Declared plant selection process (weed surveillance project)



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# Introduction

This document outlines the selection process used to choose 20 declared plants as surveillance targets for the project: [Weed surveillance in the south west to protect industry profitability](https://agric.wa.gov.au/n/3835). This project is part of the [Boosting Biosecurity Defences](https://www.agric.wa.gov.au/invasive-species/boosting-biosecurity-defences-royalties-regions) project funded by the State Government’s Royalties for Regions with the Department of Agriculture and Food, Western Australia (DAFWA) as the lead agency.

The project’s key goal is to develop capacity for surveillance of high priority declared weeds that impact agriculture and investigate options to improve market access. Targeted weed surveillance methods will be established for the high value agricultural areas of the South West Land Division.

New systems, tool and applications will be developed with biosecurity groups, producers and the community to: find declared plants, map weed incursions, map weed free areas and manage weeds.

This project will transform the way stakeholders and the department handle surveillance data and present information for weeds declared under the [Biosecurity and Agriculture Management Act 2007 (BAM Act)](https://www.agric.wa.gov.au/bam/biosecurity-and-agriculture-management-western-australia)*.* Stakeholders will be consulted on how they want to report declared plants and what information they need to report and manage them.

# High priority surveillance targets

From the perspective of the State’s biosecurity the greatest economic benefit is in finding declared plants and new incursions of threatening species before they have a chance to spread throughout the State.

High priority declared plants[[1]](#footnote-1) are those that are on the left side of the invasion curve with prevention and eradication as management options (Figure 1). They are weeds that are thought to be absent from WA or have a small number of localised populations.



**Figure 1** Generalised invasion curve showing management actions (prevention, eradication, containment and asset based protection) appropriate to each stage.

Under BAM Act these are declared pests categorised as category 1 (C1) – exclusion or category 2 (C2) - eradication (regulation 7, BAM regulations).

The Department of Agriculture and Food, WA has selected 15 high priority declared plants across these groups to be surveillance targets for the State (see Appendix 1). These declared plants are:

1. *Bassia scoparia* (L.) A.J.Scott (**kochia**)
2. *Carduus nutans* L. (**nodding thistle**)
3. *Chondrilla juncea* L. (**skeleton weed**)
4. *Cirsium arvense* (L.) Scop. (**perennial thistle**)
5. Equisetum hyemale L. (**horsetail**)
6. Galium tricornutum Dandy (**bedstraw**)
7. *Lepidium draba* L. (**hoary cress**)
8. *Opuntia robusta* H.L.Wendl. ex Pfeiff (**wheel cactus**)
9. *Orobanche ramosa* L. (**branched broomrape**)
10. *Proboscidea louisianica* (Mill.) Thell. (**purple flower devil's claw**)
11. *Rhaponticum repens* (L.) Hidalgo (**creeping knapweed**)
12. Senecio jacobaea L. (**ragwort**)
13. Ulex europaeus L. (**gorse**)
14. *Vachellia karroo* (Hayne) Banfi & Galasso (**karoo thorn acacia**)
15. *Xanthium spinosum* L. (**Bathust burr**)

# Other surveillance targets

Most of the weeds on the right side of the invasion curve (Figure 1) are widespread, well-established species that often impact agricultural production and profitability, and might require costly control measures as part of regular agricultural production.

They are important agriculturally, especially to producers seeking profitable production; however, because of their widespread and established nature, they provide relatively low economic return when public funds are investment by government to regulate these species (Figure 1). Consequently, they are of lower priority to publicly funded State/government biosecurity activities than other invasive species that are at the start of the invasion process.

For widespread declared plants at the right side of the invasion curve there is often a high level of industry and community support to manage and control them, involving a recognised biosecurity group or industry funding scheme to support their management. Industry and community may have a high interest in surveying some of these more widespread declared weeds for their own management programs.

Community, industry, biosecurity groups and grower groups selected five other declared plant surveillance targets through a survey (see Appendix 2). These declared plants are:

1. *Gomphocarpus fruticosus* (L.) W.T.Aiton (**cotton bush**)
2. *Zantedeschia aethiopica* (L.) Spreng. (**arum lily**)
3. *Echium plantagineum* L. (**Paterson’s curse**)
4. *Solanum elaeagnifolium* Cav. and *Solanum linnaeanum* Hepper & P.-M.L.Jaeger (**silverleaf nightshade and apple of Sodom**)
5. *Emex australis* Steinh. and *Emex spinosa* (L.) Campd. (**doublegee**).

If time permits the next two most popular species will be partially included in the project:

1. *Moraea flaccida* (Sweet) Steud. and *Moraea miniata* Andrews (**cape tulip**)
2. *Rubus laudatus* A.Berger (**early blackberry**).

# Declared plants not selected

Declared plants neither selected nor eligible for selection as a surveillance target will have some surveillance reporting and monitoring applications extended to them. However, these weeds will not have extra extension or training material developed for them.

# Appendix 1: Selection criteria for high priority surveillance targets

To be eligible as a high priority surveillance target the weed must meet the following criteria:

1. a declared pest under the BAM Act

Note: Under the BAM Act a prohibited organism is a declared pest for the whole of Western Australia.

1. an agricultural weed

Weeds that have an adverse effect on agricultural production or systems.

1. likely to survive in the South West Land Division of WA without human intervention

The South West Land Division encompasses the wheat belt and includes the cities of Perth, Albany, Bunbury, Geraldton and Mandurah.

1. easy to identify by the general public, or able to have extension material developed to help the general public identify it

A plant that requires an expert, a specialist test and/or are difficult to identify will not be chosen as a surveillance target.

1. under control category 1 (exclusion) or 2 (eradication) under the BAM Act
2. present in other parts of Australia
3. able to satisfy one or more of the following:
4. be present in WA and under eradication, or
5. have been eradicated from WA in the past, or
6. be a trade barrier for WA, or
7. known to be difficult to eradicate.

The criteria used to select high priority surveillance targets are in Table 1. There are 837 weeds under C1 (exclusion) and 30 under C2 (eradication). Nearly all of the 837 weeds in the C1 category are prohibited species that are not present in the State.

To reduce the number of organism shown in Table 1 only C1 and C2 declared plants that are (or have been) present in WA, were previously eradicated from WA, or that are a trade barrier for WA exports are listed.

## Table 1 High priority surveillance targets selection table.

| Common name | Scientific name | Declared pest or prohibited | BAM Category  | Does it impact agriculture? | Is it likely to survive in the south west land division (SWLD)? | Is it easy for the general public to identify it? | Selected as a surveillance target |
| --- | --- | --- | --- | --- | --- | --- | --- |
| goatgrass | *Aegilops* species | Prohibited organism | C1 | Yes: A serious weed of wheat, also a close relative of wheat that has been used across Australia by plant breeders.  | Yes: highly suited to the WA wheat belt. **In WA and other states:** has been used by Australian wheat breeders, not known to be naturalised.  | No: difficult to distinguish from wheat, only to be targeted by trained DAFWA and industry members | No |
| alligator weed | *Alternanthera philoxeroides* (Mart.) Griseb. | Prohibited organism | C2 | Partially: an environmental water weed. Toxic to livestock if eaten. | Yes: to date it has only ever been found cultivated in private backyards, not naturalised. **In WA:** eradicated. **In other states:** present and a weed of national significance (WoNS). | Yes: but unless they go into private backyards they are not likely to find it. | No: (eligible for Table 2 list). |
| gamba grass | *Andropogon gayanus* Kunth | Prohibited organism | C2 | Yes: highly flammable, only palatable when young, grows to 3m+ high. | No: a tropical plant, found in the Kimberley. | No: grasses are difficult for the general public to identify. | No |
| kochia, summer cypress  | *Bassia scoparia* (L.) A.J.Scott (also known as *Kochia scoparia*) | Prohibited organism | C1 | Yes: a serious threat to a wide range of crops and situations. Develops herbicide resistance. | Yes: **In WA:** introduced as a salt land rehabilitation plant in the early 1990s, has been eradicated. **In other states:** has been eradicated from Tasmania, would be an eradication target in other states, if found. | Yes: it can be confused with other species. Need to develop appropriate extension material and only target previously known sites, best to be targeted by trained DAFWA and industry members. | Yes (1) |
| cabomba, fanwort | *Cabomba caroliniana* A. Gray | Prohibited organism | C2 | Yes: a water weed, blocks irrigation channels.  | No: a tropical plant.  | Yes | No |
| nodding thistle | *Carduus nutans* L. | Prohibited organism | C1 | Yes: a biennial weed of pastures and crops. | Yes: **In WA:** an infestation was eradicated in the 1970s. A contaminant of imported canola in 1996 but no plants were found. **In other states:** it is a weed. | Yes: it could be confused with other thistles, however, easy to identify when flowering. | Yes (2) |
| skeleton weed | *Chondrilla juncea* L. | Declared pest | C3 Yilgarn and Narembeen, C2 rest of state | Yes: a deep-rooted perennial that mainly affects grain crops, though can grow in a wide range of situations, for example, roadsides, railway lines. A lawn weed in native range and Canberra. | Yes: **In WA:** a long-term target for eradication and management, funded by the Grains, Seeds and Hay Industry Funding Scheme. **In other states:** a weed in other states. | Yes: easy to identify at harvest time. In the past there was a specific campaign aimed at header drivers. | Yes (3) |
| boneseed | *Chrysanthemoides monilifera* (L.) Norlindh subsp. monilifera | Prohibited organism | C2 | No: an environmental weed. | Yes | Yes | No |
| perennial thistle, Canada thistle, Californian thistle | *Cirsium arvense* (L.) Scop. | Prohibited organism | C1 | Yes: perennial weed of pastures and crops. | Yes: **In WA:** has been eradicated in the past, not seen for many years. **In other states:** a weed in Victoria and Tasmania. | Yes: it could be confused with other thistles, need to prepare suitable extension materials. | Yes (4) |
| ivy gourd | *Coccinia grandis* (L.) Voigt | Prohibited organism | C1 | Yes: an environmental weed, but hosts pests and diseases of horticultural Cucurbitaceae crops. | No: a tropical plant. **In WA:** has been eradicated in the past from Broome and other locations in northern WA, has been found in cultivation in Perth, and on sale on Gumtree. It will only become a weed in tropical areas.  | Yes: distinctive. | No |
| rubbervine | *Cryptostegia grandiflora* R.Br. | Prohibited organism | C2 | Partially: an environmental weed that also invades rangelands. Toxic to livestock if eaten. | No: a tropical plant. | Yes | No |
| golden dodder | *Cuscuta campestris* Yunck. | Declared pest | C3 Albany, Cranbrook, Denmark, Plantagenet; C2 rest of state | Yes: a parasitic weed of several horticultural crops and Lucerne. Is a known trade barrier if found in exported commodities. | Yes: **In WA:** present at several sites in WA, but not yet in agricultural or horticultural areas, believed to be coming in as a low-level contaminant of imported horticultural seeds. **In other states:** present and under management in some areas. | Partially: could be confused with other exotic dodders, however, if extension material is tied in with host range it should be identifiable. For example, only if found growing with lucerne or tomato hosts. | No: (eligible for Table 2 list). |
| pencil cactus[[2]](#footnote-2) | *Cylindropuntia leptocaulis* (DC.) F.M.Knuth | Prohibited organism | C1 | Yes: a threat to rangelands in particular and known to impale cattle within its native range; also an environmental threat. | Yes: **In WA:** currently not known to be naturalised in WA. Could be in cultivation. **In other states:** a weed in NSW. A WoNS. | **Partially:** reasonably distinctive, especially bright red fruits, could be confused with some *Euphorbias* in cultivation.  | **No:** (eligible for Table 2 list). |
| jumping cholla | *Cylindropuntia prolifera* (Engelm.) F.M.Knuth | Prohibited organism | C1 | Yes: a serious threat to rangelands in particular as it can invade large areas and impale livestock and workers; also an environmental threat | Yes: **In WA:** one infestation already found in the wheatbelt, will be in cultivation. **In other states:** a weed, especially in SA. A WoNS.  | **Partially:** *C. spinosior* and *C. prolifera* could be confused with each other, and with other *Cylindropuntia* species.  | **No:** (eligible for Table 2 list). |
| snake cactus | *Cylindropuntia spinosior* (Engelm.) F.M.Knuth | Prohibited organism | C1 | Yes: a serious threat to rangelands in particular as it can invade large areas and impale livestock and workers; also an environmental threat. | Yes: **In WA:** not known to be naturalised but found at low levels in cultivation. **In other states:** a weed, especially in Qld. A WoNS. | **Partially:** *C. spinosior* and *C. prolifera* could be confused with each other, and with other *Cylindropuntia* species.  | **No:** (eligible for Table 2 list). |
| leafy elodea, egeria, dense waterweed | *Egeria densa* Planch. | Prohibited organism | C2 | No: an environmental water weed. | Yes: **In WA:** eradicated, has only been found in cultivation. | No: an expert would be needed to confirm identification. | No |
| water hyacinth | *Eichhornia crassipes* (Mart.) Solms | Prohibited organism | C2 | Partially: an environmental water weed that can block agricultural irrigation channels. | Yes: **In WA:** an eradication target. Has considerable records of invasion. | Yes | No: (eligible for Table 2 list). |
| scouring rush, horsetail | *Equisetum hyemale* L. | Prohibited organism | C2 | Yes: perennial weed of irrigated pastures, toxic to livestock. | Yes: **In WA:** has been found in cultivation, two infestations eradicated by DAFWA. **In other states:** all *Equisetum* species targeted for eradication | Yes: distinctive compared to common weeds and garden plants, could be confused with other *Equisetum* species, however all are declared. | Yes (5) |
| three horned bedstraw | *Galium tricornutum* Dandy | Prohibited organism | C2 | Yes: an annual that affects grain crops. Funded for eradication. | Yes: **In WA**: a target for eradication, funded by the Grains, Seeds and Hay Industry Funding Scheme. **In other states:** a weed. | Yes: many *Galium* species look quite similar, and not all are declared. Will need to develop appropriate extension material and only target grain growers, trained DAFWA and industry members (not the general public as they may report *G. murale* which is common in the metro area). | Yes (6) |
| Senegal tea | *Gymnocoronis spilanthoides* DC. | Prohibited organism | C1 | Partially: vigorous aquatic weed that chokes irrigation channels and associated infrastructure. | Yes: **In WA:** eradicated, was in cultivation and in nursery trade (known plants destroyed). **In other states:** a weed and in cultivation. | Yes: distinctive flower, only grows in water. | No |
| hoary cress | *Lepidium draba* L. | Prohibited organism | C2 | Yes: a deep-rooted perennial weed of a range of broad acre and horticultural crops, can taint milk in dairy animals, probably a host for canola pests and diseases | Yes: **In WA:** a target for eradication. Infestation sizes have been reduced. **In other states:** a weed. | Yes: a reasonably distinctive plant. There is only a narrow window for surveillance when it is flowering. | Yes (7) |
| mimosa, giant sensitive plant | *Mimosa pigra* L. | Prohibited organism | C2 | Yes: can form dense monocultures and causes problems for the cattle industry in particular, also an environmental weed of wetlands. | No: a tropical plant. | Yes | No |
| common sensitive plant | *Mimosa pudica* L. | Prohibited organism | C2 | Partially: mostly an environmental weed. | No: a tropical plant, but was once been found as a seedling in the SWLD where sugar cane mulch from Queensland had been used.  | Yes | No  |
| parrot's feather, Brazilian water milfoil | *Myriophyllum aquaticum* (Vell.) Verdc. | Declared pest | C2 | Partially: an environmental water weed, it can block irrigation channels. | Yes: **In WA:** established in drains in the Perth metro area. In cultivation in the SWLD. **In other states:** a weed. | Yes: it has reasonably distinctive foliage, though could be confused with some other *Myriophyllum* species.  | No: (eligible for Table 2 list). |
| tiger pear | *Opuntia aurantiaca* Lindl. | Prohibited organism | C1 | Yes: dangerous to livestock.  | Yes: **In WA:** never been found in WA, unlikely to be common in cultivation because of its sprawling habit. **In other states:** a weed, especially in NSW. A WoNS.  | Partially: distinctive sprawling habit should distinguish it from other *Opuntia* species. | No: (eligible for Table 2 list) |
| - | *Opuntia humifusa* (Raf.) Raf. | Prohibited organism | C1 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** never been found in WA. **In other states:** a weed. A WoNS. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | No: (eligible for Table 2 list). |
| - | *Opuntia leucotricha* DC. | Prohibited organism | C1 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** never been found in WA. **In other states:** a weed. A WoNS. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | No: (eligible for Table 2 list). |
| wheel cactus | *Opuntia robusta* H.L.Wendl. ex Pfeiff. | Prohibited organism | C1 | Yes: a large, robust ‘prickly pear’ type of cactus, ideally suited to much of southern WA, birds spread the seeds. Dangerous to livestock. | Yes: **In WA:** recently found, it is a target for eradication. Highly suited to southern WA. **In other states:** a weed, especially in SA. A WoNS.  | Yes: it is distinctive with circular pads, can look for this all year round. | Yes (8) |
| - | *Opuntia schickendantzii* F.A.C.Weber | Prohibited organism | C1 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** recently found, not common. **In other states:** a weed. A WoNS. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | **No:** (eligible for Table 2 list). |
| - | *Opuntia streptacantha* Lem. | Prohibited organism | C1 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** Never been found in WA. **In other states:** a weed. A WoNS. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | **No:** (eligible for Table 2 list). |
| - | *Opuntia sulphurea* Gillies ex Salm-Dyck | Prohibited organism | C1 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** Never been found in WA. **In other states:** an uncommon weed. A WoNS. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | **No:** (eligible for Table 2 list). |
| branched broomrape | *Orobanche ramosa* L. | Prohibited organism | C1 | Yes: a parasitic weed that can attack several important broad acre and horticultural crops. | Yes: **In WA:** highly suited to WA’s Mediterranean climate. WA grows several important host crops. **In other states:** present in SA, was a nationally funded eradication target, but now under management/containment. | Yes: it could be confused with the widespread and common *O. minor* in the SWLD. Need to prepare suitable extension materials and target extension to only look for *Orobanche* species in susceptible host crops. | Yes (9) |
| parkinsonia | *Parkinsonia aculeata* L. | Declared pest | C1 and C3 | Yes: invades rangelands, also an environmental weed. | Partially: **In WA:** a weed of the Pilbara and Kimberley, it would grow in the SWLD but not likely become a weed. **In other states:** a weed, a WoNS. | Yes | No |
| water lettuce | *Pistia stratiotes* L. | Declared pest | C2 | Partially: an environmental water weed, can block irrigation channels. | Partially: **In WA:** grows in the SWLD but more a weed of tropical and sub-tropical areas. | Yes | No: (eligible for Table 2 list). |
| - | *Praxelis clematidea* (Griseb.) R.M.King & H.Rob | Prohibited organism | C2 | Yes: a weed of rangelands and tropical crops. | No: a tropical weed. | No: similar to other weeds and plants, for example, some *Ageratum* species. | No |
| purple flower devil's claw | *Proboscidea louisianica* (Mill.) Thell. | Prohibited organism | C1 | Yes: causes problems with summer-irrigated horticultural crops, hard seed pods damage machinery and could injure livestock.  | Yes: **In WA:** has been found in Carnarvon, also once in a vegie patch in Denmark. Fruits made into souvenirs have been confiscated from overseas travellers. **In other states:** a weed. | Yes: a very distinctive appearance, plants with somewhat similar fruits are also declared. | Yes (10). |
| mesquite | *Prosopis glandulosa* Torr. x Prosopis velutina Wooton | Declared pest | C2 and C3 | Yes: invades rangelands. | No: **In WA:** a weed of the Pilbara and Kimberley would grow in the SWLD but not likely become a weed. **In other states:** a weed. A WoNS.  | Partially: difficult to distinguish from other *Prosopis* species, but most *Prosopis* are declared. | No: to be included in *V. karroo* extension. |
| mesquite, Neltuma juliflora | *Prosopis juliflora* (Sw.) DC. | Prohibited organism | C2 | Yes: invades rangelands. | No: **In WA:** a weed of the Pilbara and Kimberley would grow in the SWLD but not likely become a weed. **In other states:** a weed. A WoNS. | Partially: difficult to distinguish from other *Prosopis* species, but most *Prosopis* are declared. | No: to be included in *V. karroo* extension. |
| mesquite, kiawe, algaroba | *Prosopis pallida* (Humb. & Bonpl. ex Willd.) Kunth | Prohibited organism | C2 | Yes: invades rangelands. | No: **In WA:** a weed of the Pilbara and Kimberley would grow in the SWLD but not likely become a weed. **In other states:** a weed. A WoNS. | Partially: difficult to distinguish from other *Prosopis* species, but most *Prosopis* are declared. | No: to be included in *V. karroo* extension. |
| mesquite, kiawe, algaroba | *Prosopis pallida* (Humb. & Bonpl. ex Willd.) Kunth | Prohibited organism | C2 | Yes: invades rangelands. | No: **In WA:** a weed of the Pilbara and Kimberley would grow in the SWLD but not likely become a weed. **In other states:** a weed. A WoNS. | Partially: difficult to distinguish from other *Prosopis* species, but most *Prosopis* are declared. | No: to be included in *V. karroo* extension. |
| creeping knapweed | *Rhaponticum repens* (L.) Hidalgo | Prohibited organism | C1 | Yes: a deep-rooted perennial weed of a range of broad acre and horticultural crops and pastures, probably toxic to livestock, contaminates grain. | Yes: **In WA:** found once, in early 1990s, near Ravensthorpe and eradicated. **In other states:** a weed. | Yes: reasonable distinctive, any other similar looking knapweed species found in WA would be of interest. | Yes (11). |
| blackberry | *Rubus anglocandicans* A.Newton | Declared pest | C1 and C2 and C3 | Yes: invades pastures, also a weed of forestry and an environmental weed (especially along waterways).  | Yes: **In WA:** the most common and widespread of the blackberries. **In other states:** a weed. A WoNS.  | No: difficult to distinguish from other *Rubus* species. | No |
| Early blackberryAmerican blackberry | *Rubus laudatus* A.Berger | Declared pest | C1 and C2 and C3 | Partially: mostly an environmental weed, typical blackberry, invades pastures, also a weed of forestry and an environmental weed especially along waterways. | Yes: **In WA:** present, only an eradication target in certain areas (C1 and C2 blackberry buffer zone). **In other states:** a weed. | Yes: flowers significantly earlier than other *Rubus* species. It is bright green on both sides of the leaf whereas other *Rubus* species are dark green on the upper surface and white under the leaf. | **No:** (eligible for Table 2 list). |
| keriberry, Himalayan blackberry | *Rubus rugosus* Sm. | Declared pest | C1 and C2 and C3 | Yes: invades pastures, also a weed of forestry and an environmental weed especially along waterways. | Yes | No: difficult to distinguish from other *Rubus* species. | No |
| elmleaf blackberry | *Rubus ulmifolius* Schott | Declared pest | C1 and C2 and C3 | Yes: invades pastures, also a weed of forestry and an environmental weed especially along waterways. | Yes | No: difficult to distinguish from other *Rubus* species. | No |
| salvinia | *Salvinia molesta* D.S.Mitch. | Prohibited organism | C2 | Partially: an environmental water weed. It can block irrigation channels. | Yes: **In WA:** present, in cultivation. **In other states:** a weed. A WoNS.  | Yes: very easy to identify. | No |
| ragwort | *Senecio jacobaea* L. | Prohibited organism | C1 and C2 | Yes: toxic weed of pastures. | Yes: **In WA:** has a very limited distribution, already targeted for eradication. **In other states:** a weed. | Yes: difficult to distinguish from other common, widespread *Senecio* species. Need to have appropriate extension material developed and target surveillance to high rainfall areas. | Yes (12) |
| gorse | *Ulex europaeus* L. | Declared pest | C3: Albany, Cranbrook, Denmark, Plantagenet; C2: rest of state | Yes: invades pastures, harbours rabbits and foxes, and promotes fire.  | Yes: only suitable for the very south of the SWLD. **In WA:** present in Albany, Cranbrook, Denmark and Plantagenet. **In other states:** a weed. A WoNS.  | Yes: distinctive, most likely to be found in areas where it’s only a C3. Only target south coast and far southwest, wouldn’t target Geraldton or Northampton. | Yes (13) |
| karroo thorn acacia | *Vachellia karroo* (Hayne) Banfi & Galasso | Prohibited organism | C1 | Yes: particularly affects rangelands and grasslands. | Yes: **In WA:** suited to whole of southern WA. It has been found in cultivation at several locations and targeted for eradication. **In other states:** found in cultivation in other states and targeted for eradication. | Yes: distinctive, with long pale thorns (any similar looking plants are also C1 or C2 and of interest). It can be identified all year round, most *Vachellia* species are declared and would be of interest.  | Yes (14) |
| scented thorn, prickly acacia | *Vachellia nilotica* (L.) P.J.H.Hurter & Mabb. (previously *Acacia nilotica* (L.) Willd. Ex Delile) | Prohibited organism | C2 | Yes: particularly affects rangelands and grasslands. | No: **In WA:** a tropical weed, would grow in the SWLD but not likely become a weed. **In other states:** a weed. A WoNS. | Yes: has distinctive seedpods from other *Vachellia* species, but most *Vachellia* are declared. | No |
| Bathust burr | *Xanthium spinosum* L. | Declared pest | C2 and C3 | Yes: burrs contaminate wool. Plants are toxic to livestock, especially seedlings.  | Yes: **In WA:** mainly found on the Goldfields, occasionally found in the SWLD. **In other states:** a weed. | Yes: very distinctive plant with 3-pronged straw-coloured spines, burrs are also distinctive. | Yes (15) |
| Noogoora burr | *Xanthium strumarium* L. | Declared pest | C2 and C3 | Yes: burrs contaminate wool. Plants are toxic to livestock, especially seedlings.  | No: **In WA:** mainly found in the Kimberley, rarely found in the SWLD, unlikely to become a weed in the SWLD. **In other states:** a weed. | Yes: a distinctive plant, especially when the burrs form. | No: to be included in *X. spinosum* extension. |

# Appendix 2: Selection criteria for other surveillance targets

To be eligible to go on the list for the general public to select as a surveillance target the weed will generally be:

1. a declared pest in category 3 (management) under the BAM Act or a C1 or C2 declared pest not selected as a priority surveillance target in Table 1.
2. an agricultural weed

Weeds that have an adverse effect on agricultural production or systems.

1. likely to survive in the South West Land Division of WA without human intervention

The South West Land Division encompasses the wheat belt and includes the cities of Perth, Albany, Bunbury, Geraldton and Mandurah.

1. able to be easily identified by the general public or be able to have extension material developed to help the general public identify it.

Plants that require an expert, a specialist test and/or are difficult to identify will not be chosen as a surveillance target.

The criteria used to select organisms to go on the list for the general public to select as a surveillance target are in Table 2. Declared plants able to partially meet selection criteria 2, 3 or 4 were considered eligible to go on the list.

To simplify the final list for the general public to select from, species belonging to the same genus were counted as a single organism. For example, *Austrocylindropuntia cylindrica* and *Austrocylindropuntia subulata* were put on the final list as *Austrocylindropuntia* species.

Community, industry, biosecurity groups and grower groups selected five other declared plant surveillance targets through a survey.

The survey was open from 23 March 2015 to 10 April 2015 and had 133 community members respond. The five most popular declared plants were selected for inclusion in the project (Figure 2).

## Table 2 Other possible surveillance targets.

The eligibility process for plants to be included in the list for community selected surveillance targets.

| Common name | Scientific name | Declared pest or prohibited | BAM Category | Does it impact agriculture ? | Is it likely to survive in the south west land division (SWLD)? | Is it easy for the general public to identify it? | On the list for the general public to select from |
| --- | --- | --- | --- | --- | --- | --- | --- |
| camelthorn | *Alhagi maurorum* Medik. | Declared pest | C3 | Yes: invades pastures and is not palatable to animals. | No: **In WA:** not seen since 1960s in WA goldfields. | Yes | No |
| alligator weed | *Alternanthera philoxeroides* (Mart.) Griseb. | Prohibited organism | C2 | Partially: an environmental water weed. Toxic to livestock if eaten. | Yes: to date it has only ever been found cultivated in private backyards, not naturalised. **In WA:** eradicated. **In other states:** present and a weed of national significance (WoNS). | Yes: but unless they go into private backyards they are not likely to find it. | Yes (1) |
| Mexican poppy | *Argemone ochroleuca* Sweet | Declared pest | C3 | Yes: an environmental weed and a weed of crops and pastures. Toxic seeds can contaminate produce.  | Yes: **In WA:** mainly found in Gascoyne and Pilbara, occasionally found in SWLD. | Partially: can be confused with a thistle if not flowering, very distinctive when flowering or when it forms seed pods.  | Yes (2) |
| bridal creeper | *Asparagus asparagoides* (L.) Druce | Declared pest | C3 | No: an environmental weed. | Yes: **In WA**: widespread though has diminished somewhat since biological control agents were released. In other states: a weed. WoNS.  | Yes | No |
| cane cactus | *Austrocylindropuntia cylindrica* (Juss. ex Lam.) Backeb. | Declared pest | C3 | Partially: not as invasive as *Cylindropuntia* species. | Yes: not known to be naturalised but likely to be in cultivation.  | Partially: distinctive branching stems and red flowers. | Yes (3): as *Austrocylindropuntia* species.  |
| - | *Austrocylindropuntia subulata* (Muehlenpf.) Backeb. | Declared pest | C3 | Partially: not as invasive as *Cylindropuntia* species. | Yes: not known to be naturalised, but previously one site had established plants resulting from dumped garden waste.  | Partially: looks more like a succulent than a cacti. | Yes (3): as *Austrocylindropuntia* species. |
| African thistle | *Berkheya rigida* (Thunb.) Bol. & Wolley-Dod ex Levyns | Declared pest | C3 | Partially: mainly causes environmental problems, especially in coastal areas. Can invade sandy pastures.  | Yes: **In WA:** mostly on DPaW estate in the Hamelin Bay area. In other states: a weed.  | Yes | Yes (4) |
| rubber bush, calotropis | *Calotropis procera* (Aiton) W.T.Aiton | Declared pest | C3 | Partially: can invade pastures and rangelands, mainly a weed of inland water courses and disturbed sites such as roadsides.  | No: suited to the Kimberley and Pilbara. | Yes: unusual large greyish leaves.  | No |
| saffron thistle | *Carthamus lanatus* L. | Declared pest | C3 | Yes: weed of pastures and crops. | Yes: **In WA:** fairly widespread. | Yes | Yes (5): as *Carthamus* species. |
| glaucous star thistle | *Carthamus leucocaulos* Sm. | Declared pest | C3 | Yes: crop and pasture weed. | Yes: **In WA:** has been in WA a long time and not become widespread. | Partially: Could easily be confused with *Carthamus lanatus* which is much more widespread. Easy to identify when it is flowering. | Yes (5): as *Carthamus* species. |
| field bindweed, bindweed,  | *Convolvulus arvensis* L. | Declared pest | C3 | Yes: nuisance weed in horticulture where it competes with vines and fruit trees | Yes: **In WA:** present but not common. | Partially: there is a native Convolvulus that looks similar (*C. erubescens*). | Yes (6) |
| rubbervine, Madagascar rubbervine | *Cryptostegia madagascariensis* Bojer ex Decne. | Declared pest | C3 | Partially: mostly an environmental weed, weed of pastures. | No: a tropical plant. **In WA:** unlikely to be found in SWLD, found as a weed and in cultivation in northern WA. | Partially: is confused with *C. grandiflora*, which is a target for eradication | No |
| golden dodder | *Cuscuta campestris* Yunck. | Declared pest | C3 Albany, Cranbrook, Denmark, Plantagenet; C2 rest of state | Yes: a parasitic weed of several horticultural crops and Lucerne. Is a known trade barrier if found in exported commodities. | Yes: **In WA:** present at several sites in WA, but not yet in agricultural or horticultural areas, believed to be coming in as a low-level contaminant of imported horticultural seeds. **In other states:** present and under management in some areas | Partially: could be confused with other exotic dodders, however, if extension material is tied in with host range it should be identifiable. For example, only if found growing with lucerne or tomato hosts. | Yes (7) |
| coral cactus, boxing glove cactus | *Cylindropuntia fulgida* (Engelm.) F.M.Knuth | Declared pest | C3 | Yes: weed of rangelands in particular, also an environmental weed. | Yes: In WA: widespread Goldfields, Pilbara and Gascoyne, only in cultivation in the wheatbelt. In other states: a weed, WoNS. | Partially: the boxing glove form is relatively easy to distinguish | Yes (8): as *Cylindropuntia* species. |
| devil’s rope, rope pear | *Cylindropuntia imbricata* (Haw.) F.M.Knuth | Declared pest | C3 | Yes: an environmental weed. | Yes: **In WA:** already in the Wheatbelt, as well as Goldfields, Pilbara and Gascoyne. In other states: a weed, WoNS. | Partially: large old plants could be identified, seedlings and other small plants could be confused with other *Cylindropuntia* species.  | Yes (8): as *Cylindropuntia* species. |
| - | *Cylindropuntia kleiniae* (DC.) F.M.Knuth | Declared pest | C3 | Partially: unknown, it has such a limited distribution it’s hard to know. | Yes: currently 2 infestations in WA, 1 on the Goldfields and 1 in the Wheatbelt. In other states: a weed, WoNS. | Partially: distinctive as a *Cylindropuntia* species | Yes (8): as *Cylindropuntia* species. |
| pencil cactus | *Cylindropuntia leptocaulis* (DC.) F.M.Knuth | Prohibited organism | C1 | Yes: a threat to rangelands in particular and known to impale cattle within its native range; also an environmental threat. | Yes: **In WA:** currently not known to be naturalised in WA. Could be in cultivation. **In other states:** a weed in NSW. A WoNS. | Partially: reasonably distinctive, especially bright red fruits. Could be confused with some Euphorbias in cultivation.  | Yes (8): as *Cylindropuntia* species. |
| jumping cholla | *Cylindropuntia prolifera* (Engelm.) F.M.Knuth | Prohibited organism | C1 | Yes: a serious threat to rangelands in particular as it can invade large areas and impale livestock and workers; also an environmental threat | Yes: **In WA:** one infestation already found in the wheatbelt, will be in cultivation. **In other states:** a weed, especially in SA. A WoNS.  | Partially: *C. prolifera* and *C. spinosior* could be confused with each other, and with other *Cylindropuntia* species.  | Yes (8): as *Cylindropuntia* species. |
| Hudson pear (white-spined) | *Cylindropuntia rosea* (DC.) Backeb. | Declared pest | C3 | Yes: weed of rangelands in particular, also an environmental weed. | Yes: already established in the Goldfields, likely to establish in the Wheatbelt | Partially: with their long spines *C. rosea* and *C. tunicata* are distinctive, but could be confused with each other. | Yes (8): as *Cylindropuntia* species. |
| snake cactus | *Cylindropuntia spinosior* (Engelm.) F.M.Knuth | Prohibited organism | C1 | Yes: a serious threat to rangelands in particular as it can invade large areas and impale livestock and workers; also an environmental threat. | Yes: **In WA:** not known to be naturalised but found at low levels in cultivation. **In other states:** a weed, especially in Qld. A WoNS. | Partially: *C. spinosior* and *C. prolifera* could be confused with each other, and with other *Cylindropuntia* species.  | Yes (8): as *Cylindropuntia* species. |
| Hudson pear (brown-spined) | *Cylindropuntia tunicata* (Lehm.) F.M.Knuth | Declared pest | C3 | Yes: weed of rangelands in particular, also an environmental weed. | Yes: already established in the Goldfields, likely to establish in the Wheatbelt | Partially: with their long spines *C. tunicata* and *C. rosea* are distinctive, but could be confused with each other. | Yes (8): as *Cylindropuntia* species. |
| Hudson pear (brown-spined) | *Cylindropuntia tunicata* (Lehm.) F.M.Knuth | Declared pest | C3 | Yes: weed of rangelands in particular, also an environmental weed. | Yes: already established in the Goldfields, likely to establish in the Wheatbelt | Partially: with their long spines *C. tunicata* and *C. rosea* are distinctive, but could be confused with each other. | Yes (8): as *Cylindropuntia* species. |
| wild artichoke, cardoon, artichoke thistle | *Cynara cardunculus* L. | Declared pest | C3 | Yes: weed of pastures, spiny, low nutritional value. | Yes | Partially: a conspicuous plant, however, could be confused with edible artichoke, would need to have appropriate extension material developed. | Yes (9) |
| longspine thornapple, fierce thornapple | *Datura ferox* L. | Declared pest | C3 | Yes: a host to pests and diseases. Toxic to livestock. | Yes: **In WA:** not widespread. | Yes: easily identified. | Yes (10): as *Datura* species. |
| downy thornapple | *Datura inoxia* Mill. | Declared pest | C3 | Yes: cropping weed, seed is difficult to separate from sorghum at harvest, also a host to pests and diseases. Toxic to livestock. | Yes: **In WA:** not widespread. | Yes: easily identified. | Yes (10): as *Datura* species. |
| thornapple | *Datura leichhardtii* F. Muell. ex Benth. | Declared pest | C3 | Yes: a host to pests and diseases. Toxic to livestock. | No: a tropical plant. **In WA**: most likely to be found in the Pilbara. | Yes: easily identified. | No |
| hoary thornapple, Hindu thornapple | *Datura metel* L. | Declared pest | C3 | Yes: a host to pests and diseases. Toxic to livestock. | Yes: **In WA:** not widespread. | Yes: easily identified. | Yes (10): as *Datura* species. |
| thorn apple | *Datura stramonium* L. | Declared pest | C3 | Yes: a host to pests and diseases. Toxic to livestock. | Yes: **In WA:** not widespread. | Yes: easily identified. | Yes (10): as *Datura* species. |
| hairy thornapple | *Datura wrightii* Regel | Declared pest | C3 | Yes: a host to pests and diseases. Toxic to livestock. | Yes: **In WA:** not widespread. | Yes: easily identified. | Yes (10): as *Datura* species. |
| Paterson's curse | *Echium plantagineum* L. | Declared pest | C3 for parts of the SWLD | Yes: pasture weed, toxic to horses, although sheep can be used to manage it. | Yes: **In WA:** widespread, common in the Swan and Avon Valleys. Mediterranean native highly suited to the SWLD | Yes: very easy to identify when in flower. | Yes (11) |
| water hyacinth | *Eichhornia crassipes* (Mart.) Solms | Prohibited organism | C2 | Partially: an environmental water weed that can block agricultural irrigation channels. | Yes: **In WA:** an eradication target. Has considerable records of invasion. | Yes: easy to identify, especially when in flower. | Yes (12) |
| three corner jack, spiny emex, doublegee | *Emex australis* Steinh. | Declared pest | C3 for parts of the SWLD | Yes: pasture weed, injures livestock. | Yes | Yes: Caltrop and doublegee often confused by the public, though the plants look nothing alike. Would need to develop appropriate extension material. | Yes (13) as *Emex* species. |
| lesser jack, doublegee | *Emex spinosa* (L.) Campd. | Declared pest | C3 | Yes: pasture weed, injures livestock. | Yes: **In WA:** possibly has a very restricted distribution in the SWLD. It is very difficult to find. | Yes: Caltrop and doublegee often confused by the public, though the plants look nothing alike. Would need to develop appropriate extension material. (*E. australis* is spinier than *E. spinosa*) | Yes (13) as *Emex* species. |
| narrow leaf cotton bush | *Gomphocarpus fruticosus* (L.) W.T.Aiton | Declared pest | C3 for parts of the SWLD | Yes: toxic to livestock, can displace useful pasture plants. | Yes: **In WA:** common and widespread particularly along the Darling Scarp, South African native highly suited to the SWLD. | Yes: large conspicuous plants, easy to identify, especially when fruits form. | Yes (14) |
| heliotrope, common heliotrope | *Heliotropium europaeum* L. | Declared pest | C3 | Yes: pasture weed, predisposes stock to chronic copper poisoning. | Yes: **In WA:** fairly widespread, found after summer rain. | Partially: can be confused with the native *H. curassavicum.* | Yes (15) |
| water pennywort, hydrocotyle | *Hydrocotyle ranunculoides* L. f. | Declared pest | C3 | No: an environmental weed, a water weed. | Yes: well suited to SWLD. | Partially: can be confused with other *Hydrocotyle* species and the native *Centella asiatica.* | No |
| St John's wort, klamathweed | *Hypericum perforatum* L. | Declared pest | C3 for parts of the SWLD | Yes: toxic to livestock. | Yes: **In WA:** found in the cooler/higher rainfall areas of the south of the SWLD. | Yes: easy to identify when in flower. | Yes (16) |
| cotton-leaf physic-nut, bellyache bush | *Jatropha gossypiifolia* L. | Declared pest | C3 | Yes | No: suited to the Pilbara and Kimberley. | Yes: reasonable distinctive. | No |
| lantana, common lantana | *Lantana camara* L. | Declared pest | C3 | No: an environmental weed in the SWLD (a weed of rangelands in the north of WA) | Yes  | Yes | No |
| horehound, common horehound | *Marrubium vulgare* L. | Declared pest | C3 | Yes: contaminates wool. | Partially: **In WA:** widespread in goldfields, not as common in the SWLD. | Yes: has distinctive crinkly grey leaves and scent. | Yes (17) |
| one-leaf cape tulip | *Moraea flaccida* (Sweet) Steud. | Declared pest | C3 for parts of the SWLD | Yes: toxic to livestock. | Yes: South African native highly suited to the SWLD. | Yes: very easy to identify when in flower | Yes (18) as *Moraea* species. |
| two-leaf cape tulip | *Moraea miniata* Andrews | Declared pest | C3 for parts of the SWLD | Yes: toxic to livestock. | Yes: South African native highly suited to the SWLD. | Yes: very easy to identify when in flower | Yes (18) as *Moraea* species.  |
| parrot's feather, Brazilian water milfoil | *Myriophyllum aquaticum* (Vell.) Verdc. | Declared pest | C2 | Partially: an environmental water weed, it can block irrigation channels. | Yes: **In WA:** established in drains in the Perth metro area. In cultivation in the SWLD. **In other states:** a weed. | Yes: it has reasonably distinctive foliage, though could be confused with some other *Myriophyllum* species.  | Yes (19) |
| stemless thistle | *Onopordum acaulon* L. | Declared pest | C3 | Yes: weed of pastures. | Yes: **In WA:** not very common. | Yes: easy to distinguish from other thistles, good target for grain growers/sheep farmers. | Yes (20) |
| Riverina pear | *Opuntia elata* Salm-Dyck | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** not widespread. | Partially: could be confused with other *Opuntia* species, but mature plants are usually spineless, with purple areoles and purple margins. | Yes (21) as *Opuntia* species. Note: all *Opuntia* will have some extension material developed under *O. robusta.* |
| - | *Opuntia elatior* Mill. | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** not widespread. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species un less flowering (has bright orange flowers). | Yes (21) as *Opuntia* species.  |
| Engelmann’s pear, Engelmann’s prickly pear | *Opuntia engelmannii* Salm-Dyck ex Engelm. | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** not widespread. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | Yes (21) as *Opuntia* species. |
| Engelmann’s pear, Engelmann’s prickly pear | *Opuntia engelmannii* Salm-Dyck ex Engelm. | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing | Yes: **In WA:** not widespread. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. Large specimens could possibly be confused with wheel cactus (O. robusta).  | Yes (21) as *Opuntia* species. |
| prickly pear, Indian fig | *Opuntia ficus-indica* (L.) Mill. (Opuntia vulgaris Mill.) | Declared pest | C3 | Yes: it harbours Mediterranean fruitfly which can build up and spread to commercial orchards. can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** extremely widespread (both in cultivation and as a weed, cultivated for its fruit). | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | Yes (21) as *Opuntia* species. |
| teddy bear cactus, bunny ears, golden bristle cactus | *Opuntia microdasys* (Lehm.) Pfeiff. | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** common in cultivation, was marketed as teddy bear cactus. | Partially: easy to recognise as an *Opuntia* species, distinctive because of its clumps of glochids (usually yellow/gold) and lack of spines.  | Yes (21) as *Opuntia* species. |
| drooping tree pear | *Opuntia monacantha* Haw. | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Partially: **In WA:** have persisted in tips/rubbish dumps when discarded. | Partially: easy to recognise as an *Opuntia* species but not necessarily easy to tell apart from other *Opuntia* species. Large, mature plants should be identifiable.  | Yes (21) as *Opuntia* species. |
| - | *Opuntia polyacantha* Haw. | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** already found in the Wheatbelt, not common.  | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | Yes (21) as *Opuntia* species.  |
| - | *Opuntia puberula* Hort. Vindob. ex Pfeiff. | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** already found in the wheatbelt.  | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | Yes (21) as *Opuntia* species. |
| - | *Opuntia schickendantzii* F.A.C.Weber | Prohibited organism | C1 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** already found in the wheatbelt, not common.  | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | Yes (21) as *Opuntia* species. |
| - | *Opuntia streptacantha* Lem. | Prohibited organism | C1 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. Robust and spiny, could be confused with *O. engelmannii*.  | Yes (21) as *Opuntia* species. |
| erect prickly pear, common prickly pear | *Opuntia stricta* (Haw.) Haw. | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** a few large infestations in the SWLD. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | Yes (21) as *Opuntia* species. |
| - | *Opuntia sulphurea* Gillies ex Salm-Dyck | Prohibited organism | C1 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing. | Yes: **In WA:** Never been found in WA. **In other states:** an uncommon weed. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. | Yes (21) as *Opuntia* species. |
| velvet tree pear | *Opuntia tomentosa* Salm-Dyck | Declared pest | C3 | Yes: can injure livestock, contaminate wool and hides and reduce or prevent grazing | Yes; **In WA:** already at several locations. **In other states:** a weed. WoNS. | Partially: easy to recognise as an *Opuntia* species but not easy to tell apart from other *Opuntia* species. Large, mature plants should be identifiable.  | Yes (21) as *Opuntia* species. |
| water lettuce | *Pistia stratiotes* L. | Declared pest | C2 | Partially: mostly an environmental water weed, can block irrigation channels. | Partially: **In WA:** grows in the SWLD but more a weed of tropical and sub-tropical areas. | Yes: distinctive water plant | Yes (22) |
| early blackberryAmerican blackberry | *Rubus laudatus* A.Berger | Declared pest | C1 and C2 and C3 | Partially: mostly an environmental weed, typical blackberry, invades pastures, also a weed of forestry and an environmental weed especially along waterways. | Yes: **In WA:** present, only an eradication target in certain areas (C1 and C2 blackberry buffer zone). **In other states:** a weed. | Yes: flowers significantly earlier than other *Rubus* species. It is bright green on both sides of the leaf whereas other *Rubus* species are dark green on the upper surface and white under the leaf. | Yes (23) |
| sagittaria, delta arrowhead | *Sagittaria platyphylla* (Engelm.) J.G.Sm. | Declared pest | C3 | Partially: mostly a water weed, a weed of irrigation channels and paddy rice.  | Yes: **In WA:** in Albany and Canning river. There are very few irrigation channels in the SWLD at risk from this weed. | Yes | Yes (24) |
| white willow | *Salix alba* L. | Declared pest | C3 | No: an environmental weed. | Yes | Partially: could identify to genus but not necessarily species. | No |
| pussy willow, great sallow, goat willow | *Salix caprea* L. | Declared pest | C3 | No: an environmental weed. | Yes | Partially: could identify to genus but not necessarily species. | No |
| pencil willow | *Salix chilensis* Molina | Declared pest | C3 | No: an environmental weed. | Yes | Partially: could identify to genus but not necessarily species. | No |
| grey sallow | *Salix cinerea* L. | Declared pest | C3 | No: an environmental weed. | Yes | Partially: could identify to genus but not necessarily species. | No |
| twisted willow, tortured willow, corkscrew willow | *Salix matsudana* Koidz. | Declared pest | C3 | No: an environmental weed. | Yes | Partially: could identify to genus but not necessarily species. | No |
| common osier, basket willow | *Salix viminalis* L. | Declared pest | C3 | No: an environmental weed. | Yes | Partially: could identify to genus but not necessarily species. | No |
| golden weeping willow | *Salix* x *chrysocoma* Dode | Declared pest | C3 | No: an environmental weed. | Yes | Partially: could identify to genus but not necessarily species. | No |
| mintweed | *Salvia reflexa* Hornem. | Declared pest | C3 | Yes: crop weed (cotton) and pasture weed, potentially toxic to sheep and cattle. Seed can contaminate grain.  | Partially: **In WA:** more likely to be found in the goldfields rather than the SWLD. | No: could be confused with other weeds in the mint family. | No |
| candle bush | *Senna alata* (L.) Roxb. | Declared pest | C3 | Partially: mostly an environmental weed, can impede waterways. Suspected to be toxic to livestock. | No: suited to the Kimberley. | Partially: could probably get confused with other *Senna* species. | No |
| sicklepod | *Senna obtusifolia* (L.) H.S.Irwin & Barneby | Declared pest | C3 | Yes: invades pastures, roadsides, fence lines creek banks and waste areas. Potential to be a major crop weed within 2-3 growing seasons. | No: suited to the Kimberley. | Partially: could probably get confused with other *Senna* species. | No |
| sida | *Sida acuta* Burm. f. | Declared pest | C3 | Yes: environmental and pasture weed. | No: suited to the Kimberley. | Partially: could probably get confused with other native and exotic *Sida* species. | No |
| sida | *Sida cordifolia* L. | Declared pest | C3 | Yes: environmental and pasture weed. | No: suited to the Kimberley. | Partially: could probably get confused with other native and exotic *Sida* species. | No |
| variegated thistle | *Silybum marianum* (L.) Gaertn. | Declared pest | C3 | Yes: pasture weed, toxic to stock. | Yes | Yes: could be confused with other pink-flowered thistles. However, easily identified as this is the only one with variegated foliage. | Yes (25) |
| silverleaf nightshade | *Solanum elaeagnifolium* Cav. | Declared pest | C3 | Yes: high impact to cropping in other parts of Australia and in other countries, but this is not reported from WA. | Yes | Partially: could be confused with some native *Solanum* species. Berries and foliage are distinctive. Would need to have extension material developed. | Yes (26) as *Solanum* species. |
| apple of Sodom | *Solanum linnaeanum* Hepper & P.-M.L.Jaeger | Declared pest | C3 for parts of the SWLD | Yes: pasture weed, toxic to livestock if eaten. | Yes | Yes: Conspicuous large, prickly bush. | Yes (26) as *Solanum* species. |
| athel pine, tamarisk | *Tamarix aphylla* (L.) H.Karst. | Declared pest | C3 | No: an environmental weed. | Yes | No: *Tamarix* species require expert knowledge to differentiate. Several different species of Tamarix are in cultivation. | No |
| arum lily | *Zantedeschia aethiopica* (L.) Spreng. | Declared pest | C3 Whole of State | Yes: poisonous and invades pastures. Few records of poisoning. | Yes: **In WA:** South African native highly suited to the SWLD. WA probably has the largest infestations in the world. | Yes | Yes (27) |
| Chinese apple | *Ziziphus mauritiana* Lam. | Declared pest | C3 | Yes: impenetrable thickets hamper stock management, reduced pasture production and accessibility. | No: probably would survive in cultivation but not become a widespread weed. | Yes | No |

## cotton bush 66.17%; arum lily 51.13%; Paterson's curse 48.12%; Emex spp. 45.11%; cape tulip, and early blackberry 42.86%; saffron/glaucous star thistle 25.56%; variegated thistle 21.8%; African thistle 13.53%; heliotrope 12.78%; water hyacinth 12.03%; thornapples, St John's wort and stemless thistle 7.52%; goldern dodder, Cylintropuntia, and Opuntia species 6.77%; Mexican poppy, and artichoke thistle 5.26%; field bindweed 3.76%; Austrocylindropuntia 3.01%, sagittaria 2.26%; horehound 1.5%; alligator weed, parrot's feather, and water lettuce 0.75%.

Figure 2 Popularity vote results for 27 declared plants that 133 industry and community participants wanted to include in the weed surveillance project.

1. High priority means DAFWAs high priority community surveillance targets for the South West Land Division. They are different to the high priority response targets for DAFWA. [↑](#footnote-ref-1)
2. Pencil is used in the common name of other plants, for example, *Euphorbia tirucalli* is known by several common names, including pencil tree (and naked lady cactus, even though it’s not a cactus). *C. leptocaulis* is known as tasajillo and Christmas cactus in its native range. We need to be very careful and clear in any communication to avoid being inundated with reports of common garden plants and other non-declared species. [↑](#footnote-ref-2)