUS

Status: Regionally controlled

Family: Apiaceae

Origin: Europe, Asia

Description: Erect annual or biannual herb with ferny leaves and masses of small white flowers in an umbrella arrangement. Has an unpleasant smell when crushed. All parts of the plant are **toxic to humans and animals**.

Fruits/Seeds: Masses of small seeds produced after flowering.

Dispersal: Spread by machinery, water and soil movement.

Invades: Roadsides, stream-sides and waste areas

Control Measures:





Ivy – Cape

Delairea odorata

Status: Environmental weed

Family: Asteraceae

Origin: South Africa

Description: A highly invasive climbing plant which forms smothering curtains over smaller plants and trees.

Fruits/Seeds: Yellow daisy-like flowers in winter-early spring followed by seed with hairs attached.

Dispersal: Reproduces by seed and from stolons. Spreads by seed dispersed by wind, machinery, slashing and in garden refuse.

Invades: High rainfall areas, occurring in dune systems, woodlands, forests, riparian areas, neglected areas and roadsides.

Control Measures:



Ivy – English

Hedera helix

Status: Environmental weed

Family: Araliaceae

Origin: Europe

Description: A widely planted ornamental creeper with green sword shaped leaves. Trailing stems form dense smothering mats.

Fruits/Seeds: Greenish-yellow flowers in autumn followed by black fruit.

Dispersal: Seed is dispersed by birds, foxes, and possibly water. Stem fragments disposed of in garden refuse will also grow.

Invades: Seasonally moist, shaded or sunny positions in wet forest, dry forest and coastal areas.

Control Measures:





Montbretia

Crocsmia X crocosmiiflora

Status: Environmental weed

Family: Iridaceae

Origin: A horticultural hybrid

Description: A popular garden plant with pale green sword shaped leaves and bright red flower spikes to 1 m over summer. The plant dies back to a bulb over autumn.

Fruits/Seeds: Reproduces from seeds, but primarily from corms.

Dispersal: Spread by water, slashing, grading and in garden refuse.

Invades: An aggressive invader of moist fertile areas forming close stands crowding out other plants.

Control Measures:



Morning Glory



Ipomoea spp.

Status: Environmental weed

Family: Convolvulaceae

Origin: Tropical regions

Description: Rampant climbing plant capable of smothering low growing vegetation, trees and shrubs. Tubular, blue trumpet-shaped flowers in warmer weather.

Fruits/Seeds: Reproduces by seed and stolons.

Dispersal: Most outbreaks are spread by dumping of garden refuse. Seed is dispersed by wind and water.

Invades: Favours sunny positions in moist locations. Invasions often commence in disturbed bushland margins, expanding as the canopy dies and light levels increase.

Control Measures:





Oxeye Daisy

Leucanthemum vulgare

NOXIOUS

Status: Regionally controlled

Family: Asteraceae

Origin: Europe and Siberia

Description: A perennial plant with long slender stalks and white daisy flowers with yellow centers in spring-autumn.

Fruits/Seeds: Dark brown, grey or black flat and usually ribbed seeds are produced in summer.

Dispersal: By seed, spread by machinery especially slashing and animals.

Invades: Wet forest, grassy woodland, riparian, alpine vegetation, agricultural land and along roadsides.

Control Measures:



Parrot's Feather

Myriophyllum aquaticum

Status: Environmental weed

Family: Haloragaceae

Origin: South America

Description: A highly invasive aquatic weed which grows partly submerged. Leaves above the surface are whorled and feathery in appearance.

Fruits/Seeds: Only female flowers produced in Australia, fertile seed not produced.

Dispersal: A popular aquarium plant, spread by dumping of fish tank water, spreads by stem fragments.

Invades: Shallow water bodies, creeks, dams and drains.

Control Measures:





Pine

Pinus radiata

Status: Environmental weed

Family: Pinaceae

Origin: Northern Hemisphere

Description: A tall, evergreen softwood tree to 40 m. Dark green needle-like leaves in dense clusters.

Fruits/Seeds: Large seed bearing cones are produced at the end of branches.

Dispersal: Seed is dispersed by wind and birds.

Invades: Pines reduce soil fertility, produce a dense leaf litter and shade out other species.

Control Measures:



Polygala or Myrtle-Leaf Milkwort

Polygala mytifolia

Status: Environmental weed

Family: Polygalaceae

Origin: South Africa

Description: An erect rounded shrub 2-3 m high with purple and white pea-shaped flowers. Flowers all year with peak flowering time in spring-summer.

Fruits/Seeds: Fruits are heart-shaped capsules containing 2 seeds.

Dispersal: Seed is dispersed by birds, ants, water, in soil and garden refuse.

Invades: A highly invasive weed of coastal areas. Plants tolerate salty winds and will grow in sun and full shade forming dense thickets.

Control Measures:





Serrated Tussock

Nassella trichotoma

NOXIOUS

Status: Regionally prohibited

Family: Poaceae

Origin: South America

Description: A fine-leaved tussock forming perennial grass. Leaves are rounded and rough to touch. Plants are unpalatable to stock, infestations expand as more palatable grasses are eaten out.

Fruit/Seeds: Large, vigorous plants can produce 100,000 seeds annually.

Dispersal: Seeds are dispersed by wind, animals, fodder, machinery, vehicles, slashing and in soil.

Invades: A major agricultural weed occurring in areas with 500-900 mm annual rainfall. Also invades grasslands, grassy woodlands and drier forests.

Control Measures:



Spanish Heath

Erica lusitanica

Status: Environmental weed

Family: Ericaceae

Origin: South-West Europe

Description: An erect shrub to 3 m high with numerous pink tinged white flowers in late winter.

Fruit/Seeds: Capsules are produced after flowering containing numerous fine pepper-like seeds. Each plant can produce up to nine million seeds annually with viability exceeding 50%.

Dispersal: Small seeds are spread by wind, dumping of garden plants and slashing.

Invades: Highly invasive in high rainfall areas, capable of dominating the shrub canopy in bushland areas

Control Measures:





Spurge - Caper

Euphorbia lathyris

Status: Environmental weed

Family: Euphorbia

Origin: Europe and Asia

Description: The juvenile plant has a stout, erect stem with leaves opposite with a bluish-green colour. A white line runs the lengths of the leaf. The mature plant has a bush form. Has a **poisonous** milky latex. Always wear gloves and glasses during removal.

Fruit/Seeds: Leaf-like flowers during spring-summer.

Dispersal: Seed pods explode ending seeds up to 2 m, water movement assists.

Invades: Bushland, roadsides and waste areas.

Control Measures:



Spurge - Sea

Euphorbia paralias

Status: Environmental weed

Family: Euphorbiaceae

Origin: Mediterranean region

Description: A perennial herb to 90 cm with long taproot and clusters of yellow-green cup-like flowers borne on ends of longest stems. **Poisonous** when damaged, plant exudes a caustic milky sap which can harm skin and eyes. Always wear gloves and glasses when hand pulling.

Fruit/Seeds: Fruit consists of green, hairless oval capsules to 5 mm.

Dispersal: Seeds spread by ocean currents and wind.

Invades: Coastal primary sand dunes.

Control Measures:





Sweet Pittosporum *Pittosporum undulatum*

Status: Environmental weed

Family: Pittosporaceae

Origin: Queensland, NSW, Vic

Description: Tree which occurs naturally through much of Gippsland. Masses of sweet-scented flowers in spring which develop into orange berries in autumn.

Fruit/Seeds: Seeds develop in orange berries.

Dispersal: Becoming more widespread due to altered drainage patterns, reduced fire frequencies and increased dispersal by birds. Westward distribution due to popularity as a garden plant.

Invades: Dense foliage which reduces light levels which effects the composition of ground flora and leaf litter altering soil chemistry.

Control Measures:



Sweet Reed Grass

Glyceria maxima

Status: Environmental weed

Family: Poaceae

Origin: Europe, Asia

Description: A tall perennial, aquatic rhizomatous grass with stout stems, purple at the base. Has been known to cause cyanide poisoning in stock.

Fruit/Seeds: Seeds are produced on spikelets in mid-late summer.

Dispersal: By seed and rhizomes, was introduced as a pasture plant suitable for wet areas.

Invades: Creeks and dams with the ability to form huge stands

Control Measures:





Thistles – Saffron *Carthamus lanatus* L.

NOXIOUS

Status: Regionally controlled

Family: Asteraceae

Origin: Mediterranean region, Asia

Description: Erect, often much-branched annual with narrow triangular leaves which terminate in a spine. Solitary light yellow flower heads are produced in summer.

Fruit/Seeds: Seeds are brownish-grey, 3 mm long with a pappus of stiff bristles.

Dispersal: The large seeds are not carried far by wind, but will float in water and are spread by animals, vehicles and machinery. Contamination of grain has introduced it to new areas.

Invades: Pasture land with a low fertility.

Control Measures:



Thistles – slender or shore

Carduus pycnocephalus and *C. tenuiflorus*

NOXIOUS

Status: Regionally controlled

Family: Asteraceae

Origin: Europe, Asia, Africa

Description: An erect, annual herb with strongly ribbed prickly stems and spiny leaves. Small purple-pink flowers in summer.

Fruit/Seeds: Seeds are grey-brown with barbed hairs attached.

Dispersal: By wind, animals, vehicles, machinery and livestock.

Invades: Agricultural land.

Control Measures:





Thornapples

Datura spp.

NOXIOUS

Status: Regionally controlled (East Gippsland & Port Phillip)

Family: Solanaceae

Origin: South America

Description: An erect, vigorous annual with large leaves and much branched stems. Trumpet shaped white – pink flowers spring – summer.

All parts of the plant, but particularly the seeds are **toxic**.

Fruits/Seeds: Each species has a four- compartmented seed capsule covered in dense spines.

Dispersal: From seed in fodder and contaminated grain.

Invades: Pastures, roadsides and wastelands.

Control Measures:



Tree Tobacco

Solanum mauritianum

Status: Environmental weed

Family: Solanaceae

Origin: Argentina

Description: Erect shrub to 3 m high with large leaves, grey-green on the underside and green on the upper surface. Purple flowers from autumn to spring. The plant is **poisonous** if eaten.

Fruit/Seeds: Pale yellow fruit.

Dispersal: Seeds spread by birds and dumping of garden rubbish.

Invades: Tends to occur along roadsides and railway lines.

Control Measures:





Water Hyacinth

Eichhornia crassipes

NOXIOUS

Status: State Prohibited

Family: Pontederiaceae

Origin: Brazil

Description: A free-floating aquatic perennial herb with bulbous stems to 1 m tall. Distinctive spikes of large showy mauve flowers Jan – March. A major weed of waterways around the world.

Fruits/Seeds: Numerous seeds in membranous capsules, can survive in dry mud for 15-20 years.

Dispersal: From seed, and vegetative reproduction from stolons and daughter plants. Dispersed by water, birds and through dumping of pond and aquarium material.

Invades: Wetlands and waterways. Dense growth reduces fish populations and can block waterways and threaten bridges. Vegetative growth from a single plant can cover 600 sq m in one season.

Control Measures:



Wild Watsonia

Watsonia meriana var. *bulbillifera*

NOXIOUS

Status: Regionally controlled

Family: Iridaceae

Origin: South Africa

Description: A perennial plant with pale green, sword-shaped leaves. A red-brown flowering stem develops winter-early spring. Red – orange trumpet shaped flowers form from which clusters of stem bulbils develop.

Fruit/Seeds: Reproduces by stem bulbils and corms.

Dispersal: By slashing and grading of roadsides, in soil, garden refuse.

Invades: Roadsides, railway lines and a variety of native habitats.

Control Measures:



For further advice...

Baw Baw Shire Council

5624 2411

Website

www.bawbawshire.vic.gov.au

Contacts for advice about Weed Identification and Control

Department of Primary Industries Offices

Ellinbank

5624 2222

Woori Yallock

5954 4009

DPI Customer Service Centre

136 186

DPI Website

www.nre.vic.gov.au

Weed Facilitators

West Gippsland Landcare / Baw Baw Shire

5624 2411

Landcare Website

www.landcare.net

Chemical Companies

Phone the 1800 number on the label of the product.

This information was compiled by a committee comprising Jeff Clark, Carolyn Ferguson, Bill Aitken, Chris Rankin, Derek Hibbert, Kellie Nichols, Susan Tunnell-Jones, Thierry Roland and Natalie Liddell.

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Photographs courtesy of Mal Gibson, David Ziebell, Mary Ellis, Jeff Clark, Derek Hibbert and Keith Turnbull Research Institute staff.

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