



Department of
Primary Industries and
Regional Development

Digital Library

Biosecurity bulletins

Biosecurity, pests, weeds and diseases
research

1-7-2023

Skeleton weed in Western Australia: Management guide

Department of Primary Industries and Regional Development, Western Australia

Follow this and additional works at: https://library.dpird.wa.gov.au/bs_bulletins



Part of the [Agriculture Commons](#), and the [Plant Sciences Commons](#)

Recommended Citation

Department of Primary Industries and Regional Development, Western Australia. (2023), *Skeleton weed in Western Australia: Management guide*. Department of Primary Industries and Regional Development, Perth, Western Australia. Bulletin 4930.

This bulletin is brought to you for free and open access by the Biosecurity, pests, weeds and diseases research at Digital Library. It has been accepted for inclusion in Biosecurity bulletins by an authorized administrator of Digital Library. For more information, please contact library@dpird.wa.gov.au.



Department of
Primary Industries and
Regional Development



Grains, Seeds and Hay
Industry Funding Scheme

Skeleton weed in Western Australia

Management guide

Early detection is the best prevention



**This control program booklet section of the
Skeleton Weed Management Guide is reviewed annually.**

Bulletin 4930 - July 2023

ISSN 1833-7236

ABN: 18 951 343 745

Disclaimer

The information contained in this publication is provided for general information purposes only. The information in this publication has been written for Western Australian conditions and may not be applicable or suitable for use in states other than Western Australia.

Minister for Agriculture and Food, the Director General of the Department of Primary Industries and Regional Development, Western Australia, and their respective officers, employees and agents shall not be liable, in negligence or otherwise, to any person for any loss, liability or damage arising out of a person applying the information in this publication to a location other than Western Australia.

Users of agricultural (or veterinary) chemical products must always read the label and any permit before using the product, and strictly comply with the directions on the label and the conditions of any permit. Users are not absolved from compliance with the directions on the label or the conditions of the permit by reason of any statement made or not made in this publication.

Copyright © State of Western Australia (Department of Primary Industries and Regional Development) 2023

Copies of this document are available in alternative formats upon request.

Department of Primary Industries and Regional Development
+61 1300 374 731 | enquiries@dpird.wa.gov.au | dpird.wa.gov.au

Contents

Introduction	1
Declaration categories.....	1
Industry Funding Scheme (grains, seeds and hay)	2
The Skeleton Weed Program.....	4
Our objective	5
How we help	5
The Landholder Assistance Program	5
What does skeleton weed look like?	6
Identification guide.....	6
Skeleton weed stem leaves	8
Skeleton weed rosettes	9
Skeleton weed root system.....	10
Quick glance of skeleton weed features	11
Reporting and identification	12
Pest and Disease Information Service	13
Biosecurity officers	13
Local Action Groups	14
Where is skeleton weed found in WA?	16
Distribution.....	16
Plants confused with skeleton weed	17
Targeted surveillance program.....	20
Searching infested paddocks	22
Which search method to use?	24
Action checklist for infested properties	25
Paddock codes explained.....	26
Search protocols	28
How to do a full or surveillance search.....	29
How to mark search 'squares'	30
Recording search results (paddock records)	32
Landholder responsibilities	34
Non-compliance	36
Direction notices	36
Pest control notices	36



Introduction

Skeleton weed can reduce crop yields by competing for moisture and nutrients (mainly nitrogen).

This guide helps you manage and eradicate skeleton weed infestations on your property, and helps to stop the spread across WA.

Without the coordinated program aimed at controlling the spread, skeleton weed would now be much more abundant and widely established throughout cereal growing areas.

Declaration categories

Skeleton weed is a declared pest under section 22(2) of the *Biosecurity and Agriculture Management Act 2007* which is currently under review. Refer to the relevant management implications below.

Category	Search assistance	Comments
C2	Whole of the state except Narembeen and Yilgarn	<ul style="list-style-type: none">• Eradicate infestations; destroy plants and prevent propagation each year, until no plants remain.• Prevent the spread of seed or plant parts.• Summer search is required.• Winter control is required.
C3	Narembeen and Yilgarn	<ul style="list-style-type: none">• Manage infestations to prevent the spread of seed or plant parts.• Summer search is required.• Treat plants to prevent seed set.• Winter control is required to receive search assistance.

Industry Funding Scheme (grains, seeds and hay)

The Grains, Seeds and Hay Industry Funding Scheme is overseen by a seven-member Industry Management Committee.

These 2 groups are comprised of producers and others with an interest in the industry. They meet in person, quarterly. Its purpose is to support a profitable, viable and sustainable industry by maintaining an industry-driven funding process for the effective mitigation of biosecurity risks to the WA grain, seed and hay industry.

The Industry Management Committee approves funding for Department operations and Local Action Groups (LAGs) to deliver operational activities in the Operational Program. LAG activities support and complement the work done by DPIRD.

Learn more at [**agric.wa.gov.au/IFS**](http://agric.wa.gov.au/IFS)



The Skeleton Weed Program

This program is a coordinated approach to manage skeleton weed in Western Australia. It is delivered by DPIRD under arrangement with the Industry Management Committee.

The committee acts under the Biosecurity and Agriculture Management Industry Funding Schemes (Grains) Regulations 2010 to manage prioritised pests affecting the grains industry.

Assistance provided under the program is only available **if you contribute to the scheme through the sale of grain, seed or hay. If you do not fall under the scheme** but still have skeleton weed on your property, **you will still need to meet your obligation** under the *Biosecurity and Agriculture Management Act 2007*.

DPIRD biosecurity staff and LAGs are responsible for the delivery of the program in affected areas, including surveillance, audits, managing infested properties and a reference point for infested landholders.

Learn more at agric.wa.gov.au/IFS



Our objective

DPIRD's role is to assist Western Australian landholders to eradicate skeleton weed and to prevent further spread within the state.

How we help

- Improve your ability to find and eradicate skeleton weed.
- Increase your awareness of skeleton weed as a highly undesirable weed.
- Widely publicise descriptions and pictures of skeleton weed to help you identify infestations.
- Inform you about the most up-to-date techniques available for the management and eradication of skeleton weed.
- Provide assistance with searching and eradication.
- Encourage local grower groups to participate in cooperative surveillance and reporting of infestations.
- Encourage LAGs to assist in the management and eradication of skeleton weed in their local areas.
- Implement practical compliance regimes in affected areas.
- Provide landholders with incentives to report infestations.
- Provision of winter control treatments where landholders are compliant with program requirements.

The Landholder Assistance Program

- Identify suspected skeleton weed plants.
- Provide technical assistance and advice for the eradication and management of skeleton weed on your property.
- Assist and advise on summer and winter herbicide application.
- Map infestations.
- Assist in searching for new skeleton weed finds and previously infested paddocks.
- Support from DPIRD and LAG staff.

The program has very effective management options for eradicating skeleton weed and also covers the cost of project staff to help you through the process.

What does skeleton weed look like?

Skeleton weed (*Chondrilla juncea* L.) is a perennial daisy-like plant that develops from a rosette into a sparsely leafed plant up to 1 m tall. Erect, branched stems, with little or no foliage, are produced from early October, giving the plant an untidy look. The rosette and the adult plant exude sticky white sap when cut.

Identification guide

Rosette leaves are 4 to 20 cm long, hairless or with a few rigid hairs and barb-like lobes that point backwards towards the centre of the rosette. They appear over winter in clusters due to suckering. A rosette can be sparsely or densely leafed, depending on plant age, soil type and how extensive the root system has become. In late spring, stems form and the rosette usually dies off, though a healthy rosette with a well-established root system may persist well into summer if there is adequate soil moisture.

Summer rain or high residual soil moisture will encourage old rosettes to re-emerge, even after chemical treatment.



Rosette leaves vary in shape, but barbed lobes remain a key feature

Flowers are bright yellow and daisy-like with 9 to 12 petals. Individual flower heads are about 20 mm wide. Flowers appear on short stalks, in the angle between the plant stem or branch and a leaf or bract. They may occur singly or in clusters of 2 to 5 flowers.

Flowers are found along the full length of the branches and at the tip of the main stem, and appear from December to May.



Each petal has small teeth across its blunt tip

Mature plants have an extensive root system. The tap root can be over 3 m long and the lateral roots can radiate up to 50 cm from the main tap root. The plant develops one or more wiry-branching stems growing up to 1 m tall. The stems usually have dense, downward-pointing bristles near the base, with the upper parts hairless and smooth, or with a few stout hairs. Leaves, if present, are narrow and elongated. Plants can live for several years; stems dying off in late summer as seeds mature. Summer rain may cause regeneration and further seed production.



Can have prominent leaves along the stem in good growing conditions

Lateral root fragments as small as 5-10 mm can generate new plants. These fragments are usually dragged by farm machinery.

Seeds are arranged in 10 or 11 seeds per flower. Each seed is 5 mm long, with a white parachute attached to the top (to aid wind dispersal). Seeds are grooved, acting like 'teeth' to catch on wool, hair or fur.

Seeds are fragile and susceptible to mould and bacteria (causing desiccation in unfavourable weather conditions), and predation by insects and birds.

If adequate summer rainfall occurs, seeds germinate quickly, but usually die if there are no follow up rainfall events. If no rain falls during summer and the seed remains viable and survives predation, it will germinate in the following autumn or winter.



A healthy, mature plant produces 10,000 to 20,000 seeds

Seeds rarely survive more than 12 months under field conditions, so there is no long-term seed bank.

Skeleton weed stem leaves

The presence of leaves on stems can vary on mature plants. Often, on flowering stems there is an absence of leaves.

If leaves are present (small, narrow and elongated leaves), they will be hairless and often without lobes. Stems will die off as seeds mature.



Skeleton weed postharvest showing stems with small, narrow and elongated leaves with partially live rosette...



...and similar small, narrow leaves on live plant with healthy rosette leaves...



...while leaves can also be more distinct.

Skeleton weed rosettes

There are three biotypes (variants within the same species) of skeleton weed in WA, which have slightly different rosette leaf shape.

Other differences in leaf shape can be caused by herbicides like picloram, which cause the leaves to become narrow, twisted or curled.

Despite this variation, skeleton weed rosette leaves are always hairless or with just a few rigid hairs, which helps to distinguish them from hairy weed rosettes like capeweed, flatweed, and brassicas like wild mustard, wild turnip and wild radish.



Rosette leaves are variable, but all skeleton weed rosette leaves will have backward pointing barbs.



Rosette grown in a pot clearly showing backward facing barbs of young leaves.



Rosettes can be sparse leafed...



...more "typically" leafed



...or densely leafed, depending on plant age, soil type and how extensive the root system has become.

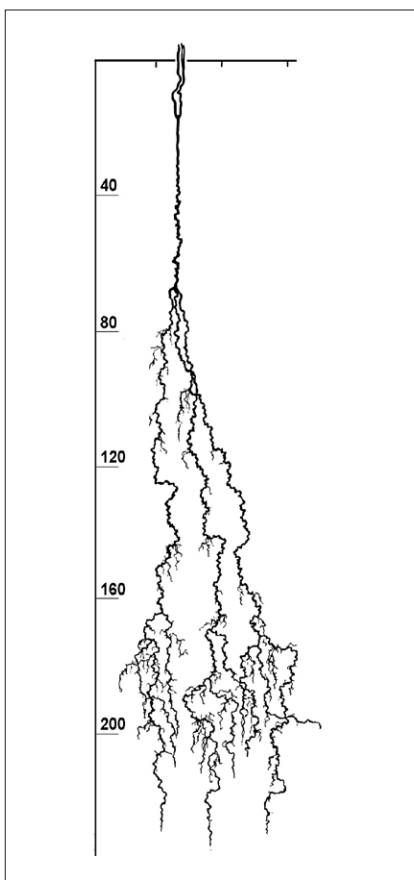
Skeleton weed root system

Mature plants can have an extensive root system. The tap root can be over 3 m long (in sandy soils) and the lateral roots can radiate up to 50 cm from the main taproot.

The winter treatment aims to get chemical deep down into the soil profile to kill these roots. This is the reason why early detection and treatment of new sightings is most successful by killing the root systems before they establish deeply.



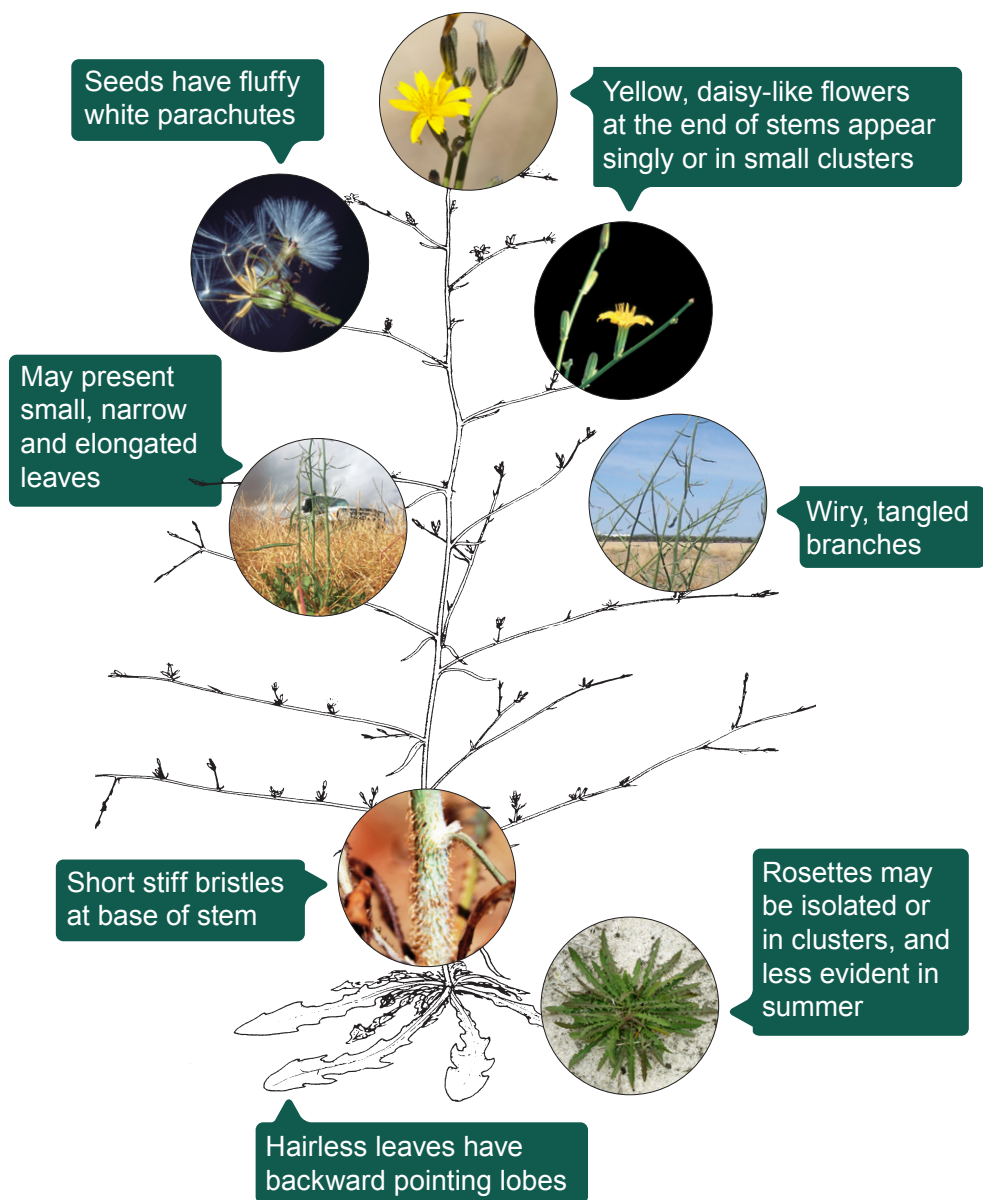
Skeleton weed rosette and tap root



Chondrilla juncea root system
(source : Pagès et al. 2004)

Pagès, L., Vercambre, G., Drouet, J.L., Lecompte, F., Collet, C. and Le Bot, J., 2004. Root Typ: a generic model to depict and analyse the root system architecture. **Plant and soil**, 258(1), pp.103-119.

Quick glance of skeleton weed features



Reporting and identification

Regular communication with your local DPIRD office, LAG and your neighbours is integral to achieving skeleton weed eradication on your property.

It is essential to ensure you are aware of all your obligations, and what support the program provides.

Much information is available and also much to remember. If you are unsure of what to do, there are several avenues for you to follow.

- **Pest and Disease Information Service:** a service for identification and advice. If confirmed as skeleton weed, program staff will be notified on your behalf.
- **MyPestGuide®:** a service for identification only. If confirmed as skeleton weed, program staff will be notified on your behalf.
- **DPIRD officer or LAG coordinator:** program staff will provide you with a Landholder Information Pack that contains information needed to manage and eradicate skeleton weed from your property.
- **DPIRD website:** visit for more information about the Industry Funding Scheme, the Skeleton Weed Program and to access this guide online: agric.wa.gov.au/skeletonweed
- **Neighbours:** neighbour notifications are essential to help prevent the spread of skeleton weed onto adjoining properties.

Early detection is the best treatment for skeleton weed. The earlier we can start an eradication plan on your property the better the outcome.

Pest and Disease Information Service

An identification service on animal and plant pests, weeds and diseases that impact Western Australia's agriculture and food industries. This service plays an important frontline role for the detection and reporting of unfamiliar and potentially damaging pests, weeds and diseases of agricultural and quarantine concern.

Learn more at agric.wa.gov.au/PaDIS

Phone: (08) 9368 3080 **Email:** padis@dpird.wa.gov.au

Biosecurity officers

Program staff provide support to both land managers and LAGs, undertaking operational activities in rural and metropolitan locations. They can also facilitate initial contact with your local LAG coordinator.

Compliance and Quality Assurance Officers also ensure this program meets its program objectives.

If you live in an area where skeleton weed is prevalent, neighbours may be able to assist you.

You may even find yourself in a position to share knowledge with those who have not yet encountered skeleton weed themselves.



Local Action Groups

A Local Action Group (LAG) is a network of local farmers in a district affected by skeleton weed, who have a shared interest in helping you cope with the issues skeleton weed presents. LAGs are designed to provide you with additional local support.

Each LAG applies annually to DPIRD for funds from the approved Skeleton Weed Program budget which is endorsed by the Industry Management Committee. They aim to promote, support and assist with management and eradication.

They liaise between landholders and DPIRD to provide input into management of local non-compliance issues and formulate local/regional strategies to deal with skeleton weed within the framework of the state-wide program. Most LAGs also appoint a LAG Coordinator to work with landholders and in conjunction with DPIRD to undertake operational activities.

LAGs are designed to provide you with additional local support. Office details are located on the back of the control program booklet.

There is an extensive local support network for you to call on to assist in identification and control. Your district may have a well-established skeleton weed LAG.



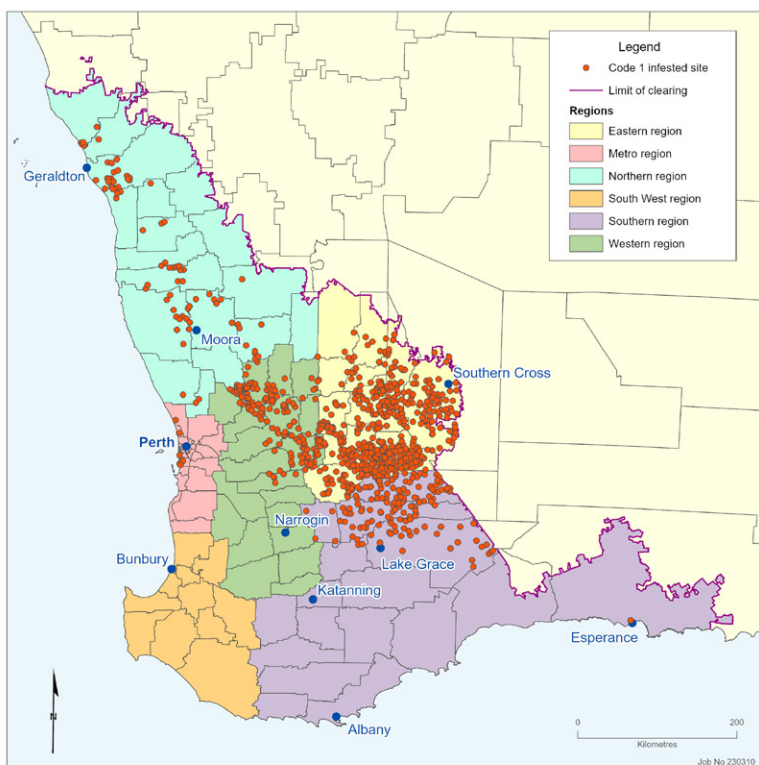
- ### Local Action Group
- Committee consists of Gary Repacholi (chairman), Cattle, Waa Aatbury, Frank James (Treasurer), Hodgson and Virginia Henner.
 - Shires of Dumbleyung, Lake Grace, Kulin, Koolberran and parts of Corangamite represented by the Group committee.
 - Employs a full time Co-ordinator to assist landholders meet obligations.
 - Receives funding from Grains, Seeds and Hay, assist in searching of infested paddocks, logging and provision of spatial data to CIFA staff, and provide spray treatment of infested squares.

Where is skeleton weed found in WA?

Skeleton weed is mainly found in crop and pasture paddocks but can also be found growing in various types of environments including road verges, railway lines, industrial sites, tree plantations and bush areas.

Distribution

Skeleton weed has been found between Geraldton and Esperance, Albany, and within the Perth metropolitan area. This map shows the skeleton weed zones and property Code 1 infestations in Western Australia as at 30 June 2023.



Plants confused with skeleton weed

Flatweed and smooth catsear (*Hypochaeris* spp.)

Flatweed is a short-lived perennial, and smooth catsear is an annual plant. Hybrids of these 2 species exist throughout the south of the State.

Characteristics:

- Fleshy basal rosette with club-shaped leaves and a rounded apex.
- Simple or slightly branched, semi-erect stem up to 30 cm tall.
- More than 11 seeds per head that disperse with a parachute of silky hairs.



Hypochaeris species have more than 11 yellow petals

Prickly lettuce (*Lactuca serriola* L.)

An annual or biennial plant often confused with wild lettuce. Seen in townsites, road verges, occasionally in paddocks. Known as the compass plant.

Characteristics:

- Stiff, prickly, leafy stem up to 2 m tall.
- Stalkless, deeply lobed or toothed leaves, with spines along upper margins and along the lower midrib.
- Pale yellow flowers borne on florets.
- Lower leaves are spiny; less divided upper leaves are held upright in a north-south or east-west alignment.



Prickly lettuce grows taller than skeleton weed

Wild lettuce

(*Lactuca saligna* L.)

An annual or biennial plant often confused with prickly lettuce. Seen in townsites and around farm buildings.

Characteristics:

- Erect, branched stems usually up to 1 m tall, can be taller.
- Stalkless, narrow, deeply lobed or toothed leaves, free of spines. Up to 15 cm long.
- Flowers are pale yellow.
- Seeds dispersed by wind, aided by a parachute of silky hairs.



Wild lettuce has an absence of spines.
Photo: Sian Mawson.

Wild turnip

(*Brassica tournefortii* G.)

An erect annual plant up to 60 cm tall.

Characteristics:

- Basal rosette leaves with scattered hairs on the midrib and veins.
- Plants with one or more stems, with soft, downward-pointing bristles.
- Small, pale yellow to cream flowers 10–20 mm in diameter, with 4 petals.
- Elongated and segmented seed pods 7 cm long.



Wild turnip flowers much earlier than skeleton weed

Wild mustard, Indian hedge mustard

(*Sisymbrium orientale* L.)

An erect annual, sometimes biennial plant, up to 1 m tall.

Characteristics:

- Presents dense, dark foliage on one or more stems, no lasting basal rosette.
- Arrow-shaped leaves densely covered in imperceptible fine hairs leaves on short stalks along the stems.
- Yellow flowers 10–20 mm in diameter with four petals.
- Smooth, elongated seed pods 11 cm long, splitting lengthways when mature.



Seeds are contained in smooth elongated pods

Wild radish

(*Raphanus raphanistrum* L.)

An erect annual plant up to 1 m tall.

Characteristics:

- Basal rosette with broadly lobed, hairy leaves that die off before maturity.
- Hairy stems with oblong and toothed or lobed stem leaves.
- Pale orange or yellow to white flowers, and sometimes lilac, 30–40 mm in diameter, with four dark-veined petals.
- Seed pods are up to 8 cm long.



Wild radish flowers much earlier than skeleton weed

Targeted surveillance program

Skeleton weed control requires effective surveillance and monitoring. The earlier skeleton weed is detected, the easier it is to eradicate.

The effectiveness of skeleton weed control treatments depends on:

- accurate location of the skeleton weed in the paddock
- correct identification of the growth stage
- applying the recommended chemicals at the right time
- monitoring the infested sites (particularly over summer) to prevent seed set.

DPIRD has been carrying out a targeted surveillance program since 2002 with the objective to find new infestations in areas considered a high risk of having skeleton weed. This new program aims to raise awareness of the presence of skeleton weed on high-risk properties.

Skeleton weed surveillance involves checking a minimum of 3 paddocks over summer (preferably crop stubbles) on each selected property. The aim is to search up to 300 hectares per property.



Surveillance being carried out with 2 utes with a single person in each

Since 2008 DPIRD has increased its surveillance effort to include areas outside of the known infested areas, in an attempt to properly delimit the true extent of skeleton weed infestations across the Western Australian cereal growing districts. The main focus is in areas of likely spread, for example shires on the western and southern edges of the current infestation areas.

The Skeleton Weed Program is also using a “spread modelling” computer program developed to identify properties with a higher risk of having skeleton weed – thus enhancing surveillance searching.

Since 2019–20, the program has also been using drones to undertake part of the surveillance program. This is progressing well and the aim is to have a larger part the surveillance program undertaken by drones in the near future.

Surveillance helps you locate skeleton weed you may not be aware is present on your property.



Surveillance being carried out with drones limits biosecurity risks

Searching infested paddocks

While your property remains infested, summer searching is imperative. You can choose to opt for contractor or landholder searching – if the latter, please observe the following. The skeleton weed program will provide you with information on searching requirements for paddocks.

- Infested (**Code 1**) paddocks should be searched in early December before flowering for effective control before seed-set. You are advised to carry out a surveillance search of paddocks adjacent to infested (**Code 1**) paddocks.
- Allow 5–10 days before searching harvested paddocks to allow any skeleton weed plants to grow above the stubble.

When searching infested paddocks, also consider the following:

✓ Regular monitoring	Monitor all infested paddocks at least once a month. Keep monitoring over summer when plants are actively flowering and setting seed.
✓ Post-search notifications	Inform your DPIRD/LAG contact post-search to allow a paddock audit, prior to stock being introduced.
✓ Register all searching details in your Infested property and paddock record book	Audits will be undertaken on 100% of all records. Submit to your DPIRD/LAG contact.
✓ Submit search records	Landholder search assistance claims must meet the deadlines listed below.

Search record deadlines		
Paddock code	Search details	Due by
Code 1 paddocks	Search these paddocks as soon as possible after harvest	31 December
Code 2 and 3 paddocks; and paddocks adjacent to Code 1 paddocks	Search these paddocks as soon as possible after harvest	31 January
	Register details of all searching and plant treatments	
Documentation	Submit all paper records, including property maps indicating paddocks searched and the location of all infestations, to your local DPIRD or LAG office	15 February











Which search method to use?

The diagram below helps to determine which search method and monitoring is required, according to the paddock codes assigned to the infested paddock.

	Full search	Surveillance search	Ongoing monitoring
Code 1 paddock infested last season			
Adjacent to Code 1 paddock last season			
Code 1 paddock newly infested paddock this season			
Adjacent to Code 1 paddock this season (new find)			
Code 2 paddock			
Code 3 paddock This must be a full search to progress to Code 4 and be eligible for release			

Action checklist for infested properties

This quick checklist will assist you in ensuring compliance with responsibilities and obligations.

-  Report all suspected skeleton weed finds within 48 hours.
-  If skeleton weed is confirmed, notify all neighbours of the discovery and location of all infestations within five working days.
-  Complete a full search of all new infested paddocks within 14 days of confirmation.
-  Complete a full search of all current **Code 1** paddocks by 31 December.
-  Complete a full search of all current **Code 3** paddocks by 31 January.
-  Complete a surveillance search of all **Code 2**, and all paddocks adjacent to **Code 1** paddocks from last season by 31 January.
-  Keep the minimum required search and treatment records and submit with property maps by 15 February.
-  Prevent active movement of skeleton weed by minimising the risk of contaminated produce and equipment moving around and off the property.

You will need to prevent the movement of seed and/or root fragments from their properties in produce (grain, seed and hay), wool, machinery and vehicles.

Paddock codes explained

When skeleton weed is found on a property (usually in summer and autumn), it is referred to as an '**infested property**'. Each infested paddock on the property is **assigned a code that signifies a particular stage** in the eradication process.

Cropping areas

- A current infested paddock becomes a **Code 1** paddock. Infestations are marked with a 10 m buffer. This will allow the winter treatment application of picloram based herbicides, as these are highly effective at moving through the soil profile and destroying the plant roots.
- The paddock remains **Code 1** until the pegged infestation(s) has received both a winter treatment AND a full search by the landholder (or Skeleton Weed Program registered contractor) the following summer. If the paddock is found to be reinfested it remains **Code 1** for the next season. If it receives a **clear search**, it progresses to **Code 2**. The entire paddock should then be cropped the following season (including old, pegged infestation sites).
- A **Code 2** paddock requires a surveillance search post-harvest. If no plants are found it becomes **Code 3**. A clear full search the next summer results in the paddock becoming Code 4, and it is released from the 'infested list' of paddock/s on the property. If the paddock is re-infested at any time during this period, it returns to **Code 1** and the process starts over.

Grazing areas

- The codes for the pasture paddocks remain the same, and the summer searching and winter treatment regimens still apply.
- As there is no cropping, fragments of plants are unlikely to be moved and re-established, so spread is **generally only by seeds**.
- However, **two additional surveillance searches are required** once the paddock becomes a **Code 4** paddock. In essence, 5 consecutive clear searches are required for non-cropping paddocks.
- This mainly applies to areas west of Gingin, Moora and Geraldton.

The Skeleton Weed Program is funded by farmers to help farmers get rid of skeleton weed.

Table 1: Skeleton weed paddock codes

Current paddock code status	Status description
New	Newly infested paddock Previously un-infested paddock where plants are found this search season
Code 1	Currently infested paddock Plants found last search season
Code 2	First clear search No plants found last search season
	Re-infested Code 2 paddock (reverts to Code 1) Plants found this search season
Code 3	Second consecutive clear search No plants found last two search seasons
	Re-infested Code 3 paddock (reverts to Code 1) Plants found this search season
Code 4 *	Third consecutive clear search Paddock can be released from 'infested list'
Code 5 **	Surveillance search No plants found

* **Code 4** paddocks require a 'paddock audit' by DPIRD or LAG staff before release from the infested list.

** Paddocks that are not infested, but where a surveillance search is undertaken, are recorded as Code 5 paddocks on the infested property paddock records.

Table 2: Skeleton weed winter treatment

Type	Description
Infested squares	Mapped (dGPS) areas within the paddock that are currently infested with skeleton weed
Heavily infested paddocks	Defined paddocks that are more than 10% infested across the paddock area

Search protocols

This summary of search protocols outlines the steps and the search methods for searching infested paddocks. A more comprehensive list is provided to landholders.

- Searching while harvesting or spraying is NOT a full search.
- Paddocks should be livestock-free at least 4 weeks before searching.
- Allow 5 to 10 days before searching harvested paddocks; this will allow skeleton weed plants to grow above the stubble.
- Search paddocks as early as possible after this period and ideally search **Code 1** paddocks in early to mid December before plants begin flowering.
- Keep stubble to a maximum height of 45 cm to enhance searching and limit the fire risks (particularly in heavy stubble or frosted paddocks).
- Always be prepared to find skeleton weed. Ensure all vehicles used for searching are fully equipped with flagging tape, posts and /or drums to mark finds.
- Take a farm/paddock map and pen with you to accurately mark finds as they are found.
- Search speed should range from 10 to 20 km/h, depending on stubble density or pasture growth density.
- Use only elevated cab, diesel-powered vehicles to reduce fire risk.
- DPIRD recommends a minimum of a 400 L firefighting unit to be present whilst searching.

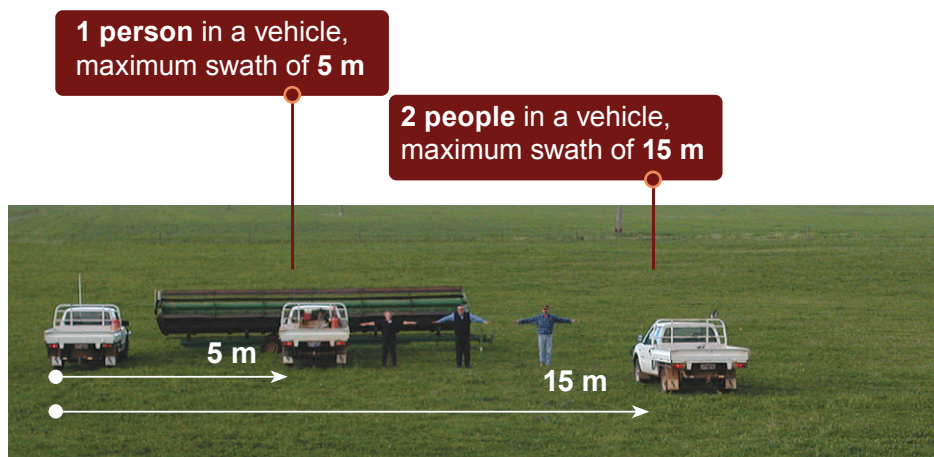
If plants are found:

- Stop and search the immediate area on foot.
- Clearly mark all the infested area with flagging tape, drums, spears or steel posts around each plant; or clumps of plants (refer to **how to mark search squares**).
- Clearly mark the infestation on the farm/paddock map.
- Contact your DPIRD or LAG officer as soon as possible and they can advise on the most suitable treatment for your property. They will also (GPS) map the infested areas and list them for the Winter Spraying Program.

How to do a full or surveillance search

Full search

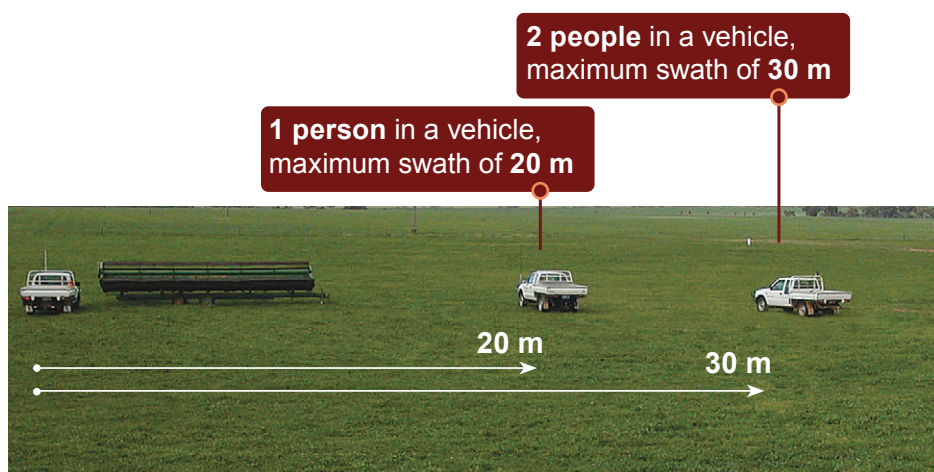
These protocols are applicable to all **Code 1** paddocks and **Code 3** paddocks due for release from the infested list).



Surveillance search

Applicable to **Code 2** paddocks and paddocks adjacent to:

- **Code 1** paddocks from last year
- **New find** paddocks.



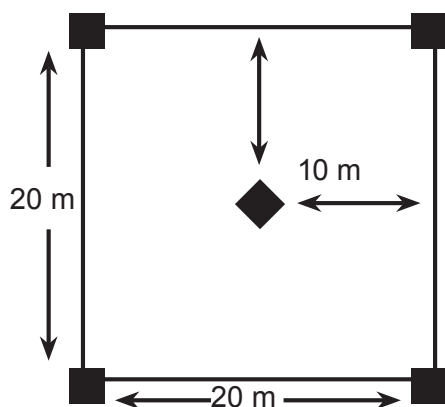
How to mark search 'squares'

For marking single and multiple plants finds, square sizes will depend on the number of plants found in the paddock.



Single plant find

- Mark the plant(s) using flagging tape, a star picket or a drum.
- Search thoroughly to ensure there are no other plants and step out a 10 m buffer in all directions as shown.
- Where adjoining squares with single plants are within 50 m of each other, combine the squares into 1 large square (while keeping a 10 m distance between each individual plant and the edge of the square).
- Place star pickets or drums in each corner of the square.
- Mark the find on a farm/paddock map and submit with a record sheet from your **infested property and paddock record** to your local DPIRD or LAG office by 15 February.



Single plant square 0.04 ha

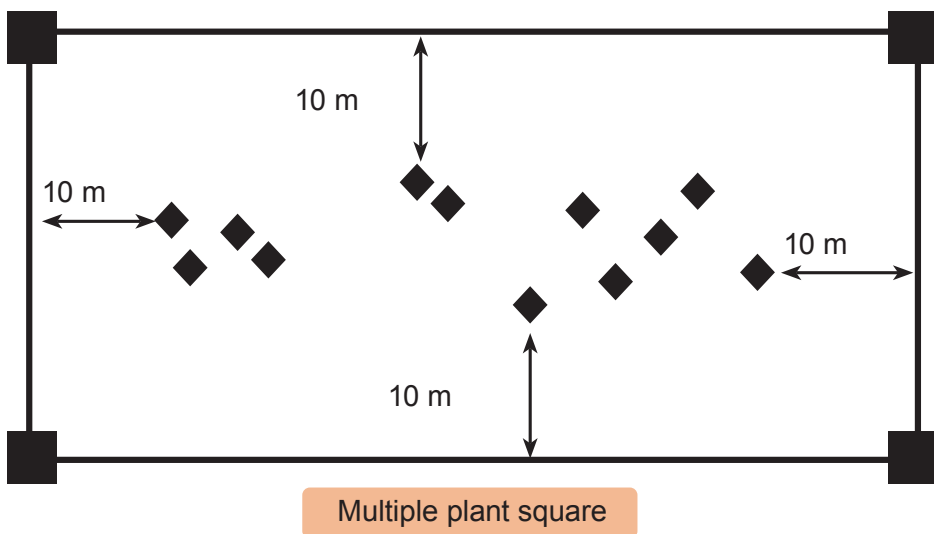


Multiple plant find

- Where the site contains multiple plants, search thoroughly to locate the extremity of the infestation and mark using flagging tape, star pickets or drums. Step out a 10 m buffer from the outermost plants, as shown above.
- Place star pickets or drums in each corner of the square.
- Mark the find(s) on a farm/paddock map and submit a record sheet from your **infested property and paddock record** to your local DPIRD or LAG office by 15 February.

All marked squares will be dGPS mapped by the Searching contractor or your local DPIRD or LAG officer.

Landholders will be provided with detailed maps showing infested squares and paddocks after the summer search.



Recording search results (paddock records)

Infested properties are issued with **infested property and paddock record** books. Individual sheets are to be completed and returned to your local DPIRD or LAG office as a record of landholder searching efforts. Data is collated and entered onto a database which assists with our annual reporting to grain growers. More recently, **database generated infested property and paddock record** sheets will be issued to some landholders. To view a sample paddock record sheet, refer to the control program booklet.

Paddock records must be completed, signed, and returned by 15 February each year.





Landholder responsibilities

These requirements are legal obligations under the Biosecurity and Agriculture Management Regulations 2013.

Requirements for infested properties

- All paddocks should be monitored throughout the summer and autumn.
- Follow search and treatment protocols once identification is confirmed by DPIRD or LAG.
- Notify neighbouring landholders of the skeleton weed finds.
- All infestations are to be treated in summer and winter as described in the booklet: **Skeleton Weed in Western Australia: control program**.
- Provide a full record of your searching, plus list the summer and winter treatments applied in your **infested property and paddock records**:
 - Paddocks with 2 consecutive clear searches (**Code 3** paddocks) must be searched following the **full search** protocol to qualify for release from 'infested' status. The full search will be audited by DPIRD or LAG staff.
 - For pasture paddocks to qualify for release, **at least 2 of the clear searches** must have been done in a crop year. If no cropping occurs, 2 additional surveillance searches are required once the paddock becomes a **Code 4** paddock.

For other types of production areas

- Plantations are treated similarly to permanent pasture for search and release criteria. Refer to the control program for treatment options.
- Landholders of properties certified for organic production with a recognised organisation will work with DPIRD to limit the area where chemical control will be carried out. To that effect, the landholder will be expected to liaise with the relevant organic certification organisation on any further requirements or considerations for the treated area and obtain confirmation that other areas not treated in the particular property will retain the organic or biodynamic certification.

Neighbouring landholder notification

- As part of this coordinated action, **landholders are required to notify neighbouring landholders** of the presence and location of skeleton weed infestations on their property.
- This is particularly important where there is a likelihood the infestation will spread to adjoining properties.
- DPIRD or LAG staff will undertake this notification if landholders fail to provide notification within 5 days.

Non-infested properties

- Ensure ability to identify skeleton weed plants at various growth stages of development.
- Maintain vigilance for skeleton weed plants during normal operations and particularly at harvest time.
- Mark the location of **any suspected skeleton weed plants** and report the finding to the nearest DPIRD or LAG office.



Non-compliance

The focus of the Skeleton Weed Program is to reduce the impact of skeleton weed on the grains industry. By following the protocols to manage skeleton weed, landholders ensure the success of the program and will achieve significant benefits to the grains industry.

Failure to comply with any of the protocols can result in regulatory management, and this applies to both broadacre and urban landholders.

Management of non-compliance can include the following:

Direction notices

- The issuing of a Direction Notice under Regulation 36 of the Biosecurity and Agriculture Management Regulations 2013 will require the landholder/manager to complete the nominated search and/or treatment work as directed and submit fully compliant records to DPIRD within a specified time frame (usually seven days).
- Failure to comply with a Direction Notice issued under Regulation 36 of the Biosecurity and Agriculture Management Regulations 2013 will result in a fine, and/or remedial action to recover costs from the landholder/manager, under Regulation 133 (see Reg 36 (2) (E)).

Pest control notices

- In shires where skeleton weed is under declared category C2 (Eradication) and C3 (Management), DPIRD can issue a Pest Control Notice (PCN) under Section 31 of the *Biosecurity and Agriculture Management Act 2007*.
- The PCN will require the landholder to treat the infested land area (described within the notice) with herbicide to prevent seed set.
- Failure to comply with a PCN issued under Section 31 of the *Biosecurity and Agriculture Management Act 2007* will result in remedial action under Section 38.

Landholders who are issued with a PCN, will not be eligible for assistance, under the Landholder Assistance Program.



Further information

Visit **agric.wa.gov.au/skeletonweed** or contact

Martin Atwell - Project Manager Skeleton Weed, Invasive Species and Environmental Biosecurity Sustainability and Biosecurity

Department of Primary Industries and Regional Development

08 9881 0242 | 0429 881 190 | SkeletonWeedProgram@dpird.wa.gov.au



Report your observations

MyPestGuide® Reporter
via app or online mypestguide.agric.wa.gov.au

Pest and Disease Information Service
08 9368 3080
padis@dpird.wa.gov.au

**If you find skeleton weed on your property,
we can help you get rid of it.**

Skeleton weed is unpredictable and can spread over long distances due to wind dispersal, but once identified it can be managed effectively and eradicated.

Department of Primary Industries and Regional Development

+61 1300 374 731 | enquiries@dpird.wa.gov.au | dpird.wa.gov.au

ABN: 18 951 343 745