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## Skeleton weed program 2021/22 : report to grain growers

Department of Primary Industries and Regional Development, Western Australia

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## Report to Grain Growers

# Skeleton Weed Program 2021/22

### Foreword

On behalf of my fellow committee members, I am pleased to present this report outlining the delivery and outcomes of the 2021/22 Skeleton Weed Program.

The Skeleton Weed Program has been funded by WA growers through the Grains, Seed and Hay Industry Funding Scheme (IFS) since 2010. During that time, the program has grown – putting a greater emphasis on local coordination and support and encompassing critical research and development (R&D).

During 2021/22, Local Action Groups continued to play a critical role in the program and, alongside the hardworking and committed DPIRD program team, achieved:

- landholder searching for skeleton weed on more than 400 000 hectares of land
- chemical control of skeleton weed on 6 000 hectares of infested land; and
- successful eradication of skeleton weed from more than 25 000 hectares of paddocks across the wheatbelt.

In addition to these successes, the IFS-funded R&D component of the program made significant inroads to improve the effectiveness and efficiency of the program, and develop the tools, technologies and techniques to help landholders manage the weed. Of particular interest, the first year of the skeleton weed 'biocontrol' project identified and mapped skeleton weed biotypes across the wheatbelt and discovered a skeleton weed biological control agent (rust fungus) present in WA.

Biocontrols are likely to be an important tool for managing skeleton weed in WA into the future. I am looking forward to monitoring the progress of this work, along with the other research projects that are showing promising results.

It is heartening to see the support of WA growers to our industry's biosecurity, through the Grains, Seeds and Hay Industry Funding Scheme. Your continued commitment is helping to slow the spread of skeleton weed through the wheatbelt, ensuring our costs of production – as an industry – remain competitive.

Rod Birch  
Chairman

**Grains, Seeds and Hay Industry Funding Scheme Management Committee**

30 June 2022

# Program review

## Achieved milestones

- Winter treatment of skeleton weed infestations, including supply and application of herbicide.
- Reviewed and provided skeleton weed information packages to landholders.
- Pre-search planning and notifications sent to the affected landholders.
- Surveillance for skeleton weed on high-risk non-infested properties undertaken.
- Monitoring of paddocks released from the infested list within C2 areas.
- Audits of infested properties conducted including follow up compliance.
- Records updated in the projects database for annual summer searching results.
- Annual debrief of operational activities held in July 2022.
- Operational plans and budgets for 2022/23 completed and approved by the GSHIMC.
- Funding applications for Local Action Groups (LAGs) were assessed and funding facilitated.
- The Annual Report to Grain Growers 2020/21 was completed and distributed.

## Program expenditure

Total program expenditure was \$5 064 722 for 2021/22, while income received from the operational activities was \$155 987. Much of this increase in revenue can be attributed to a change in the billing timeframes for some operational work.

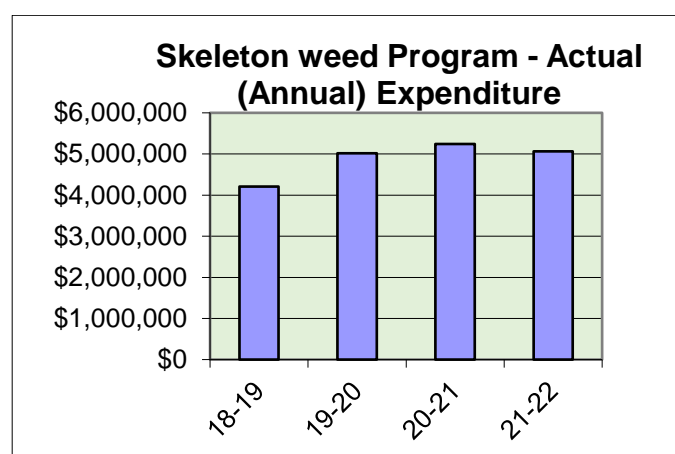
The actual net cost was \$4 909 735 (as of 30 June 2022), which is \$1 368 under the budgeted amount of \$5 021 103 (see Figure 1).

\$3 786 357 was allocated directly to landholders in the form of search assistance, and funding for seven Local Action Groups (Table 1 and Figure 1). There was a further \$1 279 365 directed to program support and operational activities such as program delivery, research, communications and extension, regulation and surveillance.

The 2021/22 expenditure maintains the significant increase in operational funding started in 2018/19. The majority of the current expenditure is in the provision of landholder support provided.

**Table 1** Program expenditure 2021/22

Operational expenditure		\$
<b>Program support</b>		
Operations, coordination, audit and compliance	1 094 365	
Education and awareness	15 000	
Targeted surveillance searching (including the metro area)	170 000	
<b>Subtotal</b>	<b>1 279 365</b>	
<b>Direct landholder support</b>		
Local Action Group (including chemical purchase \$85 000)	912 000	
Provision for landholder searching subsidies	2 799 357	
Winter spraying chemical supply (DPIRD)	75 000	
<b>Subtotal</b>	<b>3 786 357</b>	
<b>Total expenditure</b>	<b>5 065 722</b>	



**Figure 1** Net Program expenditure over the last four (4) years



# Program findings at a glance

## Recent improvements

Continuous improvement remains an important part of the Skeleton Weed Program's ongoing development and effectiveness.

Several significant changes made to the delivery of the program in 2020/21 were continued in 2021/22.

## Compliance

The main focus of the Skeleton Weed Program is to assist and work with landholders to eradicate skeleton weed. Consequently, there were few significant compliance issues.

In the past year, DPIRD and LAG staff have increased the level of auditing of landholders and contractor operations in line with the increased funding in 2021/22. Particular attention has been placed on the contractors work by the search assistance panel, and two new DPIRD Biosecurity Officers have been appointed to focus on Auditing and Quality Assurance of project operations.

## Perth metropolitan area

Surveillance was conducted in the Perth area in early December 2021 and February/March 2022. Winter treatment of the 2020/21 infested sites was undertaken in July 2022.

Metropolitan area landholders and managers of metropolitan infested sites are required to conduct their own skeleton weed searching and treatment at their own cost. Alternatively, they may contract DPIRD to undertake the work on a fee-for-service basis on behalf of the GSHIMC (this arrangement remains the preferred option for most landholders).

Land managers choosing to undertake their own management were required to report on their activities and were subject to audits in December and February.

New sites continue to be reported and found. Awareness is improving, particularly with local governments, with strong support from both the City of Cockburn and Wanneroo, and Main Roads WA. Although new sites are listed, many current sites have had significantly reduced plant numbers, and some sites were removed from the infested list.

## Research

Following the recommendations of the Skeleton weed Review 2020 the IFS Research Program was developed and the research component of the Skeleton Weed Program is now conducted by this Project. Management of the Skeleton Weed Program remain the key drivers of the direction and suitability of the research work being undertaken.

Current research includes herbicide trials, high precision mapping of plants, emergence patterns using time-lapse photography, image analysis using artificial intelligence, analysis of historic data, community consultation and the effects of microwaves on established plants.

The overall aim of the research program is to reduce the level of new infestations and/or increase the level of cleared infestations so that the new is less than the cleared and the overall infestation is decreasing or constant. Maintaining a constant infestation level is realistic and an achievable goal.

## Control Research

Several new control options have been developed and currently being implemented by the Operational Program. These are also included in the revised 2022/23 Management Guide.

Another key research area is in Biological Control and a collaborative project to map the current distribution of biotypes and (in future) look for biocontrol options is underway, with program staff collecting sample for DNA biotype recognition.



# Program findings at a glance

## Local Action Groups

Seven Local Action Groups were funded by the program during 2021/22:

- Avon South
- Central Wheatbelt
- Lakes
- Lower Lockhart
- Mortlock
- Narembeen
- Yilgarn

\$912 000 in funding was provided to enable LAGs to undertake the Skeleton Weed Operational Program in their designated areas.

LAGs now cover most of the Central and Eastern Wheatbelt, undertaking and delivering the program's operational activities in these areas, which continues to be successful and effective.

All LAGs now work autonomously and undertake almost all tasks completed previously by DPIRD exclusively. DPIRD continues to undertake program compliance and coordination in shires covered by the LAGs.

## Industry Funding Schemes

The Skeleton Weed Program continues to operate under the Biosecurity and Agriculture Management Industry Funding Scheme (Grains) Regulations 2010. Responsibility for approving funding and operations of the program reside with the GSHIMC initially appointed by the Minister in June 2010.

The GSHIMC met in April 2022 and approved the Skeleton Weed Program (control) and Three-horned bedstraw Program (eradication) on behalf of the WA grains industry for the upcoming 2022/23 Operational Programs.

The Committee recommended the contribution rates be maintained at 25 cents per tonne for grain and 12.5 cents per tonne for hay, with these funds supporting both programs, with skeleton weed being allocated 90% of the collected funds.

The contribution has remained the same since 2018/19, reflecting the higher-than-average amounts collected the last few years, and the Committee's willingness to respond and decrease the burden on landholders with skeleton weed infestations when possible.

All contributions to the scheme are collected by purchasers of grain and hay and are paid into a GSHIFS Declared Pest Control and Compensation Account, managed by DPIRD in consultation with the Grains Industry Management Committee.

## Extension and awareness

The program's extension effort was increased to coincide with the start of the summer search season (mid-November). A strategic communication and extension campaign was implemented incorporating regional radio announcements, press releases and social media, which included a story with ABC Rural. The campaign was a well-received key promotional opportunity, and which greatly increased the profile and recognition of skeleton weed among industry.

Field Days were again cancelled in 2021/22. With COVID-19 restrictions lifted the program developed an improved display and will continue to attend all field days in 2022/23.

### Other key promotions included:

- Landholder Information Packs issued to infested property landholders (included updated stickers and Landholder Guide).
- Stakeholder Landholder Packs were issued to Main Roads WA, DBCA and Arc Infrastructure in Narrogin as courtesy packs.
- Roadside signage – further increased uptake by LAGs and project staff.
- The Skeleton weed in Western Australia: Management Guide and Control Program, the program's key publication and best practice management guide, was reviewed and updated for publication in 2022/23.
- The fact sheet Skeleton weed in Western Australia was available at all the agricultural field days; including the "Report skeleton weed" poster introduced in early 2021.
- Website review and restructure of the skeleton weed pages commenced in April 2022.
- The Communications Plan was reviewed, updated, and circulated.
- Ongoing discussions made to consider some skeleton weed podcasts to post on the Grain Growers Alliance website.

# Program findings at a glance

## Infested properties

A total of 55 “new infested properties” were reported by landholders or found by DPIRD and/or LAGs undertaking targeted surveillance.

Following DPIRD and LAG audits of eligible “Code 4” paddocks, 29 properties were removed from the infested list. This gives a net gain (new minus released properties) of 26 properties – a significant decrease on the net gain of the previous year (56 new properties). This is very encouraging and clearly shows that the Skeleton Weed Program is achieving key program outcomes by:

- minimising the rate of spread, and
- eradicating skeleton weed where possible.

## Area searched

The total area searched in 2021/22 was approximately 435 000\* hectares. Most paddocks searched were the Code 1 paddocks (278 000 hectares), which decreased slightly from 2020/21.

\*Now includes all landholder, project staff and UAV surveillance.

Due to program changes implemented (in 2019/20), which included increased search assistance eligibility, there were again, significant increases in Code 2 (90 000 hectares) and Code 3 paddocks (40 000 hectares) searched this season.

## Surveillance searches

**Project staff:** The area of surveillance searching completed by DPIRD and LAGs was 27 000 hectares.

**UAV drone:** A total of 10 000 hectares was searched under contract using drones. There have been a number of major improvements in the procedures and workflow with this activity. The image recognition software is progressing and improving with ongoing collection of skeleton weed images.

Quality Assurance audits was also undertaken on the flown UAV drone area.

10 000 hectares will again be targeted for UAV surveillance in 2022/23.

## Distribution maps

Maps of the agricultural areas showing skeleton weed operational zones (**Figure 2**) and distribution of all infested sites (**Figure 3**) can be found at the end of this report.

## Infested area

An ‘infested square’ is the area which defines where skeleton weed plants are present within an infested “paddock”. This includes a 10 metre “buffer” around the actual plant sites.

This area is targeted for eradication treatment as part of the Winter Spray Program.

Where paddocks are greater than 10% infested, they are determined as “heavily infested paddocks” and the whole paddock is treated under a management protocol to reduce the infested area to a level where it can be treated for eradication.

In 2021/22 the area listed for eradication treatment under the Winter Spraying Program was 6 400 hectares. Most of this area was “infested squares” treated for eradication. However, some paddocks required “whole paddock treatment” with Clopyralid.





# Program findings at a glance

## Search Assistance

A total of 332 000 hectares was claimed for search assistance in 2021/22 (**Table 2**).

**Table 2** Paddocks and hectares claimed for Search Assistance in 2021/22

Search Assistance results	No. of paddocks	Hectares
Clear search	918	100 000
Plants found	1 919	232 000
<b>Total</b>	<b>2 837</b>	<b>332 000</b>

The total cost of the Search Assistance Program for 2021/22 was \$2 765 000, up from \$2 682 500 last season (**Table 3**). This was a slight increase in the cost of the search assistance program in 2020/21.

The skeleton weed paddock codes and eligibility for search assistance is addressed is provided for reference (**Table 4**).

Contractors searched 63% of hectares of eligible Code 1, Code 3 and New Find paddocks, and were paid \$2 020 000 under the Search Assistance Scheme.

Landholder searching slightly increased in 2021/22 – from 121 000 hectares to 124 000 hectares in 2021/22. Landholders were paid search assistance totalling \$745 000.

## Proposed changes for upcoming 2022/23 season

No major changes were made to the program operations for 2022/23.

**Table 3** State-wide Skeleton Weed Program – Searching results 2021/22

Searching results	2021/22
<b>Infested properties</b>	
Total properties	964
Total paddocks	3 507
Total area	385 000
Estimated Code 1 (hectares)	260 000
Estimated Code 2 (hectares)	89 000
Estimated Code 3 (hectares)	36 000
New properties	55
New paddocks – new properties	88
Total new area – new properties (hectares)	7 480
New paddocks – existing properties	522
Total new areas – existing properties (hectares)	49 100
<b>Surveillance</b>	
<b>Project staff (DPIRD and LAGs)</b>	
Number of properties	75
Number of paddocks	200
Area searched (hectares)	21 400
<b>UAV surveillance</b>	
Area searched (hectares)	10 000
<b>Properties audited</b>	
Number of properties removed	29
Number of paddocks removed	281
Area removed from infested list (hectares)	25 300

# Program findings at a glance

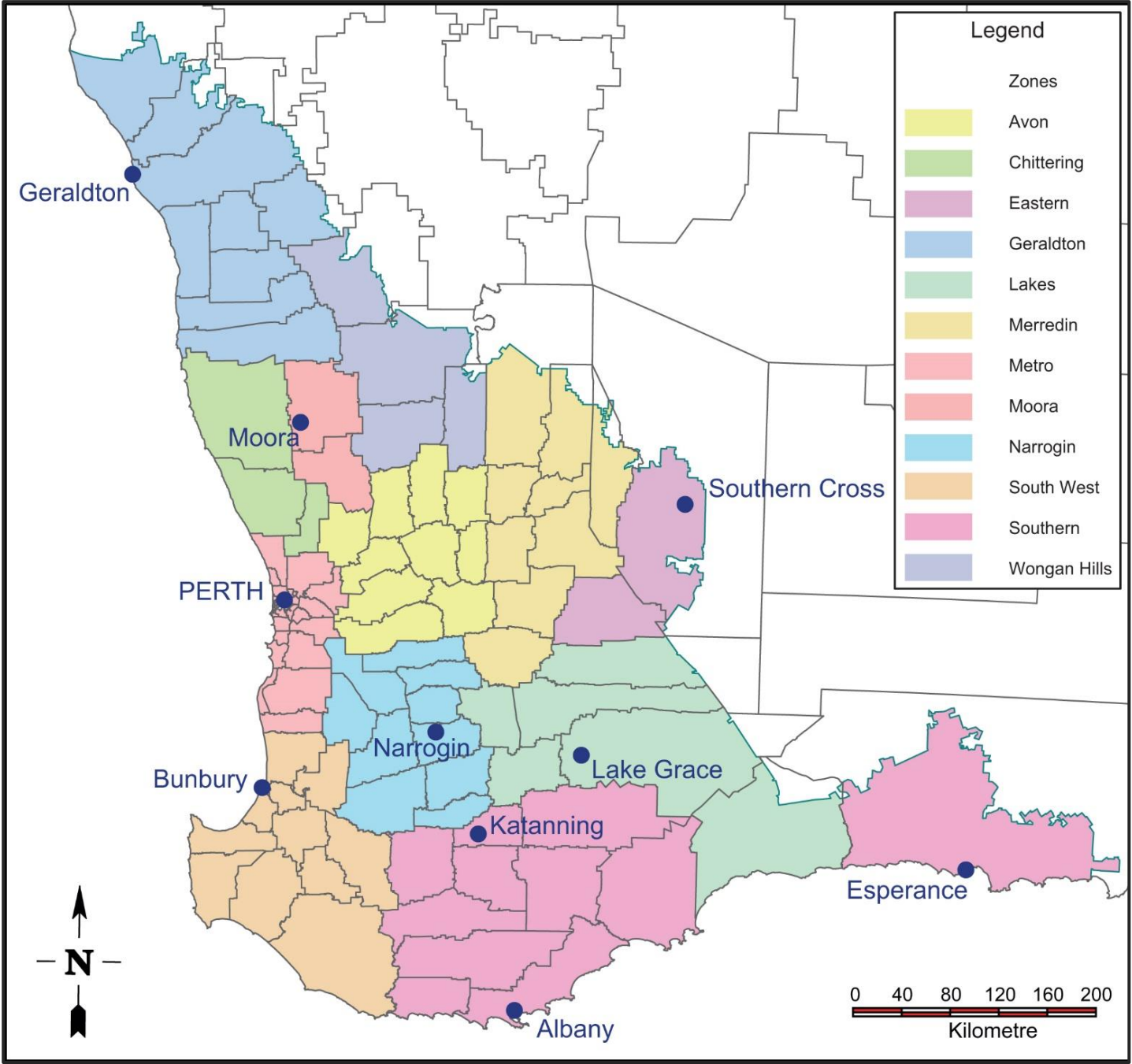
**Table 4** Skeleton weed paddock codes and Search Assistance eligibility

Current status	Paddock code description	Eligible	Search assistance applies
<b>New</b>	<b>Newly infested paddock</b> Plants found this search season 2021/22	Yes	Search assistance is available for landholder or contract searching.
<b>Code 1</b>	<b>Currently infested paddock</b> Plants found last search season 2020/21	Yes	Search assistance is available for landholder or contract searching.
<b>Code 2</b>	First clear search No plants found last search season 2020/21	No	Code 2 paddocks progress to Code 3 after a clear search.
	<b>Re-infested Code 2 paddock (reverts to Code 1)</b> Plants found this search season 2021/22	Yes	Search assistance is available for landholder or contract searching.
<b>Code 3</b>	Second consecutive clear search No plants found last two search seasons 2020/21 & 2021/22	Yes	Search assistance is available for landholder or contract searching. Code 3 paddocks progress to Code 4 after a clear search.
	<b>Re-infested Code 3 paddock (reverts to Code 1)</b> Plants found this search season 2021/22	Yes	Search assistance is available for landholder or contract searching.
<b>Code 4</b>	Third consecutive clear search Paddock can be released from 'Infested list'	N/A	Release is pending audit of search by DPIRD or LAG.





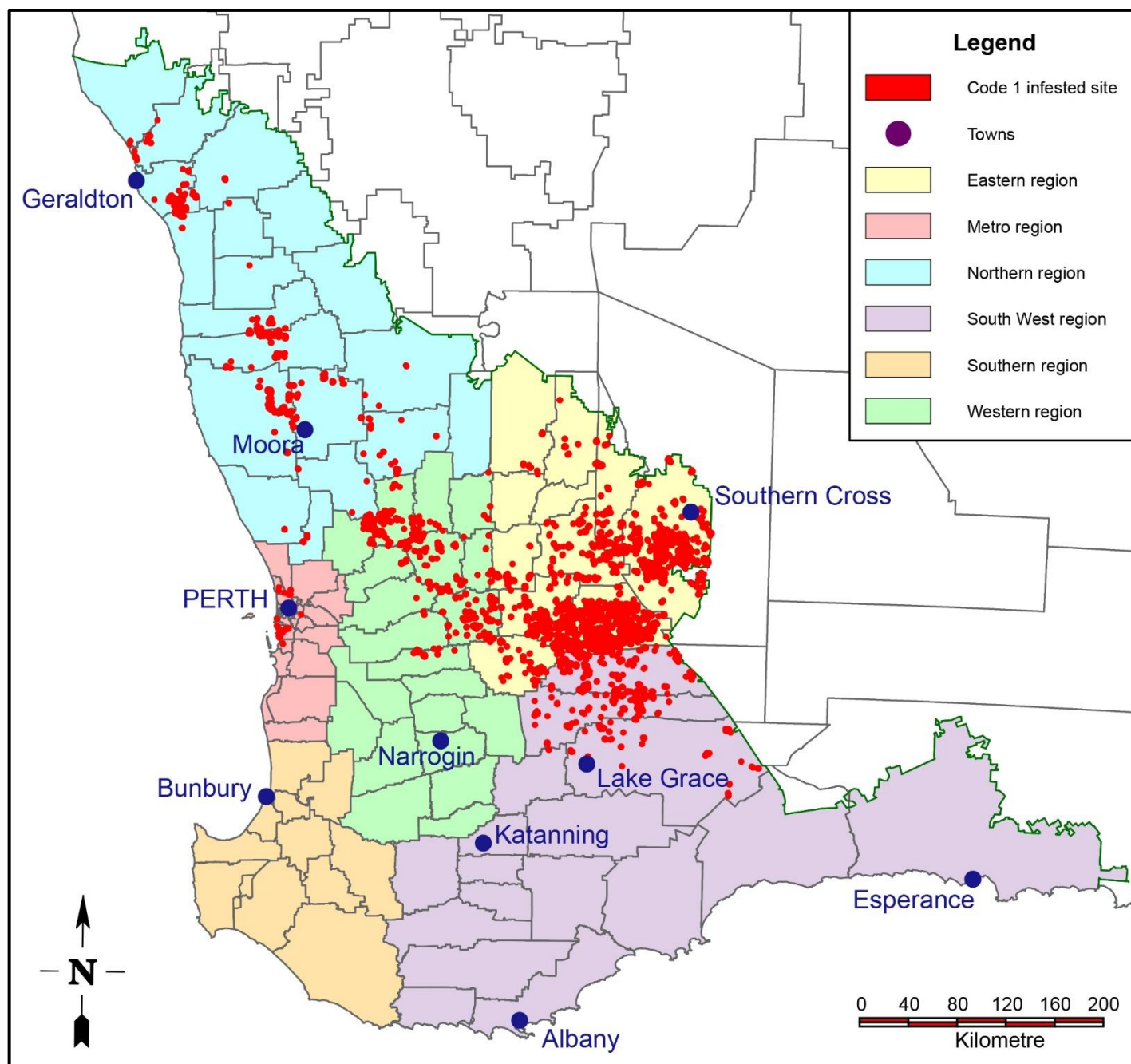
# Skeleton weed regions and zones



**Figure 2** Map of skeleton weed zones in Western Australia as at 30 June 2022.



# Skeleton weed regions and zones



**Figure 3** Map of skeleton weed regions and Code 1 infestations in Western Australia as at 30 June 2022.

## Important disclaimer

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