

Western Local Land Services

Region Priority Weed Identification Guide



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Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (May 2020). However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of Local Land Services or the user’s independent adviser.

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Introduction

The Western Local Land Services region is vast, covering 40 per cent of the state of NSW. It contains a unique blend of productive industries, valuable natural resources and resilient communities which need nurturing and protection from a range of threats, including uncontrolled weeds.

The region is fortunate that it is relatively free of weeds compared to other areas of the state. However its size, isolation and sparse population mean that the risk of new, serious weeds being introduced and remaining undetected is probably higher than in most other regions.

The Western Regional Strategic Weed Management Plan 2017–22, has identified a number of weed species as posing a threat to, and being a high priority for management and control in, the Western region.

The early detection, identification and management of these weed species is important and is everyone's responsibility.

This guide has been developed as a portable, easy to use resource, to assist land managers and members of the general community to identify high priority weeds and then take appropriate, initial action.

It is not intended to provide detailed information on each species and their control; other sources of information and advice including those referred to throughout this guide should also be accessed.

The Western Regional Weed Committee recognises that resources such as this guide are essential to support our regional community as it "does its bit" to keep new weeds out of the region and more effectively control the ones already here.

Combined with the knowledge and experience of local weed officers, Western Local Land Services staff and NSW Department of Primary Industries weed scientists, we believe it will play an important part in minimising the threat that weeds pose to the amazing region that we live in.

Kate McBride
Chairperson – Western Regional Weed Committee



How to use this guide

This guide has been designed to be used by both those who are familiar and relatively unfamiliar with the process of plant (particularly weed) identification. Simply follow the steps outlined below:

1. Firstly, take a careful look at the plant you are trying to identify. Where is it growing (ie what situation, what part of the landscape)? How big is it? Does it have any distinguishing features, such as its flowers, leaves, thorns, fruits or seeds that catch your eye?
2. What "form" does the plant take? This guide is divided into sections for six plant "forms"; trees, shrubs, grasses, herbs, cactus and water weeds, which are colour coded on the page margins.
3. Find the section for the "form" that you believe your plant is and look at the pictures of the plants in that section, to see if there appears to be a "match". Note that whether a plant is one "form" or another can be a grey area at times (particularly trees vs. shrubs), so be prepared to look through multiple sections if necessary.
4. If by looking at the pictures you believe that you have found a "match", read the plant description provided. Does the description match with the distinguishing features you have observed for that plant? The following section, "Key identification features for plants", contains further information on a number of these distinguishing features.
5. If you are certain that you have identified the plant correctly, read the information provided to learn more about the plant and its lifecycle, what impacts it has, if and where it has previously been found in the Western Local Land Services region and what action(s)* you should take. References to other more detailed sources of information are also provided. Where possible, a QR code has been provided for those with the appropriate smartphone app, which will take you straight to the NSW DPI WeedWise web page for that species.
* Important Note: A General Biosecurity Duty in relation to weeds under the *NSW Biosecurity Act (2015)* applies to everyone and this requires you to notify your local weeds officer, Western Local Land Services or NSW DPI of the presence, or suspected presence of certain weed species as soon as possible.
6. If you are not certain that you have identified the plant correctly, or you are certain that the plant does not appear in the guide, contact your local weeds officer or Western Local Land Services staff member to assist you to identify the plant. In some cases, it may be necessary for you to collect and submit a plant specimen for identification; instructions are provided in "How to collect and submit a plant specimen" on page 5.

Key identification features for plants

Leaves, flowers, fruit/pods, seed, bark, roots etc. are all key features used in plant identification.

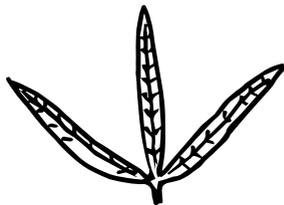
With the descriptions and photos provided for each plant, it should be very easy in most cases for you to understand what relevant key features for a particular species should look like. In some instances it may be more difficult to visualise what a particular part of the description (e.g. the shape of a leaf) looks like.

The following drawings will assist you to distinguish between a number of different leaf shapes, leaf margins, seed pods and cactus segments referred to in this guide.

Leaf shapes



Spear shaped



Trifoliate



Oval shaped



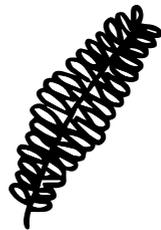
Needle-like



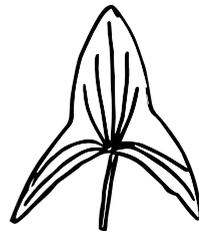
Linear



Deeply-divided



Fern-like



Arrowhead shaped

Leaf margins



Serrated margin



Wavy margin

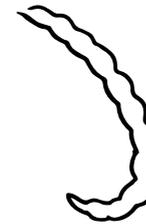


Entire margin

Seed pods

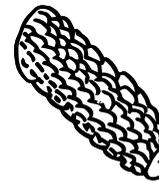


With constrictions

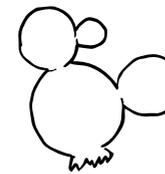


Sickle-shaped

Cactus segments



Cylindrical



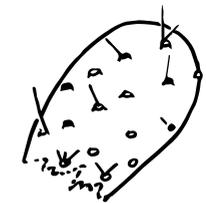
Wheel shaped



Oblong



Egg shaped



Raised structures on segments and thorns

How to collect and submit a plant specimen

In some cases, it may be necessary for you to collect and submit a plant specimen for identification, in order for a potentially serious weed species to be positively identified.

It is important that you follow the steps listed below, so that the specimen is kept in good condition and has as many identifying features as possible to give the person carrying out the identification every chance of correctly identifying the plant.

1. Collect as many of the key identifying parts of the plant as possible; leaves, branchlets, flowers, fruit, seeds, bark, thorns, roots etc. You will rarely be able to collect a whole plant, so break/cut off the parts that you need. The more identifying parts you can collect, the better.
2. Take some notes on the plant itself. What is its apparent “form” (see “How to use this guide” on page 2)? What is its location? What situation is it growing in (i.e. what part of the landscape, what is the land use?). Does the plant have any distinguishing features that you can see but can't collect (e.g. a flower that's out of reach, the trunk of a large tree, the shape of the plant)? How many of that species appear to be growing at that location and how big an area do they cover? Again, the more information you can provide, the better.
3. Place the plant parts collected at step 1, in between at least six layers (three at the top, three at the bottom) of old newspaper. Place a piece of thick, flat cardboard or wooden board, the same size as the newspaper, on top of the newspaper. Put weights (bricks, rocks or heavy books) on top of the cardboard/wooden board.

4. Every two to three days, carefully shift the plant parts collected into fresh, dry layers of newspaper and replace the cardboard/wooden board and weights. The newspaper just removed should be slightly damp but can be dried out and re-used within a couple of days. Keep repeating the process until the plant parts are dry, but not so dry as to be brittle.
5. Carefully package up the dry, pressed plant specimen (it is okay to leave it in its layer of newspaper) into a suitable envelope or box. Include the notes taken at step 2, as well as your contact details. Do not put plant material that is not dry into plastic bags, envelopes or containers as they will go mouldy or rot.
6. Either post, personally deliver or arrange for the packaged specimen to be delivered to the person/organisation that will be carrying out the identification.
7. If your local weeds officer or Western Local Land Services staff member has already indicated that they would be unable to identify the plant, post or deliver the specimen to:

Botanical Information Service

National Herbarium of NSW

Royal Botanic Gardens and Domain Trust

Mrs Macquarie's Road

SYDNEY NSW 2000

Up to 12 specimens per year can be submitted by members of the public free of charge. Each specimen must be accompanied by a completed enquiry form, which can be found at www.rbg Syd.nsw.gov.au/getmedia/fb446912-9800-4f35-9340-83c2aad22417/Botanical-Information-Service-Enquiry-Form.pdf.aspx

Note: The pressing and drying process described at steps 3 and 4, is unlikely to be successful and/or take a considerable amount of time for plants full of moisture such as water weeds, cacti and other succulents.

Either collect and immediately submit fresh specimens in a cardboard box, or seek further advice from your local weeds officer or Western Local Land Services staff on alternative means of drying and preserving these species.



African boxthorn

Lycium ferocissimum

Plant Description

African boxthorn is an erect perennial shrub.

It can grow up to 5 m high and 3 m across but usually reaches only 2 or 3 m in height.

The stems are rigid and very branched, and the main stems have spines up to 15 cm long. Each smaller branchlet ends in a stout spine.

The leaves are smooth, fleshy and up to 3.5 cm long. The flowers are white with five petals, have pale lilac markings and are fragrant.

The berries are green when young, orange-red when ripe and succulent, round, 5–10 mm in diameter, and contain 35–70 seeds.



Biology / ecology

Seeds can germinate at any time of the year; the plant does not flower until it is at least two years old.

Flowering and fruiting peaks in spring to summer. The plant is drought resistant and in times of moisture stress can shed its leaves, making it look dead. In some locations, plants can be deciduous, losing their leaves in winter.

The berries are the main means of dispersal; often being eaten by birds and foxes and the seeds are viable when excreted. Regrowth can also occur from the extensive root system or root fragments.

It grows in a wide range of soil types and will grow in partial shade to full sun. It occurs in a variety of habitats including riparian areas, forests, woodlands, shrublands and neglected areas.



Problems caused

The plant can form dense thickets if growing under suitable conditions and left uncontrolled. It will occupy neglected pastures and can block access of livestock and humans to waterways and property infrastructure.

It can also harbor rabbits, foxes and feral pigs and the fruit is a breeding place for pest insects including fruit fly. It degrades the value of native plant communities in riverine environments



Current distribution

African boxthorn can be found in most parts of the Western Local Land Services region, particularly in or adjacent to watercourses, rivers and floodplains.



Recommended actions

Mechanically remove larger (> 1.5 m) plants before fruit is set; "grub" out or spray smaller plants. Follow up control of broken roots that re-shoot is often necessary. Focus control efforts to reduce impact of African boxthorn on riparian areas and floodplains, and reduce risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: African boxthorn
- African Boxthorn National Best Practice Manual: Managing African boxthorn (*Lycium ferocissimum*) in Australia



Boneseed

Chrysanthemoides monilifera ssp. monilifera

Plant Description

Boneseed is a much-branched woody shrub up to 3 m high. Leaves are 3–9 cm long and are oval shaped with irregularly serrated edges.

New growth is covered with white hairs that are shed as the leaves mature.

Flowers are yellow with five to eight petals and up to 3 cm in diameter.

The fruits (6-8 mm diam.) are fleshy and green becoming black, each containing one seed.



Biology / ecology

Boneseed reproduces by seed. One plant can produce 50,000 seeds a year, of which approximately 60 per cent are viable.

Many seeds germinate in their first autumn; some seeds germinate the following autumn but many can remain dormant for several years.

Growth of the seedling is rapid in winter and plants may flower in their first year of growth. Fruits and seeds are shed in summer. The fruits are eaten by birds foxes, rabbits and cattle who pass and spread the seeds.

Boneseed has a wide climatic range but prefers sandy or medium-textured soils.



Problems caused

Boneseed is a threat to native plant communities and associated fauna, including a number of significant rare or threatened species.

It aggressively invades native bushland; its vigorous growth and ability to regenerate and spread quickly in disturbed situations, such as following a fire or land clearing, allows it to out compete native species.



Current distribution

Boneseed has been recorded as a number of small, isolated outbreaks in the Western Local Land Services region at Wentworth, Dareton, Menindee and Broken Hill.



Recommended actions

Land managers must notify their local shire council or Western Local Land Services immediately if they have found or suspect that boneseed is present on their land.

Plants should be hand pulled and burnt.



Further information

- NSW WeedWise website: Boneseed
- Brougham, KJ, Cherry, H and Downey, PO (eds) (2006). Boneseed Management Manual: current management and control options for boneseed (*Chrysanthemoides monilifera ssp. monilifera*) in Australia. Department of Environment and Conservation NSW, Sydney.



Mesquite

Prosopis spp.

Plant Description

Mesquite can be either a single-stemmed tree (up to 15 m high) or a multi-stemmed shrub with drooping branches (3–5 m high).

The plant has an untidy appearance, with single branches extending outside the main canopy.

Branches have a characteristic zig-zag shape. Fern-like

leaves occur at each point where the branch changes direction and contain one to four pairs of leaf branches. A pair of spines, 4–75 mm long, normally arise above each leaf stalk or along the main stem.

Flowers are a greenish cream-yellow, 5–8 cm long, resembling a 'lamb's tail' in shape. The seed pod is smooth, up to 20 cm long with five to 20 seeds and slight constrictions between each seed.

Pods vary in colour from green when young to either straw-coloured or purplish when mature.



Biology / ecology

Seeds germinate in summer. Plants quickly develop a deep taproot and are particularly tolerant of water stress.

Once established plants may sucker from crown buds (15–20 cm below ground level) and low stems may also touch the ground and take root. Plants do not flower until they are two or three years old; flowering commences in summer and seeds form within five or six weeks.

Seeds are the main means of dispersal. Livestock, native and feral animals eat the pods and the seeds eventually pass through their digestive tract. Seeds are also spread by water.



Problems caused

Mesquite invades open grasslands, rangelands and the banks of watercourses, forming thick, impenetrable, thorny thickets that reduce pasture productivity, interfere with stock mustering and restrict animal access to shade and water.

Mesquite is a threat to most vegetation communities in the Western Local Land Services region.



Current distribution

The more established infestations of mesquite can be found in the Broken Hill and Milparinka areas of the Western Local Land Services region. Small infestations have been recorded in a number of other districts in the region, including Wilcannia, Cobar and Menindee.



Recommended actions

The control program required for mesquite will depend on the size of the infestation, the size and age of the plants and the particular species present.

While chemical and mechanical control methods are most commonly used, they can also be combined with fire, grazing management and biological controls.

Land managers within the core infestation areas should take measures that reduce impact of mesquite on grazing lands and native vegetation and mitigate the risk of the plant spreading to other properties. Land managers in all other areas should destroy all plants found and ensure any subsequent generations are also destroyed.



Further information

- NSW WeedWise website: Mesquite
- CRC for Weed Management (2003) Mesquite (*Prosopis spp.*) – Weed Management Guide – Weeds of National Significance (Department of the Environment and Heritage)



Parkinsonia

Parkinsonia aculeata

Plant Description

Parkinsonia is a shallow rooted, spiny, hairless shrub or small tree growing from 2–8 m in height. It has complex leaves, producing 10 to 40 pairs of small (4–10 mm) leaflets along a flattened, ribbed, central axis 20–40 cm long and 2–3 mm wide. There is a sharp spine at the base of these leaves, 5–15 mm long.

Its fragrant flowers are about 2 cm across, with four yellow petals and one erect orange or orange-spotted petal. Each flower stalk is 5–20 cm long and has eight to 12 flowers. Seed pods are hairless, up to 10 cm long, leathery, containing two to eight seeds. They are straight with pointy ends and have constrictions between the seeds.



Biology / ecology

Parkinsonia seeds have a hard seed coat. Seeds may germinate at any time in northern Australia, although mass germination events are normally associated with wet and warm to hot conditions.

Plants flower in their second or third growth season and flowering may occur sporadically in any season. A mature tree usually produces around 5,000 seeds per year.

Seeds are the only method of dispersal. Seed pods can float and be carried large distances by floodwaters. Birds and animals may also eat the seeds, transporting them to new locations and breaking seed dormancy at the same time.

The species is very adaptable. Parkinsonia grows well on open grasslands and rangelands, although wetlands and floodplains are particularly vulnerable to invasion.



Problems caused

Parkinsonia can form impenetrable thickets, blocking access to waterways and hindering stock management. Sheep may eat the leaves but cattle usually do not.

It is also a threat to riparian and seasonally flooded areas, as well as several other plant communities in the Western Local Land Services area.



Current distribution

Isolated infestations of parkinsonia have been recorded in the Western Local Land Services region near Broken Hill, Tibooburra and Bourke.



Recommended actions

Land managers must notify their local shire council or Western Local Land Services immediately if they have found or suspect that parkinsonia is present on their land.

Assistance will be provided to develop an eradication program. A combination of mechanical and chemical control methods are usually required.



Further information

- NSW WeedWise website - Parkinsonia
- CRC for Weed Management (2003) Parkinsonia (*Parkinsonia aculeata*) – Weed Management Guide –Weeds of National Significance (Department of the Environment and Heritage)



Rubber vine

Cryptostegia grandiflora

Plant Description

Rubber vine is a multi-stemmed perennial shrub that can climb 30 m into tree canopies or grow to an unsupported height of 3 m. The stems are greyish brown with a smooth bark. They grow as a leaf-bearing branched stem or a longer unbranched 'whip' with fewer leaves.

The plant exudes a milky sap if scratched or broken. Leaves are a glossy, dark green and oval shaped with pointed ends.

Flowers are trumpet shaped with five petals ranging in colour from white to light purple and pink.

Seed pods are up to 12 cm long and 4 cm wide, presenting as single, pairs or triple pods at the end of a short stalk.



Biology / ecology

Flowering can occur at any time of year outside of June and July, as long as moisture is sufficient.

Seed set occurs from spring to late autumn, peaking with maximum flowering. Flowers are insect-pollinated.

Spread occurs from seed, dispersed primarily by wind and water. Seed pods can float for long periods of time with seed remaining viable even when in salt water. Seed set can occur twice per year, with millions of seeds produced per hectare. Ninety five per cent of seed produced is viable, however survival is thought to be less than one year in nature. Seed pods dry out and split open approximately 200 days after formation.



Problems caused

Rubber vine invades pastures, waterways and bushland, smothering vegetation, killing existing plants and forming dense thickets. This reduces habitat for native plants and animals, limits livestock movement and reduces available grazing areas.

All parts of the plant are poisonous to livestock and people due to the presence of cardiac glycosides. In livestock, common symptoms include diarrhoea with blood often present. Animals can die if sufficient plant matter is consumed or if consumption is followed by rigorous exercise (eg. mustering).

In humans, contact with sap or dust from dried plant material can irritate skin, eyes, throat and nose.



Current distribution

Rubber vine is well adapted to a monsoonal climate, preferring annual rainfall of 400-1400 mm. For this reason, it is most common in northern Queensland. It's potential distribution includes all of northern Australia, extending to north east NSW. Within the Western Local Land Services region, Rubber vine has been located at contained sites in the Wanaaring area.



Recommended actions

Rubber vine is considered Prohibited Matter. If you see this plant, report it by calling the NSW DPI Biosecurity Helpline 1800 680 244. Not reporting it is a breach of your legal biosecurity duty.

Sightings may also be reported to your local shire or Western Local Land Services where technical advice and support for treatment can be sought.



Further information

- NSW WeedWise website - Rubber vine



Athel pine

Tamarix aphylla

Plant Description

Athel pine is a spreading tree, up to 15 m tall.

Immature trees have light grey stems.

Mature trees have a thick, rough, deeply furrowed bark and grey-brown stems.

The trees have strong woody roots which spread deeply throughout the soil.

Its minute, dull green leaves, which resemble pine tree 'needles' are arranged along fine branchlets.

The plant's small flowers are pinkish-white without stalks, growing on 30–40 mm long spikes from the ends of the previous year's branches.

Its small bell-shaped capsules (2–3 mm long) contain many minute seeds that are topped with a tuft of tiny hairs.



Biology / ecology

Flowering occurs during spring and summer; a single tree can produce thousands of seeds every year. The seeds are easily dispersed by wind and water; however they die quickly if not kept moist.

The plant also spreads via suckering and the rooting of stem segments that have broken from a tree and been carried elsewhere by flood waters.

Athel pine is drought resistant and is well suited to arid and semi-arid rangelands. It is tolerant of saline and alkaline soils. Although it flourishes best in and around rivers, it is also occasionally a weed of open woodlands, grasslands, pastures and roadsides.



Problems caused

Athel pine forms dense stands along inland rivers. It consumes water more quickly than native plants, thereby reducing the number and quality of watering holes. Its leaves concentrate salt; when shed they make the ground beneath a tree more salty.

Dense infestations can change river flow patterns, thus causing overland flooding and bank erosion. Because athel pine is drought tolerant and fire resistant, it can decrease the frequency of fires and alter vegetation structure. Infestations reduce the cultural and aesthetic value of affected land.



Current distribution

Athel pine has been planted extensively for shade and wind breaks at homesteads, watering points and towns in Western NSW.

Significant infestations can be found in and near Broken Hill and Menindee. Smaller infestations have been recorded near Mt. Hope, Canbelego and north of Tibooburra.



Recommended actions

Mechanically remove, cut down and/or chemically treat (cut and swab or drill and fill) established trees.

Follow up control of broken roots and stems that re-shoot is often necessary.

Focus control efforts to reduce impact of athel pine on riparian areas and floodplains, and reduce risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: Athel pine
- CRC for Weed Management (2003) Weed Management Guide – Athel pine or tamarisk (*Tamarix aphylla*) (Department of Environment and Heritage)



Karoo acacia (also known as Karroo thorn)

Vachellia karroo (syn. *Acacia karroo*)

Plant Description

Karoo acacia is a variable shrub or tree growing up to 12 m in height, with a deep taproot.

Its fern-like leaves are about 12 cm long and 5 cm wide, with paired white thorns about 10 cm long at the base of the leaf stalk.

Although evergreen, it may shed its leaves in droughts

or cold weather.

It has yellow, fluffy ball-like flowers that produce large, sickle-shaped seed pods 16 cm long and 1 cm wide. Seeds (3.5–9 mm long; 2–7 mm wide) are shiny brown and can remain attached to the pod by a thread-like membrane.

Karoo acacia is similar in appearance to some wattles in leaf type and flowers but it has distinct, white, paired thorns.



Biology / ecology

Germination usually occurs in summer. The plant is fast growing, reaching up to 2 m in the first year of growth. It may flower several times during summer, producing abundant seeds (as many as 19,000 per year). Pods split to release seeds while still attached to the tree. The seeds are dispersed by wind, water and grazing animals. They have a hard coat that is broken down through the digestive tracts of animals, by weathering and fire. Some seeds may remain dormant for several years.

In southern Africa it grows especially well in areas receiving more than 400 mm of annual rainfall and is generally absent from very cold areas, although it will tolerate frosts. It will grow in a wide range of soil types from sands to cracking clays.

Climate modelling suggests it could spread over vast areas of NSW and QLD.



Problems caused

Karoo acacia forms dense, thorny thickets that suppress the growth of grasses, prevent stock movement (including access to water) and add to the costs of mustering.

It is regarded as a threat to biodiversity; riparian habitats are particularly at risk from this weed



Current distribution

Karoo acacia is not currently present in the Western Local Land Services region.



Recommended actions

Land managers must notify their local shire council or Western Local Land Services immediately if they have found or suspect that Karroo acacia is present on their land.

Help will then be provided to remove and destroy it.



Further information

- NSW WeedWise website: Karroo thorn
- CRC for Weed Management (2003) Karroo thorn (*Acacia karroo*) – Weed Management Guide – Alert List for Environmental Weeds (Department of the Environment and Heritage)



Prickly acacia

Vachellia nilotica (syn. *Acacia nilotica*)

Plant Description

Prickly acacia is a spreading tree up to 5 m tall but sometimes reaching 10 m.

It has fern-like leaves 30–40 cm long; each leaf is made up of 10–25 pairs of very small (3–6 mm) leaflets.

Young stems have paired spines 1–5 cm long at the base of each group of leaves.

Bright yellow spherical (1 cm diameter) flowers occur in groups of two to six at the base of each leaf joint.

Seed pods are 10–20 cm long, grey-green when immature, with conspicuous constrictions between enclosed seeds.

It is similar in appearance to some wattles in leaf type and flowers but it has distinct seed pods and paired thorns.



Biology / ecology

Seeds germinate after significant rainfall in late spring and summer. Seedling growth can be rapid, and trees flower and set seed within two to three years after germination under ideal conditions with unlimited water.

Trees growing in association with a permanent or semi-permanent water source tend to produce a large number of flowers and pods annually, while those on the open downs produce low numbers of pods except in high rainfall years.

The species is spread by its seeds that are dispersed by wind, water and grazing animals, especially cattle. It is commonly found in areas receiving 350–1,500 mm annual rainfall. It will grow in a wide range of soil types from sands to cracking clays.



Problems caused

Prickly acacia can significantly reduce pasture productivity, interfere with stock mustering and restrict animal access to shade and water.

Prickly acacia also impacts on the biodiversity of native grasslands, tourism and land use by indigenous people. Riparian habitats and seasonal floodplains are particularly at risk as the plant can form impenetrable thickets in these environments.



Current distribution

Prickly acacia is not currently present in the Western Local Land Services region.



Recommended actions

Land managers must notify their local shire council or Western Local Land Services immediately if they have found or suspect that prickly acacia is present on their land.

Help will then be provided to remove and destroy it.



Further information

- NSW WeedWise website: Prickly acacia
- CRC for Weed Management (2003) Prickly acacia (*Acacia nilotica*) – Weed Management Guide – Weeds of National Significance (Department of the Environment and Heritage)



Willow rhus

Searsia lancea

Plant Description

Willow rhus is a low branching tree that usually grows to a height of 7 m but may reach 12 m.

It has a coarse-textured bark; on older specimens it is dark grey or brown in colour, while on young branches and trees it is a reddish-brown colour.

Leaves are trifoliate with leathery, lance-shaped leaflets,

arranged spirally.

Flowers are small, greenish yellow. Male and female flowers occur on separate trees.

Fruits are about 5 mm in diameter, slightly flattened and are glossy yellow-brown when ripe.



Biology / ecology

The young tree is fairly fast growing; up to 80 cm per year. It does not reproduce until at least two years old. Flowers appear from early spring and fruits form on female plants from early summer.

Spread is usually via fruits being eaten and defecated by birds, and flowing water.

The plant can also be propagated by suckers and from stem cuttings.

It is drought and frost tolerant and grows on a variety of soils in Africa, including poorly drained soils.



Problems caused

Willow rhus out-competes native plants, through its ability to produce an extensive root system and numerous suckers.



Current distribution

The only current records of this species naturalising in Australia are at Sunset Strip near Lake Menindee and in Broken Hill.

It is quite possible that it has been planted as a garden or street tree elsewhere in the region.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that willow rhus is present on their land.

Assistance will be provided to develop an eradication program.



Further information

NSW WeedWise website: Willow rhus



Alligator weed

Alternanthera philoxeroides

Plant Description

Alligator weed is a summer growing perennial herb. It has small white, papery flower heads 8–10 mm in diameter, generally appearing from November to March. Its leaves are shiny, spear-shaped, with no stalk, about 2–7 cm long and 1–2 cm wide and occur in opposite pairs along the stems.

The plant forms large, dense mats of interwoven creeping and layering stems. Over water, stems grow to 60 cm high and up to 10 m long and have large, hollow internodes. Mats over water surface may become so robust they can support the weight of a person.

On land, stems are shorter and less hollow. Alligator weed has an extensive root system. Roots are fine and short in water but become thicker and starchy in soil, able to penetrate to depths of over 50 cm.



Biology / ecology

Alligator weed can grow as a terrestrial plant, a rooted aquatic or a floating aquatic. Emergent stems grow in spring and summer and lose their leaves in winter and become prostrate. In Australia, the plant flowers but does not produce seeds. Spread is via stem and root fragments, sometimes as small as only one node (1–3 cm). Alligator weed is readily spread by floods.

Optimum temperature for growth is approx. 30°C; some shoot growth still occurs at 5°C. In dense infestations, nodes can be produced at the rate of 50–70 per sq m per day in summer. While frost will kill emergent stems, the plant can regrow from underground roots.



Problems caused

Alligator weed has major impacts on irrigated agriculture, through competition with crops and pastures and blocking of and damage to irrigation infrastructure. It has been reported to cause photosensitisation in cattle and lambs when grazed.

Alligator weed disrupts the aquatic environment by blanketing the surface and impeding the penetration of light. This can lead to anaerobic conditions, which adversely affects aquatic flora and fauna. It also competes with and displaces native flora along river and creek banks and in wetlands.



Current distribution

Alligator weed is not currently present in the Western Local Land Services region; however there are infestations further upstream in the Murray and Murrumbidgee catchments.



Recommended actions

Land managers must notify their local shire council or Western Local Land Services immediately if they have found or suspect that alligator weed is present in their waterways/on their land. Help will then be provided to remove and destroy it.



Further information

- NSW WeedWise website: Alligator weed
- van Oosterhout, E (2007), Alligator weed control manual: Eradication and suppression of alligator weed in Australia, NSW DPI, Orange.



Arrowhead
Sagittaria calycina ssp. calycina
Sagittaria
Sagittaria platyphylla

Plant Description

Arrowhead has distinct arrowhead-shaped emergent leaves, up to 25 cm long and 20 cm wide. Its flowers occur in groups of two to 12 at the apex of a leafless stem. Male flowers have three white petals, are 25 mm

in diameter and occur in groups above the female flowers. Female flowers are carried in groups of three around the stems, have no petals and look like flattened green berries.

Sagittaria has linear to lance-shaped emergent leaves, up to 25 cm long and 10 cm wide at the top of each leaf stalk. It also has long narrow strap-like submerged leaves up to 50 cm long. Stems are triangular in cross-section. Male flowers are 30 mm across with three white petals, sometimes with a purple spot at their base, and yellow centres. Female flowers have no petals, resembling flattened green berries. Seeds occur in clusters, consisting of flattened and winged segments, 1.5–3 mm long with one seed in each segment.



Sagittaria leaves



Arrowhead leaves and flowers



Arrowhead leaves



Sagittaria flowers



Sagittaria infestation



Biology / ecology

Seeds of both species germinate in spring and plants flower in summer. They are prolific seeders. Both arrowhead and sagittaria spread by seed and stem and root fragments. Seed may be dispersed via animals such as stock and birds or by water currents. Seed can float for up to three weeks before sinking.

Both species have a broad climatic range. Arrowhead grows in water up to 1 m deep whilst sagittaria grows in permanent shallow water up to 50 cm deep.



Problems caused

Both species are a threat to channel systems in irrigation areas. The plant biomass fills the channel bed reducing the volume available for water storage and trapping silt, gradually reducing the capacity of the channel. Arrowhead is also a weed of rice.

Wetlands and swamps are threatened by these species. Dense infestations restrict water flow and can substantially alter the flow regime of catchments and waterways affecting biodiversity and stream health.



Current distribution

Arrowhead and sagittaria are not currently present in the Western Local Land Services region; however there are known infestations of both species further upstream in the Murray and Murrumbidgee catchments.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that arrowhead or sagittaria is present in their waterways/on their land.

Help will then be provided to remove and destroy infestations.



Further information

- NSW WeedWise website - Arrowhead
- NSW WeedWise website - Sagittaria



Water hyacinth

Eichhornia crassipes

Plant Description

Water hyacinth is a floating water weed up to 65 cm tall.

The leaves are dark green and rounded, up to 5–10 cm in diameter. The leaf stalks of young plants contain air pockets, which help the plant to float.

Leaf stalks become long and thin when the plants

become mature and are crowded.

An erect stalk supports a single spike of eight to 15 flowers. Flowers are mauve to darker bluish-purple, 4–6 cm long and 3.5–5 cm wide. The upper petal is darker purple with a yellow mark in the centre

Fruit capsules are 10–15 mm long. Seeds are egg-shaped, 0.5–1.5 mm long.

The root system is extensive (up to 1 m) feathery, fibrous, black to purple. In deep water they may trail freely below the plant; in shallow water the roots may take hold in sediment.



Biology / ecology

Flowers open for only one or two days from mid to late summer before beginning to wither. When all the flowers on a spike have withered, the stalk gradually bends into the water releasing the seeds which sink. Autumn and winter frosts cause the leaves to die off but the crowns are able to overwinter. These will commence new growth in the following spring along with the germination of seeds.

Water hyacinth infestations spread by daughter plants and seed. During high water flows, infestations can break up and move to new locations. The deliberate planting of water hyacinth in ponds or dams, discarding of unwanted aquarium plants into waterways and contaminated boating equipment are also important means of spread.

Seeds are carried in water, mud and by birds. Water hyacinth grows best in warm, nutrient rich, slow moving waterways but can also be found on the waterway bank.



Problems caused

Water hyacinth forms dense, impenetrable mats over the water surface which block irrigation channels and rivers, and restrict livestock access to water. It can destroy infrastructure and crops and pastures when large floating rafts become mobile during flood events. Water hyacinth is a major threat to freshwater aquatic environments, destroying natural wetlands, eliminating native aquatic plants, altering the habitats of aquatic organisms and reducing water quality. Access to waterways for recreational use and transport can also be restricted.



Current distribution

The only reported citing of Water hyacinth in the Western Local Land Services region is in the Wentworth area.



Recommended actions

Land managers must notify their local shire council or Western Local Land Services immediately if they have found or suspect that water hyacinth is present in their waterways/on their land. Help will then be provided to remove and destroy it.



Further information

NSW WeedWise website: Water hyacinth



Coolatai grass

Hyparrhenia hirta

Plant Description

Coolatai grass is a tall, tussock-forming, perennial grass growing up 1.5 m high. It has a deep taproot and is drought resistant. Leaves are pale greyish during spring/summer and turn orangey-red in winter, particularly after frost.

The leaves are harsh to touch. Leaf sheaths are usually hairless and keeled. The leaf blade is flat and 2–3 mm wide with the ligule 2–3 mm long and minutely toothed. The paired grey-white seed heads form a V shape. Seeds have a hairy awned husk.

Coolatai grass may be confused with other tall grasses, especially in the vegetative state. Leaves of Coolatai grass are flat or folded and are not aromatic. At the base of each leaf blade is a membranous ligule about 3 mm long.



Biology / ecology

Coolatai grass grows mainly in late spring and summer. Being drought tolerant, it has the ability to rapidly respond to rain, producing new shoots from the tussock base and flowering in a matter of weeks. Coolatai grass mostly flowers and sets seed from spring to autumn, however it can flower all year if conditions are suitable. Seed heads mature unevenly and seed is shed quickly on maturity. Seeds readily adhere to clothing, animals and vehicles and are also spread by water.

Its native range around the Mediterranean and southern Africa indicates a large potential range in Australia. It has been recorded on a wide range of soil types in Australia. It is well adapted to fire, with tussocks surviving hot burns.



Problems caused

Coolatai grass readily invades pastures and dominates them, particularly where ground cover and soil fertility are low. Although originally introduced as a pasture species, coolatai grass provides inferior forage (in terms of digestibility and crude protein) and is less easy to manage compared to most other pasture species.

It is also one of the few perennial grasses capable of invading undisturbed natural ecosystems and is a major threat to natural biodiversity in stock routes, nature reserves and National Parks.



Current distribution

Coolatai grass is not currently present in the Western Local Land Services Region.

It can however be found upstream in catchments in regions that adjoin the north east of the region.



Recommended actions

Decontaminate machinery and vehicles and confinement feed livestock coming from coolatai grass infested areas. Do not import infested hay. Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that coolatai grass is present on their land.



Further information

- NSW WeedWise website: Coolatai grass



Giant reed (also known as Elephant grass)

Arundo donax

Plant Description

A robust perennial grass growing up to 8 m high, in large cane-like clumps.

Leaves, up to 7 cm wide, are evenly spaced in two rows along the shoots.

Its flowers are a plume-like, dense, silky inflorescence, 30–60 cm long.

It can be confused with bamboo but has no constriction at the base of the leaf blades as does bamboo.



Biology / ecology

Flowering occurs in spring and summer. Seeds are rarely produced and the plant is spread by broken stem pieces and root fragments.

Giant reed is not tolerant of frost and does not occur in areas with long, cold winters. It grows on a variety of soils from sands to heavy clays. It usually grows along river banks, wetlands, roadsides and wastelands or is cultivated in parks and gardens.



Problems caused

Giant reed forms dense stands, blocking access to water and consuming ground water. It is also a host for maize dwarf mosaic virus and sugar cane mosaic virus.

Riparian habitats are at risk from this weed as it forms impenetrable thickets, out-competing native vegetation and reducing biodiversity.

It can pose a threat to riparian areas managed primarily for traditional Indigenous use. In late summer it can become a fire hazard.



Current distribution

Giant reed has been recorded at a number of locations around Wentworth, Menindee and Broken Hill.



Recommended actions

Treat plants while they are actively growing, with a herbicide registered for that purpose. Dense infestations may have to be burnt and/or slashed first to allow access for herbicide to be applied. Plants may have to be treated over a number of growing seasons before they are fully dead. Small infestations may be able to be removed mechanically, however care should be taken to ensure all root fragments are removed.

Land managers within the core infestation area (the Wentworth Shire Council) should take measures that reduce impact of giant reed on riparian areas and mitigate the risk of the plant spreading to other properties. Land managers in all other areas of the region should destroy all plants found and ensure any subsequent generations are also destroyed.



Further information

- NSW WeedWise website: Giant reed



Spiny burrgrass

Cenchrus longispinus,
Cenchrus spinifex (syn. *Cenchrus incertus*)

Plant Description

Both species are similar in general appearance, being erect or spreading grasses, generally growing to 30 cm but occasionally reaching 60 cm in height, with rigid spiny burrs.

The burrs of *C. longispinus* usually have more than 40 spines up to 7 mm long and are often tinted purple; *C. spinifex* has burrs with less than 40 spines, 2–5 mm long and are rarely tinted.

Burrs contain one to three seeds.

The burrs easily detach from the plant as it matures.



Biology / ecology

Germination is mostly in spring and summer but it can occur at any time of the year provided soil temperature and moisture are suitable. Burrs appear from December to April. Some seeds are dormant for up to three years.

Spiny burrgrass disperses by its burrs, which attach to wool, fur and clothing. Burrs can contaminate pasture hay and are often spread by machinery, as well as being spread by water in irrigation areas.

These species tend to occur on sandy soils and readily establish on disturbed sites such as roadsides, creeks and riverbanks.



Problems caused

Spiny burrgrass burrs contaminate wool and the spines penetrate skin and cause ulcers in the mouths of grazing animals. They also cause problems for workers in irrigated crops. They can contaminate dried fruit and hay.

Spiny burrgrasses have been recorded as threatening riparian areas and can be a problem in parks and recreational areas.



Current distribution

C. longispinus is relatively common in the southernmost parts of the Western Local Land Services region, in areas close to the Murray River.

It has been recorded in a number of other towns in the region including Broken Hill, Menindee and Brewarrina.

C. spinifex has been recorded near Cobar.



Recommended actions

Isolated plants can be dug up and then buried or burned. Larger infestations can be treated with a herbicide registered for that purpose.

Control measures should aim to reduce impact of spiny burrgrass on commercial horticultural areas, grazing lands and conservation areas, and mitigate the risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: Spiny burrgrass - spinifex
- NSW WeedWise website: Spiny burrgrass - longispinus



Bridal creeper

Asparagus asparagoides

Plant Description

Bridal creeper is a climbing perennial with twining, wiry stems, growing up to about 3 m high when supported.

It has soft, shiny green leaves 4–30 mm wide and 10–70 mm long which occur along the length of the stems.

Greenish white flowers (six petals, 5–8 mm in diameter) each produce a sticky, green berry, which turns red/burgundy in late spring-early summer.

The plant forms a thick mat of underground tubers.



Biology / ecology

Stems emerge annually in autumn from the underground tuber mat. Plants actively grow in winter and spring becoming dormant in summer. Flowers appear in early spring; ripe fruit may remain on the plant for months.

Birds are the main means of dispersal; seeds can pass through the digestive tract unharmed or may adhere to beaks. Otherwise, fruit fall close to the parent plant. Local spread is mainly via the underground tubers, which may also be spread further afield with soil during earthworks.

The species is shade tolerant and can invade sites under closed canopies of trees. It can grow in most soils but is particularly vigorous in alkaline sandy soils and thrives in areas high in nutrients such as drainage lines and roadsides next to farms. Bridal creeper is frost tolerant and its root system enables it to survive summer drought.



Problems caused

Bridal creeper is a major threat to natural ecosystems, smothering native plants. Its thick mat of underground tubers prevents establishment and impedes growth of other plants. It is considered a threat to areas managed for traditional Indigenous use. Bridal creeper is not regarded as a major threat to agriculture, although it has been a problem in some citrus and avocado orchards along the Murray River.



Current distribution

Bridal creeper is largely limited to areas near or immediately adjacent to the Murray River, in the southernmost parts of the Western Local Land Services region. It has also been identified in the Broken Hill area.



Recommended actions

Biological control agents are available for the control of bridal creeper. Contact your shire council weeds officer or Western Local Land Services for further information. Physical removal of the tuber mat may be useful for small infestations. Herbicides can be effective but extreme caution needs to be taken when using near native vegetation and orchards. Focus control efforts to reduce the impact of bridal creeper on riparian areas and commercial horticultural properties, and reduce risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: Bridal creeper
- Office of Environment and Heritage 2013. Asparagus weeds management manual: Current management and control options for asparagus weeds *Asparagus spp.* in Australia. Office of Environment and Heritage NSW, Sydney



Burr ragweed

Ambrosia confertiflora

Plant Description

Burr ragweed is an erect perennial, strong-smelling herb growing up to 2 m in height.

It has deeply divided grey-green, hairy leaves up to 16 cm long and 10–15 cm wide.

Tiny, yellow male flowers have a greenish hood around them and are in spike-like clusters; female flowers are

among the upper leaves and form brown, woody fruits covered with 10–20 short, hooked spines.



Biology / ecology

Mature plants die back during winter but regrow rapidly in spring. Flowering is in summer; often extending into autumn.

If dry spells occur in summer, plants may die back and re-sprout in autumn.

Its burry fruits are readily spread by attaching to fur, wool and clothing and are buoyant in water. It grows in a wide variety of habitats including pastures, orchards and roadsides.

Its wide distribution suggests that it is highly adaptable climatically.



Problems caused

Burr ragweed is not palatable to stock and, by forming dense stands which exclude all other plants, can reduce carrying capacity.

The burrs cause vegetable fault in wool and are not easily removed because of the hooked spines.

The species produces abundant pollen and is a notorious hay fever plant producing severe symptoms in susceptible individuals.



Current distribution

Burr ragweed has been recorded at a number of locations in the Menindee and Wentworth areas as well as one location near Wilcannia.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that burr ragweed is present on their land.

Isolated plants should be pulled up, bagged and burnt. Larger outbreaks should be treated with a herbicide registered for the purpose before flowering.

Control efforts should aim to destroy all plants found and ensure any subsequent generations of the plant are also destroyed.



Further information

- NSW WeedWise website: Burr ragweed



Clockweed

Oenothera curtiflora

Plant Description

Clockweed is an annual herb, growing up to one metre high, with erect, usually unbranched and softly hairy stems.

Its leaves are narrow, up to 12 cm long and 5 to 40 mm wide with minutely toothed margins.

Its white flowers (becoming pinkish red or yellow with age) open near sunset and fade by morning.

age) open near sunset and fade by morning.



Biology / ecology

Clockweed flowers in summer and is spread by seeds. It is a garden escape that has become established in a few locations; particularly along roadsides, creeks and waterways. It is more common in subtropical and temperate areas than much of the (mostly arid) Western Local Land Services region.



Problems caused

Clockweed has become an invasive environmental weed and threatens areas around creeks and waterways. It is not known to affect agriculture at this stage.



Current distribution

Isolated infestations of clockweed have been recorded in the Western Local Land Services region in the Coomealla Irrigation Area and Curlwaa near Wentworth, and just north of Hillston.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that clockweed is present on their land.

Isolated plants should be hand pulled and burnt. Minor use permits currently exist for a small number of herbicides if larger infestations are encountered. Control efforts should aim to destroy all plants found and ensure any subsequent generations are also destroyed.



Further information

- NSW WeedWise website - Clockweed



Mother of millions

Bryophyllum spp. and hybrids

Plant Description

Mother of millions is a succulent perennial plant growing 30 cm to 1 m in height.

The stems are pinkish-brown or greyish in colour. The leaves are pencil-shaped, pale green to pale brown in colour with dark green patches and a shallow groove on the upper surface.

There are up to seven projections at the tip of each leaf which when broken off can develop into new plants.

The flowers are orange-red in colour and occur in a cluster at the top of a single stem.

A less common species of *Bryophyllum*, Resurrection plant (*B. pinnatum*), grows up to 2 m in height and has leaves consisting of up to five oval leaflets.



Biology / ecology

Mother of millions flowers from May to October, producing numerous seeds which can survive in the soil for a number of years before germinating.

Each plant produces numerous small plantlets along the edges of its leaves which detach and form new plants, resulting in quick establishment of new colonies.

These species are garden escapes that can grow on rocky outcrops, on gravelly and sandy soils and along creek banks, from where they spread as seeds and plantlets by floodwater. They are adapted to dry conditions and can survive long periods of drought.



Problems caused

Mother of millions is a threat to agriculture through poisoning of domestic livestock.

Cattle are most commonly affected; horses and goats have also been poisoned. All parts of the plants, including roots, are poisonous but flowers are the most toxic.

Livestock are at a greater risk of poisoning if they have been moved to a new paddock, there is a feed shortage or during droving as they are more likely to eat the plant.

Mother of millions is also toxic to humans and household pets, with dogs being particularly susceptible. It is unlikely that humans or pets would eat enough plant material to become poisoned; however there is some risk if it is present in a garden.



Current distribution

Mother of millions can be found in a number of maintained and unmaintained gardens throughout the Western Local Land Services region.

There are no current records of the plant having become naturalised in the region.



Recommended actions

Land managers should mitigate the risk of the plant of spreading from gardens.

Any plants found outside of maintained gardens should be pulled up and burnt, or treated with a herbicide registered for the purpose before flowering.



Further information

- NSW WeedWise website: Mother-of-millions
- Biosecurity Queensland (2016) Mother-of-millions (*Bryophyllum delagoense* (syn. *B. tubiflorum*, *Kalanchoe delagoensis*) and *Bryophyllum x houghtonii*) fact sheet. The State of Queensland, Department of Agriculture and Fisheries



Parthenium weed

Parthenium hysterophorus

Plant Description

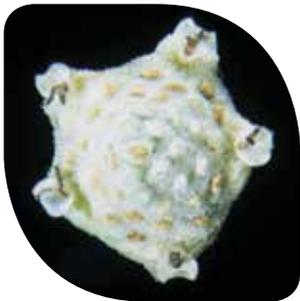
Parthenium weed is an annual plant with a deep taproot and an erect main stem.

It usually grows to a height of 1–1.5 m although it can grow to 2 m high.

The deeply-lobed leaves are pale green and covered with soft, fine hair.

The creamy-white flowers occur at the tips of the stems. Clusters of male and female florets are grouped as five-lobed flowers on the flower stem and measure 4–6 mm in diameter. Seeds are small (1–2 mm across), flattened, triangular and dark brown–black with two thin, white, spoon-shaped appendages.

Prior to late-flowering, the plant can be easily mistaken for bishop's weed (*Ammi majus*) and hemlock (*Conium maculatum*); after it has set seed and becomes woody it can then be mistaken for fleabane (*Conyza spp.*).



Biology / ecology

Parthenium weed can germinate, flower, and set seed within four weeks. Seed set is continuous until the plant dies, producing up to 15,000 seeds in a growing season.

Buried seeds can remain dormant for many years and seed close to the soil surface will germinate readily.

Spread is via seed; all previous outbreaks in NSW have come from contaminated harvesting machinery, hay and grain, livestock floats and vehicles originating from infested areas of QLD.

Conditions for the growth of parthenium weed are ideal in most areas of NSW with the exception of very arid or wet areas.

The plant has a preference for alkaline, clay and loam soils and will become quickly established in disturbed, degraded or bare areas. Once established, plants will survive droughts and frosts.



Problems caused

Parthenium weed competes with crops and pastures and reduces the productivity of livestock enterprises. Livestock that graze the plant may have tainted meat and milk.

The plant's pollen causes serious allergic reactions in humans, such as dermatitis, hay fever and other respiratory problems.

Once a reaction to parthenium weed develops, some individuals may show similar reactions to related plants such as sunflowers. This reaction can be so severe that allergic people can be forced to move away from parthenium weed-infested areas.



Current distribution

Parthenium weed is not currently present in the Western Local Land Services region



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that parthenium weed is present on their land.

Help will then be provided to remove and destroy it.



Further information

NSW WeedWise website: Parthenium weed



Silverleaf nightshade

Solanum elaeagnifolium

Plant Description

Silverleaf nightshade is a summer-growing perennial, up to 80 cm tall but commonly 30–45 cm.

Its leaves are 5–10 cm long, have wavy edges and are silvery-green with a paler under-surface.

Short, brown-yellow spines approximately 5 mm long occur on the stems, leaf stalks and often on the

underside of leaves.

The plant produces purple or violet flowers (sometimes white) up to 25 mm in diameter, with five yellow stamens 7–9 mm in length.

Globular berries are then produced, each containing about 75 seeds. Its root system is deep (often more than 2 m) and wide (2 m radius).



Biology / ecology

Seedlings emerge at any time from late spring until autumn, depending on rainfall. Flowering usually begins in November and can continue until March. Berries are produced from December to March. Above ground parts of the plant die back at the end of summer and new shoots arise from the root system in the following spring.

Seeds and root pieces are the means of dispersal. All parts of the roots can form shoot buds. Seeds are spread by water, on machinery, as a contaminant of hay and by livestock. Silverleaf nightshade is frost susceptible but highly drought tolerant. The species has no specific soil type requirements but is most abundant on light textured or sandy soils with low organic matter.



Problems caused

Silverleaf nightshade competes with crops and pastures, reducing yield and increasing control costs. It competes directly with summer crops but also affects winter crops by depleting soil moisture and nutrients in the preceding summer.

Stock poisoning from alkaloids contained in the plant's fruits and seeds has occurred, but this is uncommon.



Current distribution

Silverleaf nightshade has been recorded at a number of locations in the Western Local Land Services region including near Ivanhoe, Bourke, Tibooburra, Balranald and Wentworth.



Recommended actions

Strict machinery and livestock hygiene protocols should be followed to prevent spreading silverleaf nightshade from contaminated to uncontaminated areas.

Existing infestations should be treated with a herbicide registered for that purpose. Smaller infestations can be spot sprayed.

Control measures should aim to reduce the impact of silverleaf nightshade on dryland farming areas, and mitigate the risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: Silverleaf nightshade
- Silverleaf nightshade – Australian Best Practice Management Manual 2018 (Primary Industries & Resources South Australia/ NSW DPI)



Boxing glove (coral) cactus

Cylindropuntia fulgida var. *mamillata*

Plant Description

Boxing glove (coral) cactus grows as a branching shrub up to 1.5 m high.

The stems are divided into green to grey-green cylindrical pads, 10–22 mm long, 20–45 mm in diameter, that are fist-like at their apex. Mature pads widen, become distorted and wavy, and resemble a piece of coral.

Small bristles are arranged in clusters in small depressions on each pad. These depressions also have zero to 10 white to brownish spines up to 17 mm long. Boxing glove cactus rarely produces small pink to deep red flowers, 1–2 mm wide.

The fruit is oval shaped, yellow-green, 20–50 mm wide and generally sterile.



Biology / ecology

Boxing glove cactus spreads by its easily detachable pads, which fall close to the plant or attach to animals, humans, machinery and vehicles by their spines.

Pads can take root where they fall. Floodwaters can move broken pads long distances. They can survive long periods of drought before weather conditions allow them to set roots.

The species prefers hot, arid to semi-arid rangelands, riparian zones and urban areas.



Problems caused

Boxing glove cactus can form dense infestations that compete with and reduce livestock access to native pastures.

It can injure people and livestock with its sharp thorns. It can harbor pest animals, such as foxes and rabbits.

It is regarded as an environmental weed, displacing native plant species and causing injury to native animals.



Current distribution

Boxing glove cactus is common in and around Broken Hill. It is also found around various townships such as Tibooburra, Wilcannia, Menindee Brewarrina and Bourke.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that boxing glove cactus is present on their land.

Land managers with infestations can contact NSW DPI to organise a release of a strain of cochineal insect (*Dactylopius tomentosus*), which will kill the plants over time.

Isolated plants can be dug up and then buried or burned, or treated with a herbicide registered for that purpose. Land managers should aim to destroy all plants found and ensure any subsequent generations of the plant are also destroyed.



Further information

- NSW WeedWise website: Boxing glove cactus
- Sheehan, M.R. and Potter, S. (2017). Managing Opuntioidei Cacti in Australia: Best practice control manual for *Austrocyllindropuntia*, *Cylindropuntia* and *Opuntia* species. Department of Primary Industries and Regional Development (WA), Perth.



Devil's rope (also known as Rope pear)
Cylindropuntia imbricata

Plant Description

Much-branched spiny plant, often 2–3 m high. Rope-like segments growing at all angles to the upright branches, up to 40 cm long and 3–5 cm thick, covered in small humps that give them a rope-like appearance.

Segments covered in groups of sharp spines (2–3 cm long). The plant has showy purple or purplish-red coloured flowers (4–9 cm across) and the fleshy fruit (25–70 mm long) is greenish-yellow when ripe.



Biology / ecology

Devil's rope reproduces by seed and stem fragments. The fruit are eaten by birds and other animals, and the seeds then spread in their droppings.

Segments are spread by floodwaters, by becoming attached to animals, footwear and vehicles and in some cases by being rolled along bare ground by strong winds. These segments take root and develop into new plants. Devil's rope is comparatively slow-growing.

Devil's rope thrives in semi-arid environments, but also occurs in drier sub-tropical and warmer temperate environments.



Problems caused

Devil's rope is a very spiny cactus which can cause injury to humans and to animals. Large outbreaks can eventually impede movement of stock and reduce productivity of pasture and stock carrying capacity.

Devil's rope is regarded as a potential environmental weed.



Current distribution

Devils rope has been recorded in the Broken Hill, Dareton, Cobar, Nymagee, Bourke and Balranald areas.



Recommended actions

Isolated plants can be dug up and then buried or burned, or treated with a herbicide registered for that purpose.

Land managers with larger infestations can contact NSW DPI to organize a release of strain of cochineal insect (*Dactylopius tomentosus*), which will kill the plants over time. Control efforts should aim to reduce impact of devil's rope on grazing lands, conservation areas and urban areas and mitigate the risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: Devil's rope cactus
- Sheehan, M.R. and Potter, S. (2017). Managing Opuntioid Cacti in Australia: Best practice control manual for *Austrocylindropuntia*, *Cylindropuntia* and *Opuntia* species. Department of Primary Industries and Regional Development (WA), Perth.



Harrisia cactus

Harrisia martinii

Plant Description

Harrisia cactus is a vigorously growing plant, with much branched ribbed segments up to 3 m long (3–4 cm diameter) that clamber over the ground or over other plants, forming an impenetrable mass.

It has spines arranged in small groups on ridges along the segments.

Each cluster of spines consists of one to four large central spines (10–35 mm long) and three to seven smaller spines (1–6 mm long).

Harrisia cactus has large white or pinkish flowers (15–20 cm long) with numerous ‘petals’ that open at night.

Its fleshy fruit (2–6 cm across) are bright red in colour, are often covered in groups of spines and contain 400 to 1,000 small black seeds.



Biology / ecology

Seeds are spread by birds and other animals (e.g. foxes, emus, pigs, goannas and ants) that eat the fruit. Seeds germinate soon after rain. Seedlings quickly produce a swollen tuberous food storage root that develops as the plant grows. The plant can begin to produce seed by six months of age and from then on can continue to produce fruit almost all year round. Stems take root where they touch ground, and new plants will grow from broken stems and sections of underground tubers. Stem segments may be dispersed by animals, vehicles and in dumped garden waste. This species is particularly troublesome in rangelands regions. It is shade tolerant and prefers to grow in the sheltered areas underneath trees and shrubs.



Problems caused

Harrisia cactus spreads quickly and has the ability to eventually take over large areas of grazing country. These dense infestations choke out pastures and the spines make it difficult for livestock to access the remaining pasture plants, thereby significantly reducing carrying capacities. Large infestations can interfere with mustering. Harrisia cactus is regarded as a potential environmental weed in NSW. The sharp spines are a hazard to humans and animals, and cause painful injury to those who accidentally walk into or otherwise touch the plant.



Current distribution

Harrisia cactus has previously been recorded north of Wanaaring.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that harrisia cactus is present on their land. Isolated plants can be dug up and then buried or burned, or treated with a herbicide registered for that purpose. Control efforts should aim to reduce the impact of harrisia cactus on grazing lands, conservation areas and urban areas and mitigate the risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: [Harrisia cactus](#)
- Sheehan, M.R. and Potter, S. (2017). Managing Opuntioiid Cacti in Australia: Best practice control manual for *Austrocyllindropuntia*, *Cylindropuntia* and *Opuntia* species. Department of Primary Industries and Regional Development (WA), Perth.



Hudson pear

Cylindropuntia rosea

Plant Description

Hudson pear is a branched cactus, which grows up to 1.5 m high and 3m wide.

Stem segments are cylindrical; with those above the trunk up to 90 cm long and 4 cm wide.

Depressions on the segments contain small bristles and clusters of four to eight spines up to 3.5 cm in

length.

Spines on Hudson pear are particularly strong and sharp and are encased in a paper-like, detachable sheath during the first year of development.

Flowers, pink to purple, appear from late spring to summer. The fruit is greenish and wider towards the apex, never in chains and 2–4.5 cm long.



Biology / ecology

Hudson pear spreads vegetatively from broken stem segments that come into contact with the ground.

Although it produces fruits, these do not appear to produce viable seed; however the fruit acts like a stem segment and can reproduce vegetatively. Livestock, feral animals, vehicles and floodwaters all contribute to its dispersal.

The plant occurs in a variety of habitats including woodlands, shrublands, rocky outcrops and floodplains.



Problems caused

The strong, sharp spines on hudson pear are the main cause of the negative impacts associated with the plant.

Spines can cause significant injury to humans, livestock, working animals and native fauna. Dense infestations can displace native flora and reduce biodiversity.



Current distribution

Hudson pear has been found in the Broken Hill and Wentworth areas. There is also a significant population just outside of the region, in the Lightning Ridge district.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that hudson pear is present on their land.

Help will then be provided to remove and destroy it.



Further information

- NSW WeedWise website: Hudson pear
- Sheehan, M.R. and Potter, S. (2017). Managing Opuntioid Cacti in Australia: Best practice control manual for *Austrocylindropuntia*, *Cylindropuntia* and *Opuntia* species. Department of Primary Industries and Regional Development (WA), Perth.



Prickly pear

Opuntia stricta

Plant Description

Prickly pear is an upright or spreading succulent shrub, usually growing only 50–100 cm tall (sometimes to 2 m). Its stems are much-branched and consist of a series of flattened fleshy segments, dull green or bluish-green in colour, hairless, to 30 cm long, 15 cm wide and 1–2 cm thick. The segments are covered in small, raised structures, some of which have one or two

stout yellow spines about 2–4 cm long.

The flowers (up to 7 cm long and 6–8 cm across) are bright yellow, but often have pinkish or reddish coloured markings on the outer 'petals'. They are borne along the margins of the stem segments. Immature fruit are green in colour, turning reddish-purple as they mature. Mature fruit are 4–8 cm long and 3–4 cm wide, are egg-shaped and have several tufts of small barbed bristles on their surface.



Biology / ecology

Prickly pear reproduces by seed and from stem segments. Flowering occurs mostly during spring and summer. Each plant produces numerous fruit, with many seeds in each fruit. The fruit are eaten by various animals and birds, which then spread the seeds through their droppings. Stem segments are spread via animals, footwear, vehicles floodwaters and in dumped garden waste. They take root wherever they contact the ground.

Prickly pear prefers subhumid to semi-arid areas in warm temperate and subtropical regions. It invades grassland and grassy woodland, dry sclerophyll forests, riparian and rocky outcrop vegetation. The plant is drought resistant.



Problems caused

It is not usually grazed by livestock and dense infestations of the plant could hinder access to water and pasture. Patches of this weed also provide effective long-term harbor for pest animals such as rabbits. Prickly pear plays host to fruit-fly, providing a food source for this serious pest of horticultural areas.

Stands of the plant can hinder growth and regeneration of smaller native shrubs and ground flora and hinder access to water and reduce food available for native fauna.



Current distribution

Prickly pear has been located in a number of locations in the Western Local Land Services region, including in and around Broken Hill, Menindee, Bourke, Cobar, Balranald and Wentworth.



Recommended actions

Land managers with infestations can contact Western Local Land Services to organise a release of biocontrol agents, which will kill the plants over time. Isolated plants can be dug up and then buried or burned, or treated with a herbicide registered for that purpose. Land managers should take measures that reduce impact of prickly pear on grazing lands, conservation areas and urban areas and mitigate the risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: Prickly pears - *Opuntias*
- Sheehan, M.R. and Potter, S. (2017). Managing Opuntoid Cacti in Australia: Best practice control manual for Austrocylindropuntia, Cyllindropuntia and Opuntia species. Department of Primary Industries and Regional Development (WA), Perth.



Riverina pear

Opuntia paraguayensis (syn. *Opuntia elata*)

Plant Description

Branched shrub with erect branches to 2 m tall. Stem segments are 5–25 cm long and 4–9 cm wide, often more than 2 cm thick.

They are glossy green, sometimes with a purple tinge; especially on the small raised structures on the segment surface and around the margins.

Spines are absent or 1–3 short spines, whitish yellow present on some of the small raised structures.

The flowers are orange and 3–4 cm wide. The fruit are club shaped, 4–6 cm long, 2–2.5 cm wide, and purplish red in colour.



Biology / ecology

Riverina pear is reported to prefer sandy soils, however it is likely to tolerate a range of soil types.

It is found most commonly along roadsides, riparian systems (common along the Murray River), bushland, grazing areas and disturbed areas.



Problems caused

Dense stands of Riverina pear can hinder growth and regeneration of smaller native shrubs and ground flora and hinder access to water and reduce food available for livestock and native fauna.

Large thickets can make mustering difficult.



Current distribution

Riverina pear has been recorded at Wentworth, Dareton, Pooncarie and Broken Hill in the Western Local Land Services region.



Recommended actions

Land managers with infestations can contact Western Local Land Services to organise a release of biocontrol agents, which will kill the plants over time.

Isolated plants can be dug up and then buried or burned, or treated with a herbicide registered for that purpose.

Control measures should aim to reduce the impact of Riverina pear on grazing lands, conservation areas and urban areas and mitigate the risk of the plant spreading to other properties.



Further information

- Sheehan, M.R. and Potter, S. (2017). Managing Opuntoid Cacti in Australia: Best practice control manual for *Austrocylindropuntia*, *Cylindropuntia* and *Opuntia* species. Department of Primary Industries and Regional Development (WA), Perth



Smooth tree pear

Opuntia monacantha

Plant Description

Smooth tree pear is an erect shrub, sometimes with a short trunk, usually growing 2–3 m tall.

The plant has an obvious drooping appearance.

Its stems consist of a series of very flattened fleshy, segments, glossy green, oblong to egg shaped with a thin profile, 10–30 cm long.

The segments are covered in small raised structures, some of which bear one or two long spines (2–7 cm long), brown to off-white in colour.

Its flowers are yellow to orange-yellow with reddish-colored markings on their outer 'petals', 3–6 cm across. The fruit are pear shaped, 4–7.5 cm long and 2–5 cm wide, spineless and purplish - red in colour as they mature.



Biology / ecology

Flowering occurs mostly from late spring through until early autumn. The fruit are eaten by various animals (e.g. birds and foxes) and the seeds then spread in their droppings.

Stem segments may become attached to animals, footwear and vehicles. They are also dispersed by flood waters and in dumped garden waste. Segments readily develop roots when in contact with the ground, and form a new plant.

Smooth tree pear prefers semi-arid, warm-temperate to subtropical regions and thrives on most soil types. It is drought tolerant, but prefers moist growing environments. The plant grows most actively during summer.



Problems caused

Thick infestations of smooth tree pear can form a barrier that obstructs the movement of stock and will reduce agricultural productivity.

Spines and barbs of the plant may damage mouths of grazing animals. The fruits have been known to host fruit fly. It can provide harbor for pests, such as rabbits and foxes.

Thick infestations of this species may impede the growth and regeneration of native vegetation.



Current distribution

Smooth tree pear has previously been recorded in the Scotia Sanctuary, in the westernmost portion of the Western Local Land Services region.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that smooth tree pear is present on their land

Isolated plants can be dug up and then buried or burned, or treated with a herbicide registered for that purpose.

Control measures should aim to reduce the impact of smooth tree pear on grazing lands, conservation areas and urban areas and mitigate the risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: Smooth tree pear
- Sheehan, M.R. and Potter, S. (2017). Managing Opuntioid Cacti in Australia: Best practice control manual for *Austrocylindropuntia*, *Cylindropuntia* and *Opuntia* species. Department of Primary Industries and Regional Development (WA), Perth.



Tiger pear

Opuntia aurantiaca

Plant Description

Tiger pear is a spreading or climbing cactus rarely more than 40 cm high, although it can reach up to 2 m in height when supported by other plants. The plant consists of numerous dark green to purplish-coloured, almost cylindrical stem segments, 3.5–30 cm long and 1–5 cm thick.

Each segment has large, very sharp spines to 5 cm long, minutely barbed near their tips. Underground tubers are formed when segments become buried and lose their spines. Flowers are bright yellow, 2.5–6 cm across, with numerous 'petals'.

The fruit is egg-shaped, spiny with a depressed top, 2.5–3.5 cm long, red to purple when ripe



Biology / ecology

Flowering occurs mostly during late spring and summer. The resulting fruit contain seeds but this species is a sterile hybrid and thus none of the seeds are viable.

Tiger pear only spreads vegetatively, by segments or fruit which root where they contact the ground and underground tubers. Stem segments are spread by becoming attached to animals, footwear and vehicles. They are also dispersed by flood waters and in dumped garden waste.

Tiger pear is extremely hardy, thriving in a range of habitats. It is mostly found in semi-arid regions and drier localities in sub-tropical and warmer temperate environments.



Problems caused

Dense stands of the plant can hinder growth and regeneration of smaller native shrubs and ground flora, hinder access to water and reduce food available for livestock and native fauna.

Large thickets can make mustering difficult.



Current distribution

Tiger pear has been recorded between Gilgunnia and Yathong Nature Reserve, in the easternmost part of the Western Local Land Services region. It has also been identified in the Bourke and Balranald areas.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that tiger pear is present on their land.

Isolated plants can be dug up and then buried or burned, or treated with a herbicide registered for that purpose.

Control efforts should aim to reduce the impact of tiger pear on grazing lands, conservation areas and urban areas and mitigate the risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: Tiger pear
- Weeds of Australia – Biosecurity Queensland website – *Opuntia aurantiaca*



Velvet tree pear

Opuntia tomentosa

Plant Description

Velvet tree pear is an upright, fleshy, tree-like plant, up to 8 m tall, with a single woody main stem at its base. It is much-branched and divided into oblong pads (15–35 cm long, 8–12 cm wide and 1.5–2 cm thick) that are dull green and velvety in appearance and touch.

They bear small raised structures that are usually spineless in older plants, but can contain 2–4 white or pale yellow spines in younger plants.

Its deep orange flowers have reddish markings on the outermost ‘petals’. The fruit is egg-shaped, about 5 cm long and 3 cm wide, turning dull red in colour as it matures.

The top of the fruit is saucer-shaped with circular lines that meet in the centre, giving it a shrivelled appearance. Fruits produce many seeds within a reddish pulp.



Biology / ecology

Velvet tree pear reproduces by stem fragments and seeds. Stem fragments are spread by becoming attached to animals, footwear and vehicles. They are also dispersed in dumped garden waste and by floodwaters; readily taking root at their new destination.

The fruit are eaten by birds and other animals that pass seeds through their droppings.

This species is mostly found in sub-tropical, semi-arid and warmer temperate environments. It is a weed of roadsides, railways, pastures, open woodlands, disturbed sites and waste areas.



Problems caused

Due to its ability to withstand drought, velvet tree pear can out-compete native tree and shrub species.

Large plants shade out pasture and can provide harbor for feral pigs. It can also make mustering difficult.



Current distribution

Velvet tree pear is only known to be present in the Western Local Land Services region as isolated populations near Dareton and Bourke.



Recommended actions

Land managers should notify their local shire council or Western Local Land Services immediately if they have found or suspect that velvet tree pear is present on their land.

Isolated plants can be dug up and then buried or burned, or treated with a herbicide registered for that purpose.

Control measures should aim to reduce the impact of velvet tree pear on grazing lands, conservation areas and urban areas and mitigate the risk of the plant spreading to other properties.



Further information

- NSW WeedWise website: Velvety tree pear
- Sheehan, M.R. and Potter, S. (2017). Managing Opuntoid Cacti in Australia: Best practice control manual for *Austrocylindropuntia*, *Cylindropuntia* and *Opuntia* species. Department of Primary Industries and Regional Development (WA), Perth.



Wheel cactus

Opuntia robusta

Plant Description

An upright, fleshy shrub growing 1–2 m tall with much-branched stems consisting of a series of flattened, bluish-green fleshy segments (pads), almost circular in shape and up to 40 cm across.

Each segment is covered in raised bumps which bear small bristles and 1–12 sharp spines (up to 5 cm long).

Its showy yellow flowers (5–8 cm across) are borne singly along the upper margins of the stem segments.

Large fleshy fruit (7–8 cm long and about 6 cm wide) turn pink to purple as they mature and contain large numbers of seeds.



Biology / ecology

Wheel cactus reproduces by seed and also propagates from stem segments. Seed can be spread in the droppings of birds, foxes and other animals over large distances.

Stem fragments are spread by becoming attached to animals, footwear and vehicles and are also dispersed in dumped garden waste.

The plant prefers arid and semi-arid areas in warm temperate and sub-tropical regions and grows well on shallow granite soils.

It most commonly infests pastures and open woodlands. The plant is drought-resistant.



Problems caused

Wheel cactus is not usually grazed by stock because of its stout spines. It can form dense impenetrable thickets which hinder livestock access to pasture and water and make mustering difficult. Being long-lived, patches of the plant also provide effective and permanent harbor for pest animals such as rabbits.

Stands of the plant can hinder growth and regeneration of smaller native shrubs and ground flora and hinder access to water and reduce food available for native fauna.

The barbed bristles of the wheel cactus are sharp, readily penetrating human skin causing severe irritation and are difficult to remove.



Current distribution

Wheel cactus has been recorded in and near Broken Hill, south of Menindee and just north of the Murray River, between Euston and Balranald.



Recommended actions

Isolated plants can be dug up and then buried or burned, or treated with a herbicide registered for that purpose.

Control measures should aim to reduce the impact of wheel cactus on grazing lands, conservation areas and urban areas and mitigate the risk of the plant spreading to other properties.



Further information

- Sheehan, M.R. and Potter, S. (2017). Managing Opuntoid Cacti in Australia: Best practice control manual for *Austrocylindropuntia*, *Cylindropuntia* and *Opuntia* species. Department of Primary Industries and Regional Development (WA), Perth.

References

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- Agriculture Victoria – State Prohibited weeds web page – (<http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/weeds/state-prohibited-weeds>)
- Business Queensland – Restricted invasive plants web page (<https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/health-pests-weeds-diseases/weeds-diseases/invasive-plants/restricted>)
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- Noble, M.R. (2013) African Boxthorn National Best Practice Manual: Managing African boxthorn (*Lycium ferocissimum*) in Australia; State of Tasmania
- North West Weeds website (<http://www.northwestweeds.com.au/>)
- NSW Weed Control Handbook – A guide to weed control in non-crop, aquatic and bushland situations – 7th edition (https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0017/123317/weed-control-handbook.pdf)
- NSW WeedWise website (<https://weeds.dpi.nsw.gov.au/>)
- PlantNET – NSW Flora Online (<http://plantnet.rbgsyd.nsw.gov.au/floraonline.htm>)
- Primary Industries & Resources South Australia/NSW DPI (2018) Silverleaf nightshade – Australian Best Practice Management Manual (https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0004/839857/Silverleaf-nightshade-best-practice-management-manual-2018.pdf)
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- Weeds of Australia – Biosecurity Qld edition website (https://keyserver.lucidcentral.org/weeds/data/media/Html/search.html?zoom_query=)
- Weeds in Australia website (<http://www.environment.gov.au/biodiversity/invasive/weeds/index.html>)

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African boxthorn

Andy McKinnon, Western LLS
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Alligator weed

NSW DPI

Athel pine

NSW DPI

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Mitch Plumbe, Western LLS

Boneseed

Steve Watts, Wentworth Shire Council
Paul Erkelenz, Astrebla Agribusiness & NRM Consulting

Boxing glove cactus

Mitch Plumbe, Western LLS

Bridal creeper

Paul Erkelenz, Astrebla Agribusiness & NRM Consulting
NSW DPI

Burr ragweed

Steve Watts, Wentworth Shire Council
Andy McKinnon, Western LLS

Clockweed

Steve Watts, Wentworth Shire Council
Paul Erkelenz, Astrebla Agribusiness & NRM Consulting

Coolatai grass

NSW DPI

Devil's rope

Andy McKinnon, Western LLS
Paul Erkelenz, Astrebla Agribusiness & NRM Consulting
Mitch Plumbe, Western LLS

Giant reed

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Harrisia cactus

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Hudson pear

NSW DPI

Karoo acacia

NSW DPI

Mesquite

Mitch Plumbe, Western LLS
Paul Erkelenz, Astrebla Agribusiness & NRM Consulting

Mother of millions

Andy McKinnon, Western LLS
NSW DPI

Parkinsonia

NSW DPI
Mitch Plumbe, Western LLS

Parthenium weed

NSW DPI

Prickly acacia

NSW DPI

Prickly pear

Paul Erkelenz, Astrebla Agribusiness & NRM Consulting

Riverina pear

NSW DPI

Paul Erkelenz, Astrebla Agribusiness & NRM Consulting

Rubber vine

NSW DPI

Andy McKinnon, Western LLS

Sagittaria

NSW DPI

Silverleaf nightshade

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Smooth tree pear

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Velvet tree pear

Shauna Potter, Primary Industries & Resources SA
Primary Industries & Resources SA
Paul Erkelenz, Astrebla Agribusiness & NRM Consulting

Water hyacinth

NSW DPI

Wheel cactus

Paul Erkelenz, Astrebla Agribusiness & NRM Consulting

Willow rhus

Paul Erkelenz, Astrebla Agribusiness & NRM Consulting
Urban Forest Ecosystems Institute

Key contacts

The following organisations can be contacted report the presence of high priority weeds and/or for further information on any of the weeds contained in this guide.

Local Control Authorities

- Balranald Shire Council
P: (03) 5020 1300
E: council@balranald.nsw.gov.au
- Bourke Shire Council
P: (02) 6830 8000
E: weedsofficer@bourke.nsw.gov.au
- Brewarrina Shire Council
P: (02) 6830 5100
E: weeds@brewarrina.nsw.gov.au
- Broken Hill City Council
P: (08) 8080 3300
E: council@brokenhill.nsw.gov.au
- Carrathool Shire Council
P: (02) 6961 7600
E: council@carrathool.nsw.gov.au
- Cobar Shire Council
P: (02) 6836 5888
E: mail@cobar.nsw.gov.au
- Hay Shire Council
P: (02) 6990 1100
E: mail@hay.nsw.gov.au
- Wentworth Shire Council
P: (03) 5027 5027
E: council@wentworth.nsw.gov.au

Western Local Land Services

- Weed enquiries
P: (02) 6967 2998 or 1300 795 299
E: admin.western@lls.gov.au

NSW Department of Primary Industries

- NSW Invasive Plants and Animals Enquiry Line
P: 1800 680 244
E: weeds@dpi.nsw.gov.au

NSW Weed Control Handbook

The handbook has been compiled as a guide for weed control in non-crop, aquatic and bushland situations in NSW.

Contents include:

- Integrated weed management
- Managing your legal responsibilities in applying pesticides
- Reducing herbicide spray drift
- Using adjuvants with herbicides
- Cleaning spray equipment
- Withholding periods
- Herbicide resistance
- Control techniques using herbicides
- Weeds with state priority biosecurity duties in NSW
- Minor-use permits
- Weed control in non-crop, aquatic and bushland situations



Download a copy at: www.dpi.nsw.gov.au/_data/assets/pdf_file/0017/123317/weed-control-handbook.pdf or use the QR code.



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