

# **Black Range Invasive Plant and Animal Management Plan 2023 - 2028**



Prepared by Mark Farrer  
Black Range Land Management Group





The “*Black Range Invasive Plant and Animal Management Plan 2023 – 2028*” is abbreviated as the “*IPA*” throughout this document.

*The Black Range Land Management Group (BRLMG) acknowledge and are grateful to Mark Farrer for donating his time and considerable expertise to develop this plan and its supporting documents.*

*Mark is a founding volunteer member of the BRLMG. Over 39 years, Mark worked for Victorian State Government Conservation, Land Management and Agriculture departments. Now retired, a significant part of Mark’s career focused on Invasive Plant & Animal (IPA) management with leadership roles in operational and strategic program delivery at local, regional and state-wide levels. In these roles Mark has either written or been a key contributor to the production of a number of local, regional and state-wide IPA plans and strategies.*

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[black.range.landcare@gmail.com](mailto:black.range.landcare@gmail.com)

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Contact: [secretary.brlmg@gmail.com](mailto:secretary.brlmg@gmail.com)

Prepared by Mark Farrer, on behalf of Black Range Land Management Group, May-Nov 2022.

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## PART A: Strategic Plan

### 1. AIMS AND OBJECTIVES

Introduced invasive plants and animals are a significant threat to biodiversity and contribute to land and water degradation across Australia. They also incur significant costs to agricultural production.

The Black Range east of Gariwerd / the Grampians has been significantly impacted by invasive plants and animals over many decades. Despite some relatively successful management programs implemented by the Black Range Land Management Group (BRLMG) over the last 35 years, some threats remain and others are emerging.

#### **The Aim of this IPA Management Plan:**

This IPA management plan is designed to provide a clear framework and identified priorities for the BRLMG to develop and implement coordinated and effective IPA management programs. It is intended that this plan will assist with the protection and enhancement of this unique ecosystem as a valuable natural asset for future generations. Land managers of the Black Range are invited to utilise this plan to understand and contribute toward meeting priorities to manage IPA.

#### **The objectives of this IPA Management Plan are:**

##### *Objective 1:*

***High risk new and emerging IPA species are eradicated from the Black Range.***

##### *Objective 2:*

***Prioritized established invasive species are managed to minimise their impacts on biodiversity within the Black Range.***

### 2. SCOPE

This plan deals with invasive plants and animals that are likely to negatively and significantly impact the biodiversity, soil and cultural values of the Black Range. Some of these species may be declared as pests under Victoria's *Catchment and Land Protection Act 1994*, and some may not. Not all exotic invasive plants/animals/birds/insects are included, as they may be beyond a realistic expectation to reduce the negative impacts they are having, i.e. too widespread, too expensive/difficult to control, no effective control technologies available, or control efforts will not have a significant impact.

The biodiversity inherent in the Black Range's contiguous native vegetation ecosystem is the focus of this management plan. As IPA do not respect boundaries, then landholders within a landscape scale context, both adjoining agricultural land systems and conservation land systems at times require coordinated effort to achieve successful IPA management outcomes and benefits for all stakeholders.

Where required, the BRLMG will seek to engage and collaborate with the broader **No table of contents entries found**.community in the pursuit of mutually beneficial invasive plant and animal management outcomes detailed in this plan.

The Black Range Land Management Group is a volunteer organisation, with members comprising primarily private landholders, that collaborates with public land managers, Traditional Owners and other interested parties. Therefore, the group has no legislative authority to undertake any actions outside existing legislative frameworks/laws in Victoria. For example, the BRLMG cannot require by law, a landowner to undertake invasive plant or animal control. Public land managers (i.e., Parks Victoria) have a legislative framework (i.e. National Parks Act 1975) that facilitates the protection of natural values on public land that it manages.

In the first instance, this plan seeks to provide information on IPA management that is recognised best practice, validated by peer reviewed scientific research.

### **3. STRATEGIC PRINCIPLES**

This management plan uses the principles of the Commonwealth and Victorian State Government's Biosecurity approach to IPA management. The underlying principle is that the cost benefit ratio of early intervention to control a pest is much greater than when the pest becomes widespread and established.

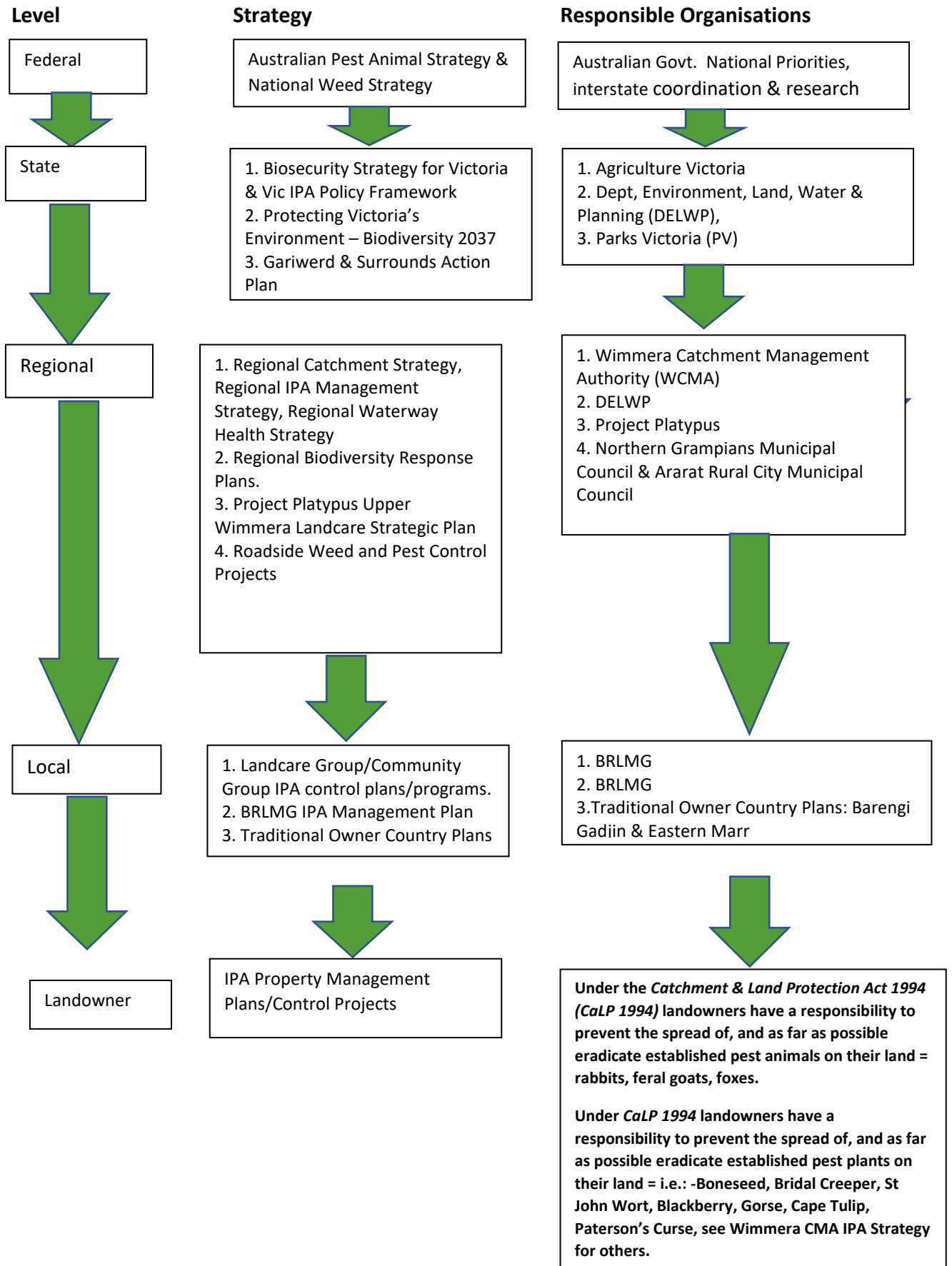
The Biosecurity approach also requires that once a pest is established the pest is managed to minimise its impact on valued assets. In the context of this plan, the valued asset is identified as the contiguous natural ecosystem that is the Black Range. As further information becomes available, discrete assets within the Black Range may be identified as high priorities for protection from IPA impact. For example, an Endangered Southern Brown Bandicoot colony discovered but under direct threat from foxes and feral cats.

Refer to the attached link and search for 'Wimmera Invasive Plant and Animal Management Strategy 2019' for a detailed explanation of the Biosecurity approach to IPA management (page 8. 'A biosecurity approach to IPA management').

[wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au)

#### 4. STRATEGIC CONTEXT AND IPA MANAGEMENT RESPONSIBILITIES

(Refer to Wimmera Invasive Plant and Animal Strategy for more detailed information – Section 4. Management responsibilities and coordination, and Appendix 2: Legislation that relates to IPA management).



## 5. DESCRIPTION OF SITE - CONSERVATION AND MANAGEMENT GOALS

### 5.1 Description of site:

The Black Range (Eastern) is a granite outcrop of hills (steep slopes > 10%) with many large boulders of some 4200 hectares 10 kilometres south of Stawell in the upper Wimmera River catchment.

The Black Range includes the headwaters for the Concongella, Pleasant and Mt William Creeks. The area is comprised of land under 80% private ownership and 20% public land conservation reserve managed by Parks Victoria. The range is covered with open woodland incorporating the dominant species of Yellow Box, Long Leaf Box and Black Wattle, but also including less abundant species of Scent Bark, Red Gum and Swamp Gum communities. The Black Range has a rich diversity of mid and ground layer flora. The granitic soils are solodic soils of low fertility. Water erosion hazard through sheet erosion is high risk.

Average annual rainfall has historically been between 550mm – 575mm, (*A Study of the Land in the Grampians Area, Soil Conservation Authority Victoria 1967*) though this average rainfall has been demonstrably reducing as the climate changes, especially over the last two decades.

### 5.2 Conservation and Management Goals:

#### Goal 1

*Implement management programs to effectively mitigate the impacts of priority invasive plants and animals on the biodiversity, soil and cultural values of the Black Range natural ecosystem.*

#### Goal 2

*Where possible, enhance the condition of the natural ecosystem values of the Black Range.*

#### Goal 3

*For information on specific Ecological Management Targets for each prioritised invasive species refer to the section of this management plan: - 'Specific IPA Species Control Plans' and Black Range Invasive Plant and Animal Impact Assessment Tables.*

#### Goal 4

*See Ecological Targets at 6.3.3 Grampians Pyrenees Arc – Wimmera Invasive Plant and Animal Strategy @ [wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au)*

#### Goal 5

*See Ecological Targets in the document 'Biodiversity Response Planning – Stawell and surrounds' @ [www.environment.vic.gov.au](http://www.environment.vic.gov.au)*



## 6. IMPACTS OF IPA ON CONSERVATION TARGETS

A detailed summary for each priority IPA species impact on biodiversity and cultural values of the Black Range can be viewed in the Black Range Invasive Plant and Animal Impact Assessment Tables at the BRLMG Website.

*‘Invasive plants can affect the structure and function of land-based and aquatic ecosystems, and negatively impact on native flora and fauna. They can displace native plant species, harbour pests and diseases and lead to more intense wildfires.’ (Australian Weeds Strategy 2017-2027 @ Environment.gov.au)*

*‘Invasive animals can cause land degradation by promoting soil erosion, stream turbidity, the spread of weeds and can threaten native plant species and animals through competition, habitat destruction and predation. They also have the potential to act as reservoirs for diseases that affect native wildlife, domestic stock and people.’ (Australian Pest Strategy 2017-2027, Environment.gov.au)*

The Black Range natural ecosystem has been severely impacted by most of the IPA impacts listed above over many decades. These threats to the BRLMG’s conservation aspirations for the Black Range are ongoing and require mitigation actions guided by this plan. *(The Black Range Information and Management Guide, Black Range Land Management Group).*



*Rabbit grazing impact on Black Range flora - demonstration 1990*



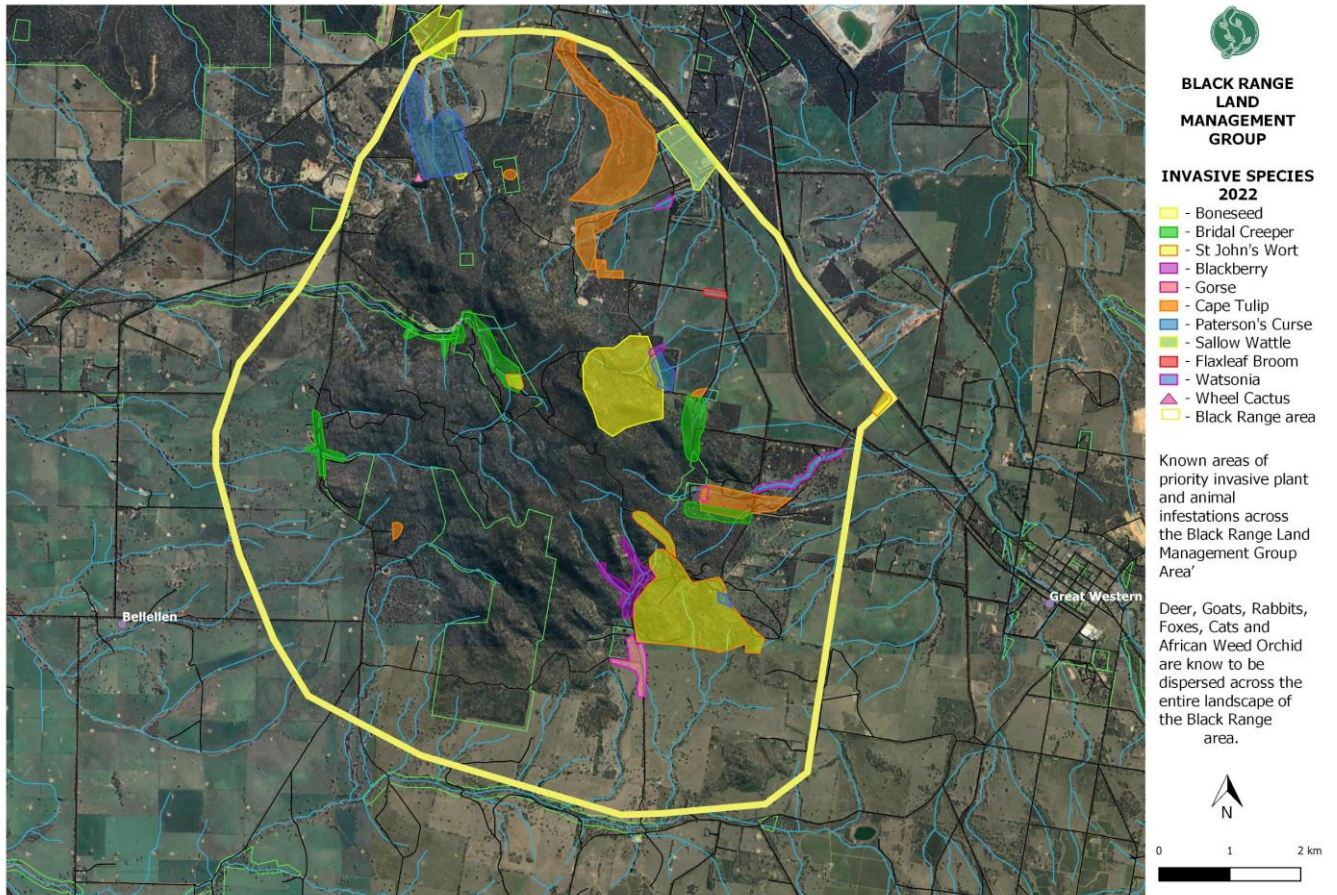
## 7. INVENTORY AND DISTRIBUTION OF INVASIVE PLANTS AND ANIMALS IN THE BLACK RANGE

<b>Invasive Animals:</b>	<b>Invasive Plants:</b>
<p>European Rabbit <i>Oryctolagus cuniculus</i>                      Red Fox <i>Vulpes vulpes</i>                      Feral cat <i>Felis catus</i>                      Feral Goat <i>Capra hircus</i>                      Deer (Fallow) <i>Dama dama</i>                      Deer (Sambar) <i>Rusa unicolor</i>                      Deer (Red) <i>Cervus elaphus</i>                      Sheep – unmanaged (intermittently)                      European Hare <i>Lepus europaeus</i>                      Other:                          Rat <i>Rattus rattus</i>                          Mouse                          House Sparrow                          Starling                          European Honey Bee                          European Wasp</p>	<p>African Weed Orchid <i>Disa bracteata</i>                      Amsinkia <i>Amsinkia spp</i>                      Arum Lily <i>Zantedeschia aethiopica</i>                      Blackberry <i>Rubus fruticosus</i>                      Bluebell Creeper                      Boneseed <i>Chrysanthemoides monilifera</i>                      Bridal Creeper <i>Myrsiphyllum asparagoides</i>                      Cape Broom <i>Genista monspessulanna</i>                      Cape Tulip <i>Homeria flaccida</i>                      Flax Leaf Broom <i>Genista linifolia</i>                      Gorse <i>Ulex europeus</i>                      Great Mullein <i>Verbascum thapsus</i>                      Horehound <i>Marrubium vulgare</i>                      Paterson’s Curse <i>Echium plantagineum</i>                      St John’s Wort <i>Hypericum perforatum</i>                      Sallow Wattle <i>Acacia longifolia</i>                      Skeleton Weed <i>Chondrilla juncea</i>                      Slender/Shore Thistle <i>Cardus pycnocephalus/C. tenuiflorus</i>                      Spiny Rush <i>Juncus acutus</i>                      Topped Lavender <i>Lavandula stoechas</i>                      Wheel cactus <i>Opuntia robusta</i>                      Wild Watsonia <i>Watsonia bulbillifera</i>                      Wild Mignonette <i>Reseda luteola</i></p> <p><i>More minor invasive plant species are referenced in The Black Range Information and Management Guide, 2001.</i></p>

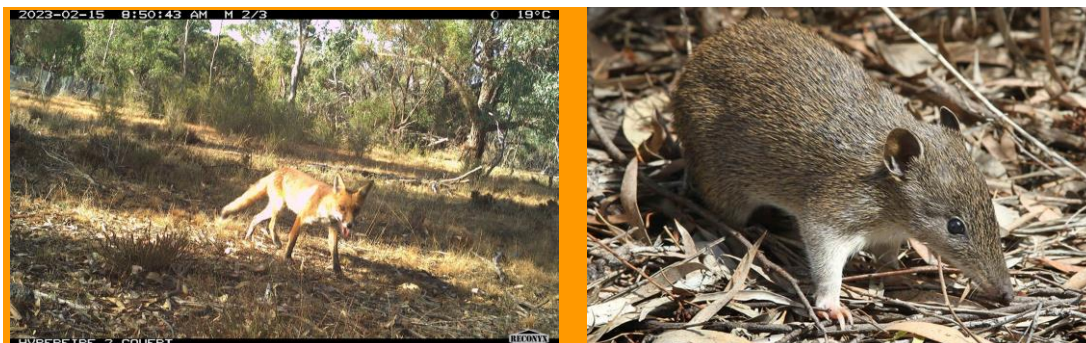
## 8. MAP OF KNOWN IPA DISTRIBUTION IN THE BLACK RANGE

Known distribution of priority invasive species across the Black Range Land Management Group area 2022.

[https://drive.google.com/drive/u/1/folders/15e9VqvU2RokXxUhxbUMT\\_LfevZGmSHyX](https://drive.google.com/drive/u/1/folders/15e9VqvU2RokXxUhxbUMT_LfevZGmSHyX)



(Mapping information sourced from historic Landcare group records, landholders and the public domain)



Fox and feral cat predation is implicated in contributing to the recent disappearance of Southern Brown Bandicoot in the Black Range.

## 9. ENGAGEMENT FOR COMMUNITY ACTION AND COORDINATION

### **Community Engagement – critical to effective IPA management:**

As invasive plants and animals and ecological processes do not respect property boundaries, a critical key to successful IPA management is coordinated landscape action. In order to gain the commitment and support leading to agreed coordinated action, a majority of individual land owners/managers/stakeholders first need to be engaged.

### **What is engagement?**

The term 'engagement' can be used to describe a range of activities including consultation, extension, communication, education, public participation, participative democracy or working partnerships.

### **What is Community Engagement?**

The BRLMG will use a standard best practice model of engagement used by government and non-government organisations. 'This model is the International Association for Public Participation (IAP2), which defines community engagement as *'Any process that involves the community in problem solving or decision making and uses community input to make better decisions'*. Community engagement can include consultation, extension, communication, education, community participation or working in partnership. Most importantly it is about including stakeholders at some level in decision-making, rather than approaching them once the decision has been made!

There are five levels in the IAP2 community engagement spectrum: Inform, Consult, Involve, Collaborate and Empower. The level of engagement required will direct you towards which community engagement tool/s to use.

**Inform** – to provide stakeholders with balanced and objective information: for example one-off communication (brochures, media releases). This is not a participatory process and cannot directly guarantee adoption of information.

**Consult** - to obtain feedback on analysis, alternatives or decisions; using for example surveys, public meetings or focus groups. A clear explanation of how the information will be used is essential to manage their expectations of the process.

**Involve** - to work directly with stakeholders throughout the process to ensure concerns and aspirations are consistently understood and considered. For example, using workshops or kitchen table discussions. A high level of participation and inclusion with stakeholders is vital at this level of engagement, as is a clear understanding of stakeholder expectations.

**Collaborate** – to partner with stakeholders in all aspects of the decision. For example using citizen’s advisory committees, scenario-testing or open house. A high amount of trust is required at this level, as is a clear understanding of the decision-making power entrusted to all stakeholders.

**Empower** – to place final-decision making in stakeholders’ hands, using for example, citizen juries, ballots or visioning. This is the most challenging level of engagement and it is important to be clear about the scope of the shared power of stakeholders.

The IAP2 framework is presented in this plan to assist the BRLMG develop its own ‘fit for purpose’ engagement plans to tackle specific IPA management issues. There are a number of steps involved, starting with **scoping** your engagement. This includes understanding your project goals and stakeholder needs. A stakeholder analysis will assist you with this. Next, plan the **action** part of engagement – what are your desired outcomes? Which tools are best to use? When and how will engagement happen? How will you manage risk? **Evaluation** is also an important part of the process – Why evaluate? Who wants to know? What evidence will you collect and how’.

*(Engagement Communication Essentials – Invasive Plants and Animals Program, Dept Primary Industries, Victoria 2011) and (Effective Engagement: building relationships with community and other stakeholders, DSE Melbourne Sept. 2005)*



## PART B: Action Plan and Priorities

### 10. SETTING PRIORITIES

Criteria used to set priorities for IPA species management in a natural ecosystem are:

1. Current extent of the species on or near the site
2. Species invasiveness
3. Current and potential impacts of the species
4. Value of the habitat areas that the species infests or may infest

*(Weiss J, McLaren D, Victoria's pest plant prioritisation process, 2002)*

Each invasive pest plant and pest animal species will be assessed against the above criteria to determine their priority for management to protect the valued asset of the Black Range natural ecosystem.

For invasive plants the Weed Impact and Invasiveness Assessment Tables at Victorian Resources Online – Weed Impact Assessments will be utilized in the first instance to assist with setting priorities for invasive plant management. [www.vro.agriculture.vic.gov.au](http://www.vro.agriculture.vic.gov.au)

For invasive animals, a Table has been developed and adapted using the decision-making criteria and Assessment Tables detailed above, as for invasive plants. The Black Range Invasive Animal Impact Assessment/Prioritisation Table justifies, ranks and prioritises species importance for action. Justifications are based on referenced scientific research and specific impact, distribution and abundance knowledge documented and known of the Black Range context.

Where invasive plant and animal species do not have specific scientifically valid impact assessment criteria available for decision making, then a panel of experienced local experts/stakeholders will be used to prioritise a species based on the criteria above. There may not be enough information on some species to make a highly reliable assessment. Following the precautionary principle, decisions will need to be made with the information available at the time to prioritise some species, which in the future may need to be re-assessed as new information becomes available.

## 11. TABLES

### 11.1 Prioritised List of IPA to Manage

**Invasive Plant and Animal Priorities for management action to protect the high value Black Range Ecosystem asset.**

See Assessment notes for each species at the BRLMG website.

<https://www.blackrangelandmanagementgroup.net.au>

**Priority 1 for Management Action = new and emerging invasive plants and animals:**

*Any new and emerging invasive plant or animal that is identified early, and is ranked by the Victorian Resources Online (VRO) assessment as highly invasive and has the potential to significantly impact on the biodiversity of the Black Range, i.e.: discovery of a small infestation of Serrated Tussock *Nassella trichotoma*.*

**Priority 2 for Management Action = established invasive plants and animals:**

*The invasive plant priorities listed in the table below are derived from the Victorian State Governments Invasive Plant Impact and Invasiveness Tables on the VRO website*

[www.vro.agriculture.vic.gov.au](http://www.vro.agriculture.vic.gov.au)

This is an objective, science-based decision-making tool used to prioritise the management of invasive plants in Victoria.

The VRO rankings for each species have been applied to the Black Range context, where the Black Range natural ecosystem is identified as the high value asset for protection from invasive plant impact. The *Black Range Invasive Plant Impact Assessment Prioritisation Table* can be found at the BRLMG website.

<https://www.blackrangelandmanagementgroup.net.au>

**Priorities for Established Invasive PLANT Management Action in the Black Range**

<b>Established Invasive Plant Species</b>	<b>Priority for Management Action</b>
Boneseed <i>Chrysanthemoides monilifera</i>	1
Bridal Creeper <i>Asparagus asparagoides</i>	2
St John's Wort <i>Hypericum perforatum</i>	3
Blackberry <i>Rubus fruticosus agg.</i>	4
Gorse <i>Ulex europeus</i>	5
African Weed-Orchid <i>Disa bracteata</i>	6
One-Leaf Cape Tulip <i>Moraea flaccida</i>	7
Paterson's Curse <i>Echium plantagineum</i>	8
Wild Watsonia <i>Watsonia meriana var. bulbifera</i>	9
Cape Broom, Flax Leaf Broom, Sallow Wattle, Horehound, White Arum Lily, Great Mullein, Bluebell Creeper, Wild Mignonette	10
African Lovegrass, Agapanthus, Amsinkia, Cootamundra Wattle, Gazania, Slender/Shore Thistle, Spiny Rush, Stinkwort, Topped Lavender	11

**Priorities for Established Invasive ANIMAL Management Action to protect the high value Black Range Ecosystem asset.**

<b>Established Invasive Animal Species</b>	<b>Priority for Management Action</b>
European Rabbit <i>Oryctolagus cuniculus</i>	1
Feral Goat <i>Capra hircus</i>	2*
Fallow Deer <i>Dama dama</i> , Sambar Deer <i>Rusa unicolor</i> , Red Deer <i>Cervus elaphus</i>	3*
Red Fox <i>Vulpes vulpes</i>	4*
Feral Cat <i>Felis catus</i>	5*

\*More information is required, (i.e. on distribution and abundance and current and potential impact) to make a more reliable assessment of priority for management action. See *Black Range Invasive Animal Impact Assessment Table* for justification notes on each species on the BRLMG website.

<https://www.blackrangelandmanagementgroup.net.au>

### 11.2 IPA IMPLEMENTATION SCHEDULE – Black Range

Pest	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Boneseed												
B. Creeper												
St. John's Wort												
Blackberry												
Gorse												
African Orchid												
Cape Tulip												
Paterson's Curse												
Watsonia												
Rabbits	Baiting Ripping	Baiting Ripping	Ripping	Ripping	Ripping	Fumigate	Fumigate	Fumigate	Fumigate			Ripping
Feral Goats	Trapping Shooting	Trapping Shooting	Trapping Shooting									
Deer	Trapping Shooting	Trapping Shooting	Trapping Shooting									
Foxes		Baiting	Baiting	Baiting			Baiting	Baiting Fumigate	Fumigate	Baiting	Baiting	
Feral Cats	Trapping	Trapping	Trapping	Trapping	Trapping	Trapping	Trapping	Trapping	Trapping	Trapping	Trapping	Trapping

Detailed timing and treatment information/advice can be found at the websites referenced in section 'Specific IPA Species Control Plans'. Table above includes optimum times for treatment.



⇐ BEFORE rabbit warren ripping, integrated with other controls in Black Range



⇐ AFTER rabbit warren ripping, integrated with other controls in Black Range



### 11.3 RESOURCES/COSTS\* - estimates for priority IPA management:

\*(costs at May 2022)

**Boneseed** = 200 ha = (@\$700/person day (pd)) x 35pd = **\$24,500/annum.**

**Bridal Creeper** = 4200ha = (@\$700/pd) x 30 pd = **\$21,000/annum.**

**St John's Wort** = 400ha = (@\$700/pd) x 30 pd = **\$21,000/annum.**

**Blackberry** = 10ha = (@\$700/pd) x 4 pd = **\$2,800/annum.**

**Gorse** = 25ha = (@\$700/pd) x 12 pd = **\$8400/annum.**

**African Weed Orchid** = 1000ha = (@\$700/pd) x 50 pd = **\$35,000/annum.**

**One Leaf Cape Tulip** = 100ha = (@\$700/pd) x 15 pd = **\$10,500/annum.**

**Rabbits** = 4200ha = 1 warren/5ha = 840 warrens = \$120/warren = **\$100,800/1<sup>st</sup>**

**year**, then reducing

(Includes ripping by 15 ton excavator/dozerD5, spotter, follow up control & coordinator).

**Feral Goats** = 4200ha = (\$700/pd) = 150 pd = monitoring, shooting, trapping = **\$105,000/annum**

**Fallow Deer**= 4200ha = (\$700/pd) = 150 pd = monitoring, shooting, trapping = **\$105,000/annum**

Labour rates based on current professional local IPA contractor rates.

Rabbit Control rates based on costs in 'Case Study: Effective rabbit control in pine-buloke woodlands', ([www.feral.org.au/pstsmart/](http://www.feral.org.au/pstsmart/))



**Boneseed spraying in Black Range 2022**

## 12. SPECIFIC IPA SPECIES CONTROL PLANS

### 12.1 Invasive Plant Species in order of priority:

#### Priority Plant 1: Boneseed

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au) > search Boneseed Management Manual
- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Boneseed
- [www.projectplatypus.org.au](http://www.projectplatypus.org.au) > search > Weeds > Common Weed
- [wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au) > search Wimmera Invasive Plant and Animal Strategy
- Black Range Land Management Group: - Information and Management Guide
- Boneseed is highly invasive and dense stands eliminate most indigenous ground flora and prevent virtually all overstorey regeneration. Approximately 200 ha is infested on the north eastern face of the Black Range. Birds are eating and excreting seeds at least 500m from infestation sites. Constant annual vigilance by all landholders across the Black Range is required to pull out seedlings before they flower and seed approx. 1.5 years after emergence. Management action on infested areas is being undertaken in an attempt to mitigate boneseed impact. Steep inaccessible terrain makes treatment challenging. Boneseed is spreading rapidly due to recent wildfire mass germinations, seed dispersal by birds and feral animals (i.e. goats and deer).

Boneseed is prevalent throughout native vegetation areas around Stawell and surrounding forests and there will be constant external invasion pressure ongoing from outside of the Black Range.

Burning areas infested with Boneseed can stimulate mass seed germination of Boneseed, therefore allowing an opportunity to treat a significant percent of the seedbank in the ground, and maximise the success of control programs. This practice requires further investigation for applicability in the Black Range. Due to its current extent of distribution, its highly invasive nature, and its severe impact on biodiversity, Boneseed is a high priority for control in the Black Range.

Potential for spread from Black Range head water tributaries into the Concongella, Pleasant and Mt William Creeks riparian zones.

#### **ECOLOGICAL TARGETS:**

##### **Individual landowners:**

- Annual 5% reduction in Area Infested and % Cover

#### **MANAGEMENT ACTIONS:**

##### **Individual landowners:**

- Annual surveillance undertaken
- Annual control of all plants to prevent seed set

- Support and/or participate in coordinated Boneseed control programs.

**ECOLOGICAL TARGETS:**

**BRLMG**

- Annual 5% reduction in Area Infested.
- Annual 5% reduction in % Cover.

**MANAGEMENT ACTIONS:**

**BRLMG:**

- Promote awareness and understanding of the importance of Boneseed surveillance and management in the Black Range.
- Undertake educational activities to improve landowner Boneseed management capability.
- Coordinate landscape scale Boneseed management programs and facilitate ongoing monitoring and surveillance activities.

## **Priority Plant 2: Bridal Creeper**

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.environment.org.au](http://www.environment.org.au) >search > Asparagus Weeds Management Manual
- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Bridal Creeper
- [www.projectplatypus.org.au](http://www.projectplatypus.org.au) > search Weeds > Common Weed
- [wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au) > search Wimmera Invasive Plant and Animal Strategy
- Black Range Land Management Group: - Information and Management Guide  
Bridal Creeper smothers pre-existing vegetation and prevents other plants from growing. Develops a monoculture within specific layers, displaces all species within a strata. Significant infestations of Bridal Creeper were treated and successfully reduced in the 1990's in the Black Range. Although the impacts on biodiversity have been significantly reduced, Bridal Creeper is still distributed across the Black Range (4200 ha) due to ongoing dispersal, mainly by birds. Ongoing vigilance, surveillance and treatment of isolated infestations is still required in order to prevent rapid spread and impact on biodiversity. High external invasion pressure exists from outside Black Range. Potential for spread from Black Range head water tributaries into the Concongella, Pleasant and Mt William Creeks riparian zones.

**ECOLOGICAL TARGETS:**

**Individual landowners:**

- Annual 5% reduction in Area Infested and % Cover

**MANAGEMENT ACTIONS:**

**Individual landowners:**

- Annual surveillance undertaken.
- Annual control of all plants to prevent seed set.
- Support and/or participate in coordinated Bridal Creeper control programs.

**ECOLOGICAL TARGETS:**

**BRLMG**

- Annual 5% reduction in Area Infested.
- Annual 5% reduction in % Cover.

**MANAGEMENT ACTIONS:**

**BRLMG:**

- Promote awareness and understanding of the importance of Bridal Creeper surveillance and management in the Black Range.
- Undertake educational activities to improve landowner Bridal Creeper management capability.
- Coordinate landscape scale Bridal Creeper management programs and facilitate ongoing monitoring and surveillance activities.

### **Priority Plant 3: St John's Wort**

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > St John's Wort
- [wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au) > search Wimmera Invasive Plant and Animal Strategy
- Black Range Land Management Group: - Information and Management Guide
- St John's Wort forms extensive infestations excluding most other ground flora and seriously impeding overstorey recruitment.
- Due to the current distribution (approx. 400 ha), its invasiveness and potential impact, St John's Wort is elevated above some other invasive plants as a priority for treatment in the Black Range. Constant annual vigilance by all landholders across the Black Range is required as the sticky seed capsules adhere to the wool and fur of animals (e.g., kangaroos, rabbits, feral goats, deer) and seeds passing through animals remain viable. New seedlings should be treated and killed before they flower and set seed.

**ECOLOGICAL TARGETS:**

**Individual landowners:**

- Annual 5% reduction in Area Infested and % Cover.

**MANAGEMENT ACTIONS:**

**Individual landowners:**

- Annual surveillance undertaken.
- Annual control of all plants to prevent seed set.



- Support and/or participate in coordinated St John's Wort control programs.

**ECOLOGICAL TARGETS:**

**BRLMG**

- Annual 5% reduction in Area Infested.
- Annual 5% reduction in % Cover.

**MANAGEMENT ACTIONS:**

**BRLMG:**

- Promote awareness and understanding of the importance of St John's Wort surveillance and management in the Black Range.
- Undertake educational activities to improve landowner St John's Wort management capability.
- Coordinate landscape scale St John's Wort management programs and facilitate ongoing monitoring and surveillance activities.

## **Priority Plant 4: Blackberry**

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.vicblackberrytaskforce.com.au](http://www.vicblackberrytaskforce.com.au) > search Blackberry Control Manual
- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Blackberry
- [wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au) > search Wimmera Invasive Plant and Animal Strategy
- Black Range Land Management Group: - Information and Management Guide  
Blackberry can completely dominate the vegetation of an area in a very short time. Blackberry is occurring in a limited number of moist soaks, gullies and drainage lines where important habitat niches/refuges occur for significant local native flora and fauna. Potential for spread from Black Range head water tributaries into the Concongella, Pleasant and Mt William Creeks riparian zones.

**ECOLOGICAL TARGETS:**

**Individual landowners:**

- Annual 5% reduction in Area Infested and % Cover

**MANAGEMENT ACTIONS:**

**Individual landowners:**

- Annual control of all plants to prevent seed set
- Annual surveillance undertaken.
- Support and/or participate in coordinated Blackberry management programs.

**ECOLOGICAL TARGET:**

**BRLMG:**

- Annual 5% reduction in Area Infested.

- Annual 5% reduction in % Cover.

**MANAGEMENT ACTIONS:**

**BRLMG:**

- Promote awareness and understanding of the importance of Blackberry surveillance and management in the Black Range.
- Undertake educational activities to improve landowner Blackberry management capability.
- Coordinate landscape scale Blackberry management programs and facilitate ongoing monitoring and surveillance activities.

## Priority Plant 5: Gorse

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.vicgorsetaskforce.com.au](http://www.vicgorsetaskforce.com.au) > search Gorse National Best Practice Manual
- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Gorse
- [wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au) > search Wimmera Invasive Plant and Animal Strategy
- Black Range Land Management Group: - Information and Management Guide  
Gorse excludes all indigenous vegetation and prevents regeneration from occurring. Gorse is distributed across approximately 25 hectares of land in the Black Range. Potential for spread from Black Range head water tributaries into the Concongella and Mt William Creeks riparian zones.

**ECOLOGICAL TARGETS:**

**Individual landowners:**

- Annual 5% reduction in Area Infested and % Cover.

**MANAGEMENT ACTIONS:**

**Individual landowners:**

- Annual control of all plants to prevent seed set.
- Annual surveillance undertaken.
- Support and/or participate in coordinated Gorse management programs.

**BRLMG ECOLOGICAL TARGET:**

- Annual 5% reduction in Area Infested.
- Annual 5% reduction in % Cover.

**MANAGEMENT ACTIONS:**

**BRLMG:**

- Promote awareness and understanding of the importance of Gorse surveillance and management in the Black Range.
- Undertake educational activities to improve landowner Gorse management capability.

- Coordinate landscape scale Gorse management programs and facilitate ongoing monitoring and surveillance activities.

## Priority Plant 6: African Weed Orchid

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > African Weed Orchid
- [www.projectplatypus.org.au](http://www.projectplatypus.org.au) > search > Weeds > Common Weed
- [wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au) > search Wimmera Invasive Plant and Animal Strategy
- Black Range Land Management Group: - Information and Management Guide  
African Weed Orchid competes and excludes smaller indigenous flora including orchids, lilies and grasses. Major displacement of some dominant species in the lower strata. Known distribution across the Black Range is estimated to be between 600-1000ha. Seeds which are minute and dust-like are highly dispersible on vehicles/machinery and can be blown many kilometres. Each plant produces tens of thousands of airborne seeds. Due to the difficulty in controlling and preventing spread as well as high invasion pressure from outside the Black Range, it is recommended that control is targeted to mitigate imminent threat to identified high value ground flora assets in the Black Range. Potential for spread from Black Range head water tributaries into the Concongella, Pleasant and Mt William Creeks riparian zones.

### ECOLOGICAL TARGETS:

#### Individual landowners:

- Annual 5% reduction in Area Infested and % Cover.

### MANAGEMENT ACTIONS:

#### Individual landowners:

- Annual control of all plants to prevent seed set.
- Annual surveillance undertaken.
- Support and/or participate in coordinated African Weed Orchid management programs.

### BRLMG ECOLOGICAL TARGET:

- Annual 5% reduction in Area Infested.
- Annual 5% reduction in % Cover.

### MANAGEMENT ACTIONS:

#### BRLMG:

- Promote awareness and understanding of the importance of African Weed Orchid surveillance and management in the Black Range.

- Undertake educational activities to improve landowner African Weed Orchid management capability.
- Coordinate African Weed Orchid management programs and facilitate ongoing monitoring and surveillance activities.

## Priority Plant 7: One Leaf Cape Tulip

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > One Leaf Cape Tulip
- [www.projectplatypus.org.au](http://www.projectplatypus.org.au) > search > Weeds > Common Weed
- [wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au) > search Wimmera Invasive Plant and Animal Strategy
- Black Range Land Management Group: - Information and Management Guide
- Cape Tulip can severely impede the growth and regeneration of indigenous ground flora, but does not establish well in shaded sites. Currently distributed across approximately 100ha of mainly agricultural land systems in and around the Black Range. Potential for spread from Black Range tributaries into the riparian zones of Concongella Creek and Pleasant Creek. Although currently occurring at sites of high public visibility, due to the comparatively reduced dispersal characteristics, and low/medium imminent risk of spread into native woodland ecosystems of upper Black Range, a lower priority for action is appropriate compared to some other invasive plants.

### **ECOLOGICAL TARGETS:**

#### **Individual landowners:**

- Annual 5% reduction in Area Infested and % Cover.

### **MANAGEMENT ACTIONS:**

#### **Individual landowners:**

- Annual control of all plants to prevent seed set.
- Annual surveillance undertaken.
- Support and/or participate in One Leaf Cape Tulip coordinated management programs.

### **BRLMG ECOLOGICAL TARGET:**

- Annual 5% reduction in Area Infested.
- Annual 5% reduction in % Cover.

### **MANAGEMENT ACTIONS:**

#### **BRLMG:**

- Promote awareness and understanding of the importance of One Leaf Cape Tulip surveillance and management in the Black Range.



- Undertake educational activities to improve landowner One Leaf Cape Tulip management capability.
- Coordinate One Leaf Cape Tulip management programs and facilitate ongoing monitoring and surveillance activities.

## 12.2 Invasive Animal Species in order of priority

### Priority Animal 1: Rabbits

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.pestsmart.org.au](http://www.pestsmart.org.au) > search Rabbits
- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Rabbits
- [www.vran.com.au](http://www.vran.com.au) (Victorian Rabbit Action Network)
- Black Range Land Management Group > The Black Range Information Management Guide
- [wca@wcma.vic.gov.au](mailto:wca@wcma.vic.gov.au) > search > Wimmera Invasive Plant and Animal Strategy
- Rabbits are distributed across the Black Range. It takes less than one rabbit per hectare (<3 rabbits/spotlight km) to prevent the successful regeneration of many trees and shrubs. Currently (May 2022) rabbit densities in the Black Range are estimated to be either just below or over this impact threshold in different areas around the range.

Historically rabbit numbers have been very high (above 33 rabbits/spotlight km) in the Black Range and their impact has led to an imbalance in the natural ecosystem, seeing many flora and fauna species either become locally extinct or depleted. The impact of Rabbit Haemorrhagic Disease (RHD) is slowly waning and rabbit populations are expected to continue to rebound. Therefore, due to their invasiveness (high reproductive capacity) and their severe impacts on biodiversity, soil and water, rabbits are the highest priority invasive animal in the Black Range targeted for active management especially while this narrow window of opportunity for effective management exists.

#### **ECOLOGICAL TARGETS:**

##### **Individual landowners:**

- Integrated with other best practice methods, destruction of all warrens (structure) on the property and maintain rabbit population density at less than 1 active entrance per ha to none per ha on the property.

#### **MANAGEMENT ACTIONS:**

##### **Individual landowners:**

- Undertake annual surveillance of rabbit activity and presence of warrens. ([www.feralscan.org.au](http://www.feralscan.org.au) > RabbitScan)

- Undertake annual rabbit control to keep rabbit population density below the ecological target threshold above.
- Support and/or participate in coordinated landscape scale rabbit control/management programs.

**ECOLOGICAL TARGETS:**

**BRLMG Target:**

Target coordinated warren destruction integrated with other best practice methods strategically across the Black Range to reduce rabbit population density to less than 1 active entrance per ha or less than 3 rabbits per spotlight km.

**MANAGEMENT ACTIONS:**

**BRLMG:**

- Coordinate landscape scale rabbit management programs and facilitate ongoing monitoring and surveillance activities. ([www.feralscan.or.au](http://www.feralscan.or.au) > RabbitScan).
- Promote awareness and understanding of the importance of rabbit management in the Black Range.
- Undertake educational activities to improve landowner rabbit management capability.
- Collaborate with contractors of warren ripping and fumigation works to ensure best practice methods are employed to maximise effectiveness of actions.

**CONTRACTORS:**

- Ensure adequate training and supervision of on-grounds workers to employ best practice methods with maximise effectiveness.

## Priority Animal 2: Feral Goats

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.awe.gov.au](http://www.awe.gov.au) > search > Threat Abatement Plan for competition and land degradation by unmanaged goats 2008)
- [www.pestsmart.org.au](http://www.pestsmart.org.au) > search Feral Goats
- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Integrated feral goat control
- [www.pir.sa.gov.au](http://www.pir.sa.gov.au) > search > Best practice feral goat management module
- [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au) > search > feral goat control
- NSW DPI, Orange – Monitoring techniques for vertebrate pests: Feral goats
- Anecdotal observations of feral goats, feral goat sign and damage has appeared to have increased over the last two decades in the Black Range. Feral goat populations can increase up to 50% per year under favourable conditions. Feral goat grazing can prevent the regeneration of native vegetation, cause soil erosion, spread weeds, and they can also foul waterholes and potentially damage aboriginal cultural sites. Concerted efforts to monitor the abundance and

distribution of feral goats in the Black Range is required in order to develop effective management programs.

**ECOLOGICAL TARGETS:**

**Individual landowners:**

- Manage feral goats to demonstrably minimise/prevent their grazing impact on native vegetation on their property.

**MANAGEMENT ACTIONS:**

**Individual landowners:**

- Record feral goat distribution and abundance and provide to the BRLMG. I.e.- Survey Form [www.feralscan.org.au](http://www.feralscan.org.au) FeralGoatScan
- Opportunistic control/management of feral goats using best practice methods, i.e., humane shooting complying with firearms laws and Prevention of Cruelty to Animals Act 1986 (POCTA).
- Support and/or participate in coordinated landscape scale feral goat control programs.

**ECOLOGICAL TARGETS:**

**BRLMG:**

Manage feral goats to demonstrably minimise/prevent their grazing impact on native vegetation across the Black Range. (Minimum impact threshold to be determined based on future knowledge derived from feral goat impact assessment monitoring).

Reduce Black Range feral goat population by ???? (% reduction dependant on knowledge derived from distribution and abundance monitoring).

**MANAGEMENT ACTIONS:**

**BRLMG:**

- Phase 1 - Monitor the abundance and distribution of feral goats in the Black Range in order to develop effective management programs. Investigate use of [www.feralscan.org.au](http://www.feralscan.org.au) > FeralGoatScan App Mapping & Monitor Tool. Includes improve knowledge and understanding of feral goat impacts and interactions with other species and ecological processes.
- Phase 2 - Undertake feral goat trial control/management methodologies informed by data and analysis collected through monitoring.
- Phase 3 - Develop a feral goat management plan and then implement the most effective integrated feral goat management methodologies for use in the Black Range (monitor and evaluate the impact of management activities).
- Coordinate best practice feral goat management programs and facilitate ongoing monitoring and surveillance activities.

## Priority Animal 3: Fallow, Sambar and Red Deer

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.pestsmart.org.au](http://www.pestsmart.org.au) > search Feral Deer
- [www.feraldeerplan.org.au](http://www.feraldeerplan.org.au) > National Feral Deer Action Plan
- [www.delwp.vic.gov.au](http://www.delwp.vic.gov.au) > search > Victorian Deer Control Strategy
- [www.invasives.org.au](http://www.invasives.org.au) > search > feral deer > fact sheets
- [www.pir.sa.gov.au](http://www.pir.sa.gov.au) > search > feral deer management module
- Victorian Deer Control Strategy [www.delwp.vic.gov.au](http://www.delwp.vic.gov.au)
- Wimmera Regional Deer Control Plan (BRLMG to participate in the Partnership Group)

Anecdotal observations of Fallow Deer, Fallow Deer sign and damage has appeared to have increased over the last two decades in the Black Range. Fallow Deer are distributed across the Black Range. A small number of Sambar and Red Deer have been confirmed on remote cameras as present in the Black Range as of March 2023. Deer populations can significantly reduce the health of natural ecosystems. Deer contribute to shrub and ground layer disturbance, plant and habitat destruction through grazing. Localised soil compaction and erosion, degradation of waterways and the spread of weeds. Concerted efforts to monitor the abundance and distribution of feral deer in the Black Range is required in order to develop effective management programs.

### ECOLOGICAL TARGETS:

#### Individual landowner:

- Manage deer to demonstrably minimise/prevent their grazing impact on native vegetation.

### MANAGEMENT ACTIONS:

#### Individual landowners:

- Record deer distribution and abundance and provide to the BRLMG. I.e., Survey Form/ [www.feralscan.org.au](http://www.feralscan.org.au) > DeerScan
- Opportunistic control/management of deer using best practice methods, i.e. humane shooting complying with firearms laws and Prevention of Cruelty to Animals Act 1986 (POCTA).
- Support and/or participate in coordinated landscape scale fallow deer control programs.

### ECOLOGICAL TARGETS:

#### BRLMG Target:

- Manage feral deer to demonstrably minimise/prevent their grazing impact on native vegetation across the Black Range. (Minimum impact threshold to be determined based on future knowledge derived from feral deer impact assessment monitoring).

- Reduce deer population by ???% (% dependant on knowledge derived from distribution and abundance monitoring).

**MANAGEMENT ACTIONS:**

**BRLMG:**

- Phase 1 - Monitor the abundance and distribution of feral deer in the Black Range in order to develop effective management programs. Investigate use of [www.feralscan.org.au](http://www.feralscan.org.au) DeerScan App Mapping & Monitor Tool. Includes improving knowledge and understanding of feral deer impacts and interactions with other species and ecological processes.
- Phase 2 - Undertake feral deer trial control/management methodologies informed by data and analysis collected through monitoring.
- Phase 3 - Develop a feral deer management plan and then implement the most effective integrated feral deer management methodologies for use in the Black Range (monitor and evaluate the impact of management activities).
- BRLMG to have representation on the Wimmera Regional Deer Control Plan – Partnership Group.
- Coordinate best practice feral deer management programs and facilitate ongoing monitoring and surveillance activities.

### **Priority Animal 4: Fox**

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.awe.gov.au](http://www.awe.gov.au) > search > Threat Abatement Plan for predation by European red fox 2013
- [www.feral.org.au/pestsmart/](http://www.feral.org.au/pestsmart/) > search > Improving Fox Management Strategies in Australia
- [www.pestsmart.org.au/toolkits/European-foxes/](http://www.pestsmart.org.au/toolkits/European-foxes/)
- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Integrated fox control
- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Red Fox

It is estimated that there are 7.2 million foxes in Australia based on a density of two foxes per square kilometre. (McLeod 2004). Current density in the Black Range is unknown. Evidence shows that fox predation is a major threat to the survival of native Australian fauna, (Saunders et al. in press). Native fauna at the greatest risk to fox predation are those that weigh between 35 and 5,500 grams (sometimes referred to as critical weight-range species). For example, ground nesting birds and freshwater turtles that leave the water to lay eggs. Further research of local native fauna species at risk from fox predation is required in order to make a more reliable assessment of predation risks. There are currently no known occurrences of nationally/state threatened species at threat from fox predation in the Black Range, ([www.wcma.vic.gov.au](http://www.wcma.vic.gov.au) *Threatened Fauna List in the Wimmera*).



Due to the abundance and distribution of the fox population across the broader landscape, it is unrealistic to control fox populations and their spread. Therefore, management programs should focus on protection of specific high value assets where effective management can be realistically sustained.

**ECOLOGICAL TARGETS:**

**Individual landowners:**

- Manage foxes to minimise their predation impact on identified high value native fauna or domestic animals (livestock) species on their property.

**MANAGEMENT ACTIONS:**

**Individual landowners:**

- Record fox distribution and abundance and provide to the BRLMG. I.e. Survey Form/ [www.feralcan.org.au](http://www.feralcan.org.au) > FoxScan
- Opportunistic control/management of foxes using best practice methods.
- Support and/or participate in coordinated landscape scale fox control programs.

**ECOLOGICAL TARGETS:**

**BRLMG Target:**

- Mitigate predation on identified high value native fauna species (to be determined) in the Black Range.

**MANAGEMENT ACTIONS:**

**BRLMG:**

- Phase 1 - Develop and undertake monitoring programs to improve knowledge and understanding of fox impacts and interactions with other species and ecological processes.
- Phase 2 - Assess future need for native fauna species recovery plans to identify species that are known (e.g.: Southern Brown Bandicoot) or suspected to be threatened by fox predation.
- Phase 3 - Monitor the abundance and distribution of foxes in the Black Range to inform potential future management programs. Investigate use of [www.feralscan.org.au](http://www.feralscan.org.au) FoxScan App Mapping & Reporting tool.
- Phase 4 - Develop potential future fox management programs based on findings of research outcomes above.

## **Priority Animal 5: Feral Cat**

For identification, biology and management information view these scientifically valid and reliable information sources:

- [www.awe.gov.au](http://www.awe.gov.au) > search > Threat Abatement Plan for predation by feral cats

- [www.pestsmart.org.au](http://www.pestsmart.org.au) /toolkits/Feral Cats/
  - [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Cat (feral or wild)
- Recent reported anecdotal observations of feral cats in the Black Range appear to be few and only occasional. It is difficult to accurately assess their current distribution and abundance.

There are currently no known occurrences of nationally/state threatened species at threat from feral cat predation in the Black Range. ([www.wcma.vic.gov.au](http://www.wcma.vic.gov.au) *Threatened Fauna List in the Wimmera*). Further native fauna research programs in the Black Range would be required in order to provide a reliable assessment of the native fauna species and populations at risk.

Due to the abundance and distribution of the feral cat population across the broader landscape, it is unrealistic to control feral cat populations and their spread. Therefore, management programs should focus on protection of specific high value assets where effective management can be realistically sustained.

Feral cats are a declared established pest species only on specified Crown land in Victoria. Private landholders can manage cats roaming on their land in accordance with current laws (*Domestic Animals Act 1994 and Prevention of Cruelty to Animals Act 1994*). They can be trapped and handed to local councils to be scanned for a domestic pet microchip to confirm their feral status or not. For further information: - [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search cat-feral-or-wild and humane-cage-trapping-of-cats.

#### **ECOLOGICAL TARGETS:**

##### **Individual landowners:**

- Manage feral cats to minimise their predation impact on identified high value native fauna or domestic animals (livestock) species on their property.

#### **MANAGEMENT ACTIONS:**

##### **Individual landowners:**

- Record feral cat distribution and abundance and provide to the BRLMG. I.e., Survey Form/ [www.feralscan.org.au](http://www.feralscan.org.au) > FeralCatScan
- Opportunistic management of feral cats using best practice methods and in accordance with current laws.
- Support and/or participate in coordinated landscape scale feral cat control programs.

#### **ECOLOGICAL TARGETS:**

##### **BRLMG Target:**

- Mitigate predation on identified high value native fauna species (to be determined) in the Black Range.

#### **MANAGEMENT ACTIONS:**

##### **BRLMG:**

- Phase 1 - Develop and undertake monitoring programs to improve knowledge and understanding of feral cat impacts and interactions with other species and ecological processes.
- Phase 2 - Assess future need for native fauna species recovery plans, to identify species that are known (e.g.: Southern Brown Bandicoot) or suspected to be threatened by feral cat predation.
- Phase 3 - Monitor the abundance and distribution of feral cats in the Black Range to inform potential future management programs. Investigate use of [www.feralscan.org.au](http://www.feralscan.org.au) FeralCatScan App Mapping & Reporting tool.
- Phase 4 - Develop potential future feral cat management programs based on findings of research outcomes above.

### 12.3 Invasion Spread Pathway Management

While pest animals can move across the landscape with or without assistance, invasive plants are spread by wind, in running water, or by hitching a ride to/in moving animals or machinery. People sometimes spread weed seeds when mixed up in hay, grain and soil when it is transported to and deposited in new areas. Weeds can also be spread when invasive plants escape from the garden into a natural or agricultural ecosystem.

A risk assessment of weed spread pathways by the Department of Primary Industries in 2007, found a number of industries with high risk weed spread. Those industries applicable to the Black Range are: Seeds that are traded (including internet), Landscaping, Nursery, Earthmoving, Soil supplies, Wildfire management and recovery, Fodder, Linear Reserve management, i.e. roads/rail easements.

High risk spread pathways applicable to the Black Range include but are not limited to:

- Deliberate introductions via commercial and private trade, including on the internet
- Contaminated goods/produce
- Contaminated vehicles and equipment
- Deliberate introductions and introductions via recreational activities.

#### **Actions:**

- *BRLMG can assist in managing IPA invasion spread pathways by: Undertaking targeted education, advocacy and partnership programs with landowners and local industries to manage IPA invasion spread pathways, i.e. distribute 'Grow Me Instead Booklet' (available at: [www.growmeinstead.com.au](http://www.growmeinstead.com.au)) to local nursery/garden suppliers and Black Range landowners.*
- *BRLMG can collaborate with Northern Grampians Shire as a key partner, re: preventing weed spread along road easements. Mapping and marking roadside invasive plant infestations and implementing machinery hygiene practices.*

- **Agriculture Victoria can provide advice to landowners and BRLMG on the biosecurity approach to preventing weed spread on private property see:** [www.agriculture.vic.gov.au/biosecurity/weeds/reducing-weed-risk](http://www.agriculture.vic.gov.au/biosecurity/weeds/reducing-weed-risk) and [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) search > Biosecurity > Biosecurity Plans > Biosecurity plans build consumer confidence and protect businesses > Farm Biosecurity Action Planner
- **BRLMG identifies high risk IPA spread pathways into Black Range and develops a strategic approach/plan to mitigate IPA invasion risks.**

### **13. PROTECTING CULTURAL AND BIODIVERSITY VALUES DURING IPA OPERATIONS**

#### **Aboriginal Cultural Heritage Protection:**

The BRLMG recognises the significant connection that Traditional Owners have to the land, and in particular to the Black Range, which has special significance to local Registered Aboriginal Parties: Barengi Gadjin Land Council ([www.bglc.com.au](http://www.bglc.com.au)) and Eastern Maar Aboriginal Corporation ([easternmaar.com.au](http://easternmaar.com.au))

Traditional owners are an important partner in the restoration and protection of the Black Range natural ecosystem from the impacts of invasive plants and animals. Continued collaboration with Traditional Owners will enable mutually beneficial outcomes if this plan can be successfully implemented. Protection of Aboriginal cultural values/sites is required when implementing all IPA works.

For further information on how to identify potential aboriginal cultural heritage sites and how to protect them go to:

- [www.landcarevic.org.au/resources/aboriginal-cultural-heritage-guide/](http://www.landcarevic.org.au/resources/aboriginal-cultural-heritage-guide/)
- [www.firstpeoplesrelations.vic.gov.au/aboriginal-culture-and-heritage](http://www.firstpeoplesrelations.vic.gov.au/aboriginal-culture-and-heritage). > search Heritage > Aboriginal places and objects > Fact Sheets > i.e. Aboriginal Places on Private property, Aboriginal Scar Trees, Aboriginal rock art, Aboriginal flaked stone tools, Aboriginal stone arrangements, etc.
- [www.bglc.com.au](http://www.bglc.com.au) Barengi Gadjin Land Council.
- [easternmaar.com.au](http://easternmaar.com.au) Eastern Maar Aboriginal Corporation.

Information relating to ripping rabbit warrens and any potential risk to cultural heritage sites can be found on Landcare Victoria's website.

<https://www.landcarevic.org.au/resources/aboriginal-cultural-heritage-guide/>

#### **Historic European Cultural Heritage Protection:**

Care should be taken not to damage known sites of European historic importance.

Further information on managing risk can be found at: (*Resource Protection Guidelines – Rabbit Control Wimmera, Published by the Dept. of Natural Resources and Environment, East Melbourne, 2000*).

### **Biodiversity Protection:**

If not well planned and inappropriately implemented, rabbit control operations can adversely impact on biodiversity. Considerable experience has shown good planning and the selection of appropriate control measures can provide a very high level of rabbit control without long term damage to biodiversity. In most cases the potential environmental benefits of rabbit removal will far outweigh the relative risks to native flora and fauna of the rabbit control operations. However, there will be some flora and fauna values for which special precautions may be essential to avoid a significant impact upon the population locally or regionally. (*Resource Protection Guidelines – Rabbit Control Wimmera, Published by the Dept. of Natural Resources and Environment, East Melbourne, 2000*).

This document provides detailed information on how to protect biodiversity and cultural values during rabbit control operations. Currently out of print the Black Range Land Management Group has a copy which will be available on the group's website or by contacting the Biosecurity Officer, Agriculture Victoria Ararat.

The nationally threatened Southern Brown Bandicoot (*Isodon obesulus*) is thought to have become recently extinct from the Black Range. There are several publications that provide guidance on mitigating potential impacts of rabbit control on any future populations of Southern Brown Bandicoot found in the Black Range, e.g.:

- [www.platypus.org.au](http://www.platypus.org.au) > search > Southern Brown Bandicoot Recovery Plan Upper Wimmera Region,
- [www.cdn.environment.sa.gov.au](http://www.cdn.environment.sa.gov.au) > search Southern Brown Bandicoot Recovery Plan
- [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au) > search > Integrated Rabbit Control.
- Resource Protection Guidelines – Rabbit Control Wimmera, Published by the Dept. of Natural Resources and Environment, East Melbourne, 2000

The Agricultural and Veterinary Chemicals (Control of Use) Act 1992 imposes controls in relation to the use, application and sale of agricultural chemicals, i.e., 1080, pindone, aluminium phosphide products registered for rabbit control.

Following the registered chemical product labels 'Directions For Use', will ensure the safe and effective use of chemicals, thereby minimising any potential impacts on biodiversity.

## **14. KNOWLEDGE GAPS AND RESEARCH OPPORTUNITIES**

- Understanding large herbivore (feral goat and feral deer) distribution, abundance and impact on biodiversity in the Black Range.
- Understanding the relationships between feral and native animal grazing and impact in the Black Range.
- Use of most appropriate monitoring methodologies for identifying IPA distribution, abundance and impact.



- Trialling of methodologies of IPA control i.e. (goats and deer) 'fit for purpose' in the Black Range.
- Development and implementation of community engagement plans to address priority IPA management issues in the Black Range.
- Opportunities to involve absentee large property landowners in IPA management.
- Use of cultural burning practices to manage IPA, e.g., Boneseed control.
- The use of Exclosure Plots to monitor the impacts of feral herbivores on native flora and fauna.
- Use of new IPA biological control agents in the Black Range.
- Opportunities to implement native flora and fauna species recovery programs in the Black Range and the role IPA management will play? E.g., restoration of Southern Brown Bandicoot habitat from invasive plants to native flora in addition to predator control.
- Better understanding required on Fox and Feral Cat distribution, abundance and impact on native fauna in the Black Range.
- The relationship between climate change and IPA species and the potential combined impacts on biodiversity in the Black Range.
- Opportunities to collaborate with secondary schools to implement environmental learning activities to foster ongoing environmental stewardship.

## 15. EMERGING THREATS AND CHALLENGES – with management actions

For a comprehensive list on emerging issues for invasive species management, refer to the *Wimmera Invasive Plant and Animal Strategy 2019, 7.2 Emerging Issues for Invasive Species Management*, at [www.wcma.vic.gov.au](http://www.wcma.vic.gov.au)

Some IPA Emerging Threats and Challenges currently applicable for the Black Range include:

1. INTRODUCTION OF ANIMALS FOR HUNTING: Deliberate introductions of invasive animal species into the Black Range by recreational hunters, i.e., feral goats, deer and feral pigs.  
**Actions:**
  - *Communication and engagement with landowners and community on the negative impacts of IPA.*
  - *As a last resort, enforcement action by government agencies through implementation of the Catchment & Land Protection Act 1994.*
2. WEEDS AFTER WILDFIRE: In a changing climate, the increase in frequency, intensity and size of environmental events such as wildfire, flood and drought bring a higher risk of introducing and spreading new/existing IPA in the Black Range. The impact of these events on the resilience of natural ecosystems can

allow the accelerated introduction, spread and impact of invasive plants and animals. E.g. mass germination of boneseed and its spread after 2006 and 2014 wildfires in the Black Range. Increased predation by foxes and feral cats of Southern Brown Bandicoot when numbers are low, under stress and without suitable habitat protection caused by extended drought and wildfire.

**Actions:**

- *BRLMG promotes to landowners the importance of predicting, planning for and quickly responding to significant environmental events, e.g., wildfire.*
- *Focus of education will be on having contingencies for response at a property level, which would include surveillance and timely treatment of IPA infestations, e.g. boneseed which can have mass germinations stimulated by fire.*
- *Managing IPA spread pathways present in the recovery phase after wildfire, e.g. contractor machinery, or livestock bringing new weeds into the property.*
- *Flood: Weed propagules can be dispersed in flood waters, i.e. at times of increased rain events such as La Nina. High risk areas should be monitored for several years afterwards to detect new weed infestations.*

For more information on managing spread pathways after environmental events go to: [www.agriculture.vic.gov.au/biosecurity/weeds/reducing-weed-risk](http://www.agriculture.vic.gov.au/biosecurity/weeds/reducing-weed-risk).

3. REGIONAL WEED INVASION: Ongoing invasion pressure from key established and widespread IPA species from the greater region outside of the Black Range, i.e. rabbits, foxes, feral cats, deer, boneseed, bridal creeper, African weed orchid.

**Actions:**

- *Landowners to undertake seasonal surveillance activities to identify and treat new infestations of IPA before they seed or reproduce the next generation of IPA.*
- *Where appropriate the BRLMG promote and advocate the ongoing requirement for broad landscape scale management of key established IPA species within the Upper Wimmera River catchment. i.e. BRLMG representation on Project Platypus IPA management planning committees/forums and the Wimmera Regional Deer Control Plan – Partnership Group.*

4. LANDHOLDER CAPABILITIES: The changing demography of land ownership in and around the Black Range, brings new landowners potentially without the experience, knowledge and capability to undertake effective invasive plant and animal management, along with aging landholders less able to implement IPA control plans.

**Action: -**

- *BRLMG undertakes communication, engagement and education programs to build the IPA management capability of new landowners to the Black Range.*

5. COORDINATION WITH ALL PRIVATE LANDHOLDINGS: For some time, there has been several large tracts of land within the Black Range owned by absentee landowners. Current privacy legislation can make engagement difficult, along with differing motivations for land ownership. It will be challenging to maximise the achievements of coordinated landscape scale IPA management across the Black Range without the future involvement of these landowners.

**Action:**

- *BRLMG to investigate opportunities for strategic engagement with absentee landowners to engender respect, trust and collaboration for mutual benefit from IPA management activities. Using the engagement principles which underpin IAP2 – Spectrum of Public Participation will maximise the chance of successful engagement with absentee landowners.*

6. EDUCATION ON GARDEN PLANTS: The accidental or deliberate introduction and spread of garden plants (weeds) which can have a severe impact on the Black Range natural ecosystem asset, is an ongoing threat and challenge.

**Action:**

- *Communication and education programs. Source and distribute the Nursery and Garden Industry of Australia 'Grow Me Instead Booklet' (available at: [www.growmeinstead](http://www.growmeinstead) ) or similar publications to Black Range landowners.*

7. CARE FOR UNINTENDED CONSEQUENCES: Increasingly in order to have a social licence to operate in pest management, all IPA management programs must take into account animal welfare, food/fibre safety and off-target environmental impacts.

**Actions:**

- *IPA management programs are planned and implemented using best practice management (scientifically valid) methodologies.*
- *The use of chemicals complies with the Agricultural Chemicals Control of Use Act. i.e. chemical use follows product label and directions for use – which is a legal document.*

8. NEW AND PARTNERED APPROACHES TO LAND MANAGEMENT: Certain IPA species both old and new to the Black Range are for various reasons accelerating their distribution and abundance and impact on the Black Range ecosystem. I.e. Boneseed, Feral Goats, Fallow Deer and rabbits as RHD population immunity increases.

**Actions:**

- *As a priority, the BRLMG to focus on monitoring and research on impacts and control technologies to better understand and mitigate the impacts of these species. I.e., remote camera/and other methodologies used in collaboration with Parks Victoria to understand the distribution, abundance and impacts of the species in the Black Range.*
- *BRLMG to undertake programs to learn from Traditional Owners (and state fire management agencies) how to effectively conduct traditional burning techniques to stimulate mass boneseed germination events which will allow more effective control soon after.*
- *Trialling and utilising Traditional Owner burning techniques to improve diversity and abundance of native plant communities, which are more resilient and less likely to be invaded by invasive plant species.*
- *BRLMG/landowners to undertake trapping trials for feral goats and deer.*
- *BRLMG to investigate the use of the Judas goat tracking and control method in the Black Range.*
- *BRLMG to investigate the use of responsible shooters/organisations to undertake coordinated strategic destruction programs for feral goats and deer.*

## **16. PLAN MONITORING AND EVALUATION**

Given the minimal resources that the BRLMG has for monitoring and evaluation (i.e.: all volunteer effort), monitoring the progress and achievements of this plan should in the first instance utilise existing monitoring and reporting processes contained in grant agreements with funding bodies. These are usually in the form of 'Outputs', i.e.: area of Blackberry treated. Reports on grant project outputs should be kept by the BRLMG and ideally included in a final evaluation report on the achievements of this management plan.

To monitor the ecological 'Outcomes' of this plan requires the commitment of significant resources, over the long term, i.e.: increase in diversity and abundance of understorey species in the Black Range attributable to reduced grazing pressure from invasive animals. Where possible, partnering with research organisations e.g.: universities, Parks Victoria/ DELWP/Project Platypus etc, may be beneficial in implementing 'Outcome' based monitoring programs. Ideally, an evaluation on the achievements of this management plan should be completed after the plan's end date. Monitoring programs established during the life of the plan should be developed with the intent of including the results in a final evaluation of this plan.

The monitoring and evaluation processes detailed in the Wimmera Invasive Plant and Animal Strategy should be followed by the BRLMG where applicable and available resources allow.



**APPENDIX 1 - IMAGES**



**Boneseed - Black Range**



**Bridal Creeper - Black Range Basin Res.**



**St John's Wort - Upper Wimmera**



**Cape Tulip - Black Range**



**Fallow Deer - Black Range**



**Sambar Deer - Black Range**



## **APPENDIX 2 – ACKNOWLEDGMENTS**

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## **ATTACHMENT 1 - SUMMARY DOCUMENT**

Refer to attachment:

‘Black Range Invasive Plant & Animal (IPA) Management Plan 2023-2028’