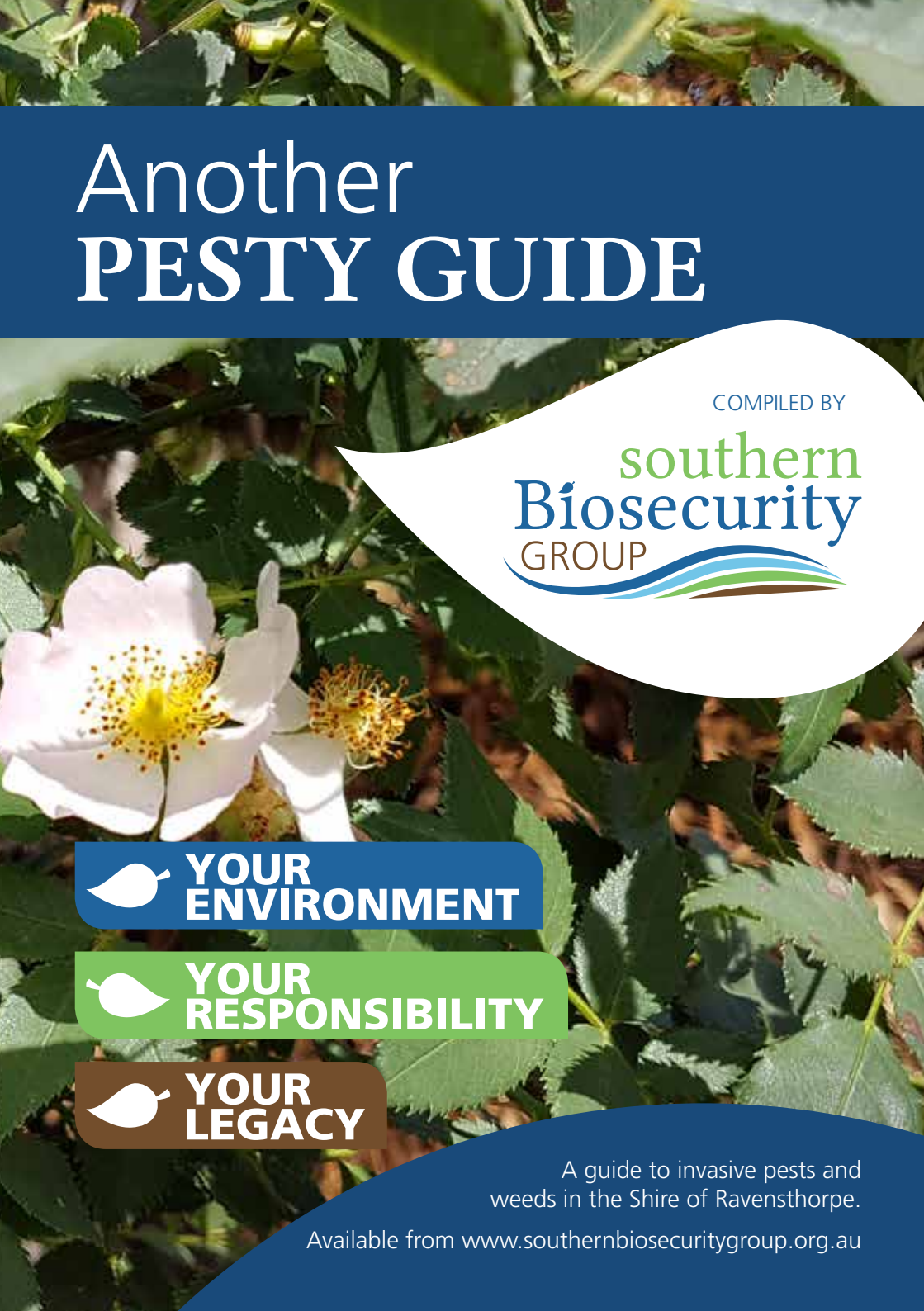
Another PESTY GUIDE



COMPILED BY

southern Biosecurity GROUP

YOUR ENVIRONMENT

YOUR RESPONSIBILITY

YOUR LEGACY

A guide to invasive pests and weeds in the Shire of Ravensthorpe.

Available from www.southernbiosecuritygroup.org.au

Acronyms and glossary

DBCA Department of Biodiversity, Conservation and Attractions

DPIRD Department of Primary Industries and Regional Development

RAIN Ravensthorpe Agricultural Initiative Network

SBG Southern Biosecurity Group

Disclaimer

A small group of thoughtful people could change the world. Indeed, it's the only thing that ever has.

Margaret Mead

A weed is a plant out of place

Jim Thompson

Acknowledgements

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Introduction

Invasive species pose a major threat to the environment in terms of ecosystem degradation and loss of biodiversity. Through employing good biosecurity practices, we can work collectively to ensure the impacts of these pests are limited in the Shire of Ravensthorpe.

SBG's purpose is to minimise the environmental, economic and social impacts of animal pests and weeds on agricultural industry, landscapes and biodiversity values within the Ravensthorpe Shire. We will achieve this through coordinating a community-based approach to the management of animals, pests and weeds.

Our work is guided by the Biosecurity Management Strategy for the Shire of Ravensthorpe. This strategy sets out key biosecurity issues for the region and was developed through consultation and technical input. A copy of this strategy can be downloaded from the SBG website southernbiosecuritygroup.org.au

How to use this guide

This guide provides a brief overview of invasive species that pose a biosecurity risk in the Shire of Ravensthorpe as identified in the Biosecurity Management Strategy. It is not an extensive list or information source on all weeds and pest species that occur within the shire but provides a solid foundation for sourcing information.

A list of useful websites and apps is included in the back of the guide. This will be updated at intervals and made available on the SBG website.

Control responsibility

Responsibility for control depends on who owns or manages the land. You are responsible for controlling pests on your land.

If you suspect a declared species is present and uncontrolled on land other than your property please contact the relevant agency to discuss. Ravensthorpe Agricultural Initiative Network (RAIN) and SBG are responsible for a coordinated community led approach to biosecurity. RAIN and SBG are not responsible for control of all weeds or pests that occur on Shire reserves and roads, main roads, DBCA estates, private or industrial land.

Contact DPIRD's Pest and Disease Information Service (PaDIS) on 1800 084 881 for more information.

Tips for identifying species

1 Note the location: eg. in soil, near water, what other vegetation is there etc. If possible, note the GPS coordinate.

2 Take photographs of the plant or animal. If photographing plants, make sure to include photos of the habitat, whole plant and close up shots of flowers and fruit.

3 No camera? No problem! A picture is worth a thousand words but you can take a souvenir from your location for identification purposes. Just make sure you have enough material to identify including the flower, leaf, and stem.

4 Check out DPIRD's MyPestGuide Reporter. This app and website is a useful guide for identifying pest plants agric.wa.gov.au/pests-weeds-diseases/mypestguide DPIRD will provide a response to all reports, making it a great way to access advice on what your find might be.

Invasive Animals

A word on animal control:

Permits are required for baiting, trapping and shooting. Applications to DPIRD for permits can be made online https://www.agric.wa.gov.au/1080/baiting-and-poison-permits. Landholders are responsible for permit fees. SBG can provide some assistance with the application process.

Image: G Bendig

Red Fox *(Vulpes vulpes)*

Active late winter/spring

One fox eats around 0.5 kg of food a day. A large portion of the fox's diet can consist of introduced and native animals.

Options include baiting with 1080, trapping, and shooting. Exclusion fencing may be an option in small areas (e.g. chicken runs).

Image: J Biddulph

Wild Dog *(Canis dingo, dingo x familaris)*

Activity peaks in autumn and early winter

Wild dogs can act as a reservoir for parasites and diseases that affect livestock, wildlife and domestic pets, including sheep measles, hydatidosis, mange, distemper, hepatitis, parvovirus, *Neospora caninum* and toxoplasmosis.

Control activities reduce the impact of wild dogs on agricultural production and biodiversity. Anecdotal evidence suggests an increase in some native animals (Australian bustard, malleefowl, echidna) has occurred in the shire since the proactive control of wild dogs has been in place.

SBG contracts a Licensed Pest Management Technician to regularly monitor the portion of the State Barrier Fence, within the Ravensthorpe Shire to ensure a 15km buffer zone of control is maintained free of wild dogs. However, if you see a wild dog roaming or tracks anywhere within Ravensthorpe Shire contact SBG or report your sighting via Feral Scan (www.feralscan.org.au)

Feral cat *(Felis catus)*

RAIN has cat traps for hire for members.

Feral cats are carnivores and can survive with limited access to water, as they use moisture from their prey. They generally eat small mammals, but also catch birds, reptiles, amphibians, fish and insects - taking prey up to the size of a brush-tail possum. Feral cats can carry infectious diseases such as toxoplasmosis and sarcosporidiosis, which can be transmitted to native animals, domestic livestock and humans.

Starling *(Sturnus vulgaris)*

Report suspected sightings of starlings immediately either via PaDIS or Feralscan.

Male starlings are especially aggressive in their search for nest sites: They will peck holes in eggs laid by other birds, throw out their nesting material, and kill their young. Starlings will build nests on top of existing nests containing eggs. Starlings are commonly seen as pests due to the damage they cause to agriculture and urban areas. Starlings droppings can cause degradation to brick and even steel work due to the acidity of the droppings.

Image: © Jean-Paul Ferrero / ardea.com

House Mouse *(Mus musculus)*

Plague years can and have been problematic. Report sightings via www.mousealert.org.au. Mouse chew cards can be made and will help to give an idea of mouse numbers. They can be downloaded from https://www.feralscan.org.au/mousealert/pagecontent.aspx?page=mouse_chewcard


Image: JJ Harrison

Rabbit *(Oryctolagus cuniculus)*

Rabbits are Australia's most destructive invasive species, impacting over 300 threatened species. They cause significant economic and conservation damage and their control remains an ongoing task. Integrated control using a variety of methods include habitat destruction, baiting, shooting and virus will give the best results.


Image: N McQuoid

Plague Minnow *(Gambusia holbrookii)*

Report any suspected sightings **immediately** to Fish Watch on 1800 815 517.

Plague minnow is the world's most invasive inland fish. It is of concern to the Ravensthorpe Shire as it is moving east in the Bremer Bay area and neighbouring Jerramungup Shire. Fish kept as pets are not to be disposed of in any waterway or pool. Please dispose of in a humane manner.

Insects and Other Invertebrates


Image: G Webster

Italian Snail *(Theba pisana)*

Italian snails (*Theba pisana*) and small pointed conical snail (*Prietocella barbara*).

Thrive in areas of alkaline sandy soils, mainly near the coast. Survives during summer off the ground on vegetation and posts, and is commonly found on green weeds. Avoid moving snails from infested to clean areas by ensuring machinery, vehicles and feed are inspected and cleaned if necessary.


Image: P Hassall

Australian Plague Locust *(Chortoicetes terminifera)*

Adult plague locusts and native grasshoppers can be difficult to distinguish particularly depending on where they are in their life cycle. This pictures shows a locust with distinctive markings. A plague locust (even at nymph stage) will have an X marking behind their head, a grasshopper will have variable patterns.

As emerging nymphs and swarming adults have the ability to cause severe damage to crops, pastures, gardens, and lawns.

Primary Grain Weevils *(Ryzopertha dominica, Sitophilus spp.)*

If practical and regulations allow, dispose of heavily infested foods in wrapped, heavy plastic bags or in sealed containers for garbage removal, or bury deep in the soil.

Native animals outside of their natural range

Native species outside of their natural range can become serious pests. They often threaten indigenous species and compromise ecosystem function.

Galah
(Eolophus roseicapilla)

Galahs have expanded their range over the past 100 years. They are a threat to the native Carnaby's Black Cockatoo as galahs utilise the same habitat for nesting and often outcompete Carnaby's.

Kookaburra
(Dacelo novaeguineae)

Kookaburras were introduced between 1897 and 1912 to control snake numbers. Although successful, it also preyed upon other native species, threatening their numbers. They hunt lizards and snakes and steals other birds' chicks from their nests.

Native species

Some native animals are also potential pests in certain situations. This is in part due the change that humans have brought about on the landscape.

Wedge-tailed eagle
(Aquila audax)

Wedge-tailed eagles are often blamed for killing lambs and other young domestic animals and are therefore regarded as a pest by some pastoralists and sheep farmers. Post-mortem examination of carcases is recommended to establish if wedge-tailed eagles are killing healthy animals. It is important to establish the cause of death of healthy animals because the actual cause of death may be overlooked if eagles are falsely thought to be responsible.

As a native species, the wedge-tailed eagle is protected under provisions of the Wildlife Conservation Act 1950. The shooting of wedge-tailed eagles is not permitted but damage licences may be issued by DBCA to shoot to scare the eagles away from livestock.

Emu
(Dromaius novaehollandiae)

Emus are declared as a 'native species which can conflict with rural production' under the Biosecurity and Agriculture Management Act 2007 (BAM Act). This legislation allows for emu management programs to be carried out in various areas of the state.

As a native species, the emu is protected under provisions of the Wildlife Conservation Act 1950. As such, emus can only be destroyed on private land after a damage licence has been issued by the Department of Biodiversity, Conservation and Attractions (DBCA), unless a restricted open season has been declared in the event of a build-up of birds along the barrier fences.

Invasive weeds

Skeleton Weed *(Chondrilla juncea)*

Native to southern Europe, the Mediterranean and south-west Asia. Relatively long-lived perennial with a deep tap root. Skeleton weed can reduce grain crop yields due to its deep perennial root system and interfere with harvesting as its wiry stems are still green at harvest time.

DPIRD run a surveillance program funded through the Grains, Seeds and Hay Industry Management Committee.

Check out https://agric.wa.gov.au/n/908 for more information.

Peak control season: Summer and winter

Control method: Varies with timing of control. DPIRD have a coordination approach to control of skeleton weed.

Image: H Zell

Cotton bush *(Gomphocarpus fruticosus)*

Has been previously detected along Floater Road. It was introduced from South Africa as garden species or for the making of hats before 1802 in Sydney. It is toxic to sheep, cattle and pigs, but unpalatable, so it doesn't usually cause stock problems. Check out https://agric.wa.gov.au/n/741 for more information.

Peak control season: Spring through to Autumn

Control method: Chemical application is best when the plant is actively growing, usually from September through to April.

Star of Bethlehem *(Ornithogalum umbellatum)*

Real opportunity to eradicate this species. Report infestations immediately to DPIRD. Flowers in spring. Flowers have a green stripe on the back of the petal. The star of Bethlehem poses a risk to barley crops and is toxic to livestock and is an alternate host for the barley leaf rust fungus.

Peak control season: The only known occurrence in Western Australia is at Ravensthorpe. Control needs to be carried out as soon as plants are identified.

Control method: Resistant to many chemicals. Manual removal must get all bulbs. Report all sightings through DPIRD's My Pest Guide Reporter - https://www.agric.wa.gov.au/pests-weeds-diseases/mypestguide

Image: B Tuckett

Stemless Thistle *(Onopordum acoulon)*

This species is becoming more prevalent in the Shire of Ravensthorpe. A small infestation will be easier to control so it is important to maintain control efforts.

Dense infestations of stemless thistle reduce the carrying capacity of pastures. Stemless thistle germinates mainly in the autumn. It persists through winter as a small rosette, which grows rapidly in spring. It flowers from October to November and then dies off. Probably introduced as an ornamental.

Peak control season: Depends on control method. Visit https://agric.wa.gov.au/n/912 for more information.

Control method: Cultivation at the seedling stage is effective. Prevent seed set. Manually remove isolated plants. Spray larger infestations once or twice a year. Establish competitive pastures.

Image: P&L Daw

Saffron Thistle *(Carthamus lanatus)*

It can take several years to reduce the seed bank of saffron thistle.

Peak control season: Herbicide control best done between July and September

Manual removal best done between September and January

Control method: New or isolated patches of saffron thistle must be controlled to prevent it spreading to new areas, glyphosate or 2,4-D amine are suitable herbicides for spot spraying these patches.

Image: K Tuckett

Afghan Thistle (*Solanum hoplopetalum*)

Perennial which grows in colonies joined by rhizomes. This is a native species which has become a weed in some areas.

Peak control season: October to November

Control method: Difficult to eradicate but can be controlled by cultivation to a depth of 4-5 in. using a scarifier with 8 inch point in late October or November when new growth is beginning. This is repeated when necessary and no flowering allowed.

Image: B Tuckett

Spear thistle (*Cirsium vulgare*)

Fire creates conditions suitable for mass germination of soil-stored seed. Seed in the top 2cm of soil mostly disappears in one year but may last up to four years. Seed buried at 20cm may last up to 50 years.

Peak control season: May to September

Control method: Glyphosate provides effective control of seedling and adult plants. Close mowing or cutting twice per season will usually prevent seed production.

Tambookie grass. Image: N McQuoid

Image: K Roy

Horehound *(Marrubium vulgare)*

Thick sticky burrs and furry leaves. They stick to livestock which helps them spread so can contaminate wool. Not nice for pets or people.

Peak control season: October to November

Control method: Chemical control in late autumn and early spring. Get them before they seed. Will require respray. Refer to DPIRD website for chemical control options.

Image: N McQuoid

Tambookie Grass *(Hyparrhenia hirta)*

Forms dense tussocks capable of dominating the ground cover, reducing native plant diversity and affecting native fauna.

Peak control season: November to March

Control method: Cut out small populations. Spot spray larger infestations. A number of treatments may be required within the one year.


Image: J Jackson

Sydney Golden Wattle *(Acacia longifolia)*

A serious environmental weed which was identified in Jerdacuttup. It reproduces prolifically with no local biological control measures. Can reduce diversity in understory.

Peak control season: March to August

Control method: Control of mature plants typically involves labour intensive cutting and removal of the trees. Stumps when cut are painted with a solution of 50% glyphosate to prevent suckering and regrowth of the plant.

Best controlled as seedlings when they can be hand pulled or sprayed.


Image: E Spengler

Apple of Sodom *(Solanum linnaeanum)*

Flowers in Spring and Summer. Recent population found in Hopetoun. There is a threat of this plant spreading due to vacant unattended small landholdings. This plant can take root in pastures limiting stock movement and creating habitat for rabbits and snails.

Peak control season: Spring and Summer before seed set.

Control method: Must be resprayed if adult plants are removed as likelihood of seed bank build up is high.


Image: D Culber

Willow *(Salix spp.)*

There are many willow species that are considered invasive. Most willows are easily spread by stems and twigs breaking off and taking root. Where they grow along creeks whole scale removal of willows is not recommend as it can lead to bank instability and erosion.

Peak control season: Summer to Autumn

Control method: Stem injection of registered herbicide is recommended.


Image: S Leighton

Prickly Pear *(Opuntia spp.)*

SBG are coordinating control activity for a population of Opuntia monacantha in the Oldfield River. Control methods used include hand removal, herbicide control and the release of *Dactylopius ceylonicus* cochineal which is biological control agent which is specific to this species.

As this is a declared weed, do not purchase from garden nurseries or obtain from other gardens. If you see a nursery stocking this species, report it to DPIRD.

Peak control season: Depends on the species of cacti. Herbicide control is best on plants that are actively growing.

Control method: Choosing herbicides can depend on the species of cacti you are dealing with. More than one application of spray may be required. Some cacti have biological control options.


Image: Renjusplace


Image: J Jackson

Boxthorn (*Lycium ferocissimum*)

Spreads through fruit which are dropped by birds, meaning it can be transported large distances and very difficult to manage. Seeds pass through birds and foxes without losing its viability. The infestation of boxthorn in the shire is uncontrollable beyond protecting important assets such as town site, popular tourist sites, paddocks, declared rare flora and black cockatoo habitat. CSIRO are currently researching the possibility of biological control. Boxthorn reproduces from seed as well as regenerates from root segments.

Peak control season: March to May or September to November

Control method: Will require multiple control methods such as manual removal and respray. Where large plants have been removed germination of the seed bank occurs prolifically, meaning that lots of follow up treatment is required.


Image: Fir0002

Image: E Spengler

Doublegee *(Emex australis)*

Doublegee can contaminate grain, leading to a rejection of grain deliveries. Their spin fruits can injure animals and people walking barefoot and are robust enough to puncture bicycle tyres. Visit https://agric.wa.gov.au/n/193 for more information.

Peak control season: Varies with control method

Control method: Past control efforts for this species in the shire has been successful. However it can still pop up in some places. Your feet have probably had the unfortunate connection with one of these triangular fruits in the past. Not only are the fruits capable of damaging the feet of livestock but can be toxic as well.

There are a range of control methods available. Important to note that it has some herbicide resistance. Controlling small outbreaks is important to keep this weed manageable in the shire.

Image: J Biddulph

Patersons Curse *(Echium plantagenum)*

Also known as salvation jane. Paterson's curse is competitive in crops, invades pastures and can be toxic to livestock. Paterson's curse is particularly toxic to horses. Visit https://agric.wa.gov.au/n/880 for more information.

Peak control season: May to August

Control method: There are a range of herbicide options available for control. Visit https://agric.wa.gov.au/n/1073 to find out more.

Onion weed. Image: S Leighton

Image: K Roy

Victorian Golden Wattle *(Acacia pycnantha)*

Yellow flowering plant that has been found in Jerdacuttup. Can grow prolifically and outcompete native vegetation. Introduced from the eastern states. Australia's floral emblem.

Peak control season: April to September

Control method: Overall sprays, stem injection, cut stump or topical application to trunk are control options. Fire may destroy mature trees but tends to induce a mass germination of seedlings. Follow up is required.

Image: J Biddulph

Bridal Creeper *(Asparagus asparagoides)*

It is a serious, highly invasive environmental weed. Regarded as one of the worst weeds in Australia because of its invasiveness, potential for spread, and economic and environmental impacts. For more information visit https://agric.wa.gov.au/n/691.

Peak control season: July and August

Control method: Herbicide is the most effective method of control. Biological control is also having an impact in many areas. You can make spore water to spread the rust further. Do not hand pull, physical removal is not effective unless all the rhizomes are dug up and destroyed. Generally survives fire.

Image: Basal rosette of cockspur

Image: E Spengler

Caltrop *(Tribulus terrestris)*

It can be toxic to sheep. Can germinate throughout the year particularly anytime following rain.

Peak control season: All year

Control method: Hand remove small/ isolated populations, pulling plants from the root crown. Apply herbicide to prevent seed set. On bare tracks diesel can be used to kill plants and penetrate and destroy seed in surface soil.

Image: K Thiele

Cockspur *(Centaurea melitensis)*

A type of thistle. Flowers September to March. Young leaves can be fodder but mature plant toxic to sheep.

Peak control season: Prior to flowering in September

Control method: It is usually easily controlled by timely cultivation or grazing management.

Cape Tulip *(Morea miniata)*

Can be toxic to livestock. Also difficult to control because they have corms which can lie dormant in the soil.

Cormels can persist for 8 years. It generally survives fire. Water, soil, birds are the main methods of spread. All parts of the plant are toxic to stock.

Peak control season: July to September

Control method: Repeated control to remove is necessary.

Herbicide is the recommended control. Apply just on flowering at corm exhaustion. Physical removal can result in spread of cormels.

Image: K Roy

Briar *(Rosa spp.)*

Can form dense prickly tickets that can choke out creeklines and other favourable sites. It is a perennial weed of old settlements and disturbed areas. It occurs on Stevenson's or Annabelle Creek where it crosses under South Coast Highway west of Ravensthorpe.

Peak control season: Varies with control method

Control method: Control is quite involved due to its reproductive ability. HerbiGuide recommends a range of methods depending on the extent of the infestation.

Other weed species

Victorian tea tree *(Leptospermum laevigatum)*

Threat: Environmental

Swamp sheoak *(Casuarina obesa)*

Threat: Environmental

Marshmallow *(Malva parviflora)*

Threat: Environmental

Radish *(Raphanus raphanistrum)*

Threat: Environmental

Onion weed *(Asphodelus fistulosus)*

Threat: Environmental

Victorian tea tree *(Leptospermum laevigatum)*

Threat: Environmental

African love grass *(Eragrostis curvula)*

Threat: Environmental/Agricultural

Gazania *(Gazania linearis)*

Threat: Environmental


Image: S Rae

Pine tree
(Pinus spp.)

Threat: Environmental/Agricultural


Image: H Rose

Rye grass
(Lolium rigidum)

Threat: Agricultural


Image: K Tuckett

Wild oats
(Avena fatua)

Threat: Environmental/Agricultural

Useful websites

Australian Pesticides and Veterinary Medicines Authority Public Chemical Registration Information System Search
https://portal.apvma.gov.au/pubcris

Centre for Invasive Species Solutions
https://invasives.com.au/

Department for Parks and Wildlife - Western Shield
www.DBCA.wa.gov.au/management/pests-diseases/westernshield

Information on weeds, pests and diseases in crops, pastures, horticulture and environmental situations
www.herbiguide.com.au

Interactive Flora Identification Tool
www.florabase.DBCA.wa.gov.au/

National weeds lists
www.environment.gov.au/biodiversity/invasive/weeds/weeds/lists

Pest animals management in Australia
www.pestsmart.org.au

West Australian Organism List – list of all declared species
www.agric.wa.gov.au/organisms

Useful apps

A list of apps that can be used for reporting weeds and pests to State Government Agencies. Refer to your mobile application service for downloads. These services aim to collect and catalogue weeds and pests and their distribution. As more information is collected, the data can be used to track trends and assist in management of weeds and pests.

Interactive Flora Identification Tool

https://florabase.dpaw.wa.gov.au

My Weed Watcher

https://www.agric.wa.gov.au/myweedwatcher-information

WA Pest Watch (Aquatic pests)

www.fish.wa.gov.au/Sustainability-and-Environment/Aquatic-Biosecurity/Identifying-Pests-And-Diseases/Pages/WA-PestWatch.aspx

Feral animals and other invasive species

Feral pest monitoring

www.feralscan.org.au

Mouse monitoring

www.mousealert.org.au

My Pest Suite

www.agric.wa.gov.au/biosecurity/mypestguide-suite

Contacts

Ravensthorpe Agricultural Initiative Network (RAIN)

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www.rain.org.au

Department of Primary Industries and Regional Development (DPIRD)

Pest and disease information service (PaDIS)
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www.agric.wa.gov.au

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www.ravensthorpe.wa.gov.au

Department of Biodiversity, Conservation and Attractions

9838 3060
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Department of Main Roads

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Department of Primary Industries and Regional Development - Fisheries Fishwatch

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