Victorian Kangaroo Harvest Management Plan

2024-2028



VICTORIA State Government | Energy, Environment and Climate Action

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria's Aboriginal community to progress their aspirations.



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Definitions

Definitions	
Commercial quota	The annual quota available for the Kangaroo Harvesting Program.
Ecological unit	Landscape-scale approach to classifying the environment using a range of attributes such as climate, geomorphology, geology, soils, and vegetation (for example Bioregions or Ecological Vegetation Class (EVC) benchmarks).
Emergency	As defined in section 3 of the *Emergency Management Act 2013*, at the time of drafting this plan means- an emergency due to the actual or imminent occurrence of an event which in any way endangers or threatens to endanger the safety or health of any person in Victoria or which destroys or damages, or threatens to destroy or damage, any property in Victoria or endangers or threatens to endanger the environment or an element of the environment in Victoria including, without limiting the generality of the foregoing— (a) an earthquake, flood, wind-storm or other natural event; and (b) a fire; and (c) an explosion; and (d) a road accident or any other accident; and (e) a plague or an epidemic or contamination; and (f) a warlike act or act of terrorism, whether directed at Victoria or a part of Victoria or at any other State or Territory of the Commonwealth; and (g) a hi-jack, siege or riot; and (h) a disruption to an essential service.
Exclusion Zone	Kangaroo harvest management zone in Victoria where harvesting of grey kangaroos cannot occur.
Field Depot	As defined in section 3 of the *Meat Industry Act 1993,* at the time of drafting this Plan, means a game processing facility used in the wild to store game meat temporarily under refrigeration before its transport to another game processing facility.
Game processing facility	As defined in section 3 of the *Meat Industry Act 1993,* at the time of drafting this Plan, means a meat processing facility for game.
Grey kangaroos	Collectively, the eastern grey kangaroo (*Macropus giganteus)* and the western grey kangaroo (*Macropus fuliginosus).*
Harvest Zone	Kangaroo harvest management zones in Victoria where harvesting of kangaroos can occur as authorised under the Kangaroo Harvest Management Plan.
Harvester	A person authorised to harvest grey kangaroos under section 28A of the *Wildlife Act 1975.*
Landholder	A holder, owner, land manager, or occupant of land.
Meat processing facility	As defined in section 3 of the *Meat Industry Act 1993,* at the time of drafting this Plan, means- (a) a general meat processing facility; or (b) a pet food processing facility; or (c) a butcher shop; or (d) any place or vehicle that is used for the sale of meat for human consumption or the handling, storage, or transportation of meat for sale for human consumption but does not include a place or vehicle- (i) where more manufactured meat, or products that contain some or no meat, is sold than unmixed meat; or (ii) where meat is sold to be consumed at that place or vehicle.
Operator	As defined in section 3 of the *Meat Industry Act 1993,* in relation to a meat processing facility, at the time of drafting this Plan, means the operator of that facility within the meaning of Part 4 of that Act. Specifically, a person authorised to operate a meat processing facility under the relevant licence.

Pet food processing facility	As defined in section 3 of the *Meat Industry Act 1993*, at the time of drafting this Plan, means- (a) a knackery; or (b) a place or vehicle (other than a retail butcher shop) where meat or seafood intended for consumption as pet food is stored for sale, prepared for sale or sold.
PrimeSafe	The statutory Authority established under the *Meat Industry Act 1993* that has function which includes among other things, controlling and keeping under review these standards of meat, poultry meat and game meat produced for consumption or sale within Victoria.
Public land manager	The manager of public land is provided for in the relevant acts governing the management of public land, including but not limited to: *(a)* a committee of management appointed under the *Crown Land (Reserves) Act 1958* (b) Parks Victoria for national parks and state parks under the *National Parks Act 1975.*
Separate quota	A *separate quota* is a quota provided for Harvesting that occurs on specified public land. A *separate quota* is outside of the released *commercial quota* for each Harvest Zone, but still incorporated into the *total quota* for that year.
Total quota	The *total quota* of grey kangaroos approved to be taken across Victoria including both through the Kangaroo Harvesting Program and Authority to Control Wildlife system. No more than 10% of Victoria's estimated grey kangaroo population.
Wildlife Processors	A holder of a Wildlife Processor Licence issued by the Secretary of DEECA under section 22 of the *Wildlife Act 1975* that authorises the person to receive and be in possession of grey kangaroos for the purpose of commercial processing.

Acronyms

Acronyms	
ARI	Arthur Rylah Institute for Environmental Research.
ATCW	Authority to Control Wildlife.
CBD	Central Business District.
CR	Conservation Regulator.
DEECA	Department of Energy, Environment, and Climate Action.
DJSIR	Department of Jobs, Skills, Industry and Regions.
WTO	Wildlife Trade Operation.
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999 (Cth).*
GMA	The Game Management Authority.
KHMP	Kangaroo Harvest Management Plan.
KHP	Kangaroo Harvesting Program.
LGA	Local Government Area.
WTMP	Wildlife Trade Management Plan.

Supporting links

Supporting links
Environment Protection and Biodiversity Conservation Act 1999 (Cth)
Game Meat Processing - PrimeSafe
Kangaroo Harvesting Program - DJSIRKangaroo Harvesting Program - DJSIR
Kangaroos - DEECA
Kangaroo Management - Service Victoria
Meat Industry Act 1993 (Vic)
National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for non-Commercial Purposes
National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes
Prevention of Cruelty to Animals Act 1986 (Vic)
Reporting and governance - GMA
Wildlife Act 1975 (Vic)
Wildlife Regulations 2013 (Vic)

Introduction

In Victoria, the Kangaroo Harvest Management Plan (KHMP) 2024-2028 outlines the standards and rules for the commercial harvesting of kangaroos. It considers relevant State and Commonwealth legislation (see **Legislative and regulatory framework**) and importantly, these rules require that any commercial kangaroo harvesting is sustainable and humane.

This Plan has an overarching goal with eight aims and sets out how the harvesting of eastern grey kangaroo (*Macropus giganteus)* and the western grey kangaroo (*Macropus fuliginosus)* must be administered by the government and conducted by harvesters and processors.

The current framework for harvesting grey kangaroos for commercial purposes in Victoria has been in place since 1 October 2019. This Plan replaces the KHMP 2021-2023 which expired on December 31, 2023.

Commercial harvesting operates alongside the Authority to Control Wildlife system (ATCW) provided for in the Wildlife Act (see **Appendix 3: Managing the KHP alongside the ATCW system**). It provides landholders an alternative to undertaking their own authorised control of grey kangaroos under the ATCW system.

Commercial harvesting is permitted under this Plan, which sets out the Harvest Zones and requirements for the ecologically sustainable and humane harvesting of kangaroos to be processed for pet food or human consumption. This Plan is administered through the Kangaroo Harvesting Program (KHP).

A review of the preceding KHMP 2021-2023, including public consultation, was undertaken as part of the development of this Plan.

Commercial harvesting activities and impacts have been closely monitored throughout the life of the previous plan to ensure that any potential long-term impacts on Victoria’s grey kangaroo populations from harvesting activities are minimised and mitigated.

About this Plan

Scope

The KHMP 2024-2028 has been developed to set out the actions for the sustainable and humane harvest of grey kangaroos in Victoria.

Primarily this Plan has been prepared so:

- it is a 'recognised wildlife management plan' approved by the Secretary of DEECA under section 28A(1)(h) of the Wildlife Act and enables the authorisation of the harvesting activities as set out in this Plan
- to satisfy the requirements of Part 13A of the EPBC Act as they relate to the export of kangaroo products.

The KHMP 2024-2028 may remain in force for the length of the Australian Governments declaration of the Plan as an approved WTMP under the EPBC Act.

Australian Government WTMP declarations remain valid for 5 years from the day on which the declaration took effect unless specified otherwise, or unless the Plan is replaced before that time.

Any Wildlife Act authorisations issued under this Plan will expire on the date listed on the authorisation, unless revoked or this Plan ceases operation.

As part of its primary function and to fulfill legislative and regulatory obligations, this Plan:

- permits the commercial harvest of eastern grey and western grey kangaroos on private land in designated Harvest Zones and on specified areas of public land
- sets out the 8 aims with associated actions and indicators for government and market participants
- applies only to the commercial harvesting of kangaroos.

This Plan does not:

- seek to describe or provide guidance for the management of kangaroos beyond commercial harvesting
- authorise any person to take action with respect to kangaroos under the Wildlife Act. Persons seeking to carry out commercial harvesting must obtain an authorisation under section 28A of the Wildlife Act as part of the KHP
- replace or limit the ability for landholders to apply for an ATCW to control kangaroos on other valid bases outside of the KHP process and this Plan, such as for damage mitigation purposes.

The control of grey kangaroos under the ATCW system has traditionally been the only option for Victorian landholders seeking to control kangaroos on their property. The KHP substitutes a significant proportion of the control that would have otherwise been permitted through the ATCW system. Since the KHP began in 2019, landholders have increasingly showed a preference for accessing the KHP rather than applying for an ATCW. The KHP now accounts for approximately half of kangaroo control in Victoria (see KHP annual statistics).

The ATCW system remains available to landholders and land managers who sit outside Harvest Zones or who do not wish to participate in the KHP (see **Appendix 3: Managing the KHP alongside the ATCW system**).

While the ATCW system operates outside the scope of this Plan, any control measures undertaken through that system are accounted for in the overall management of grey kangaroo populations in Victoria to ensure that the total number of kangaroos taken remains within defined limits and is sustainable.

Legislative and regulatory framework

This Plan is guided by State and Commonwealth legislative and regulatory frameworks and enables the authorisation of the harvesting activities as described below. Any references in this Plan extends to subsequent legislation or regulations made that replace those described.

Victorian legislation

Wildlife Act 1975

The purposes of the Wildlife Act set out in section 1A of that Act, are:

- to establish procedures in order to promote:
    - the protection and conservation of wildlife; and
    - the prevention of taxa of wildlife from becoming extinct; and
    - the sustainable use of and access to wildlife; and
- to prohibit and regulate the conduct of persons engaged in activities concerning or related to wildlife.

The Wildlife Act provides that the Secretary of DEECA may authorise harvesters to hunt, take or destroy grey kangaroos to support the KHMP 'as a recognised wildlife management plan.' Any authorisations issued under the KHMP can be for a period of up to 3 years and will expire at the end of the life of this Plan.

Wildlife Regulations 2013

Prescribe relevant licence categories, including a 'Wildlife Processor Licence' which authorises the holder (*Wildlife Processor)* to possess, keep, buy, sell, process, and dispose of dead wildlife, including grey kangaroos, for the purpose of providing wildlife products such as fur, skins, or leather, for sale. Wildlife Processor Licences are subject to conditions and can be issued annually or for a period of up to 3 years.

Flora and Fauna Guarantee Act 1988

Provides for matters to be taken into account when approving this plan, including the objectives set out in section 4 of the Flora and Fauna Guarantee Act 1988 (FFG Act) and the matters described in section 4B of the FFG Act. The objectives of the FFG Act are:

- to guarantee that all taxa of Victoria's flora and fauna, other than taxa specified in the Excluded List, can persist and improve in the wild and retain their capacity to adapt to environmental change; and
- to prevent taxa and communities of flora and fauna from becoming threatened and to recover threatened taxa and communities so their conservation status improves; and
- to protect, conserve, restore and enhance biodiversity, including—
    - flora and fauna and their habitats; and
    - genetic diversity; and
    - ecological communities; and
    - ecological processes; and
- to identify and mitigate the impacts of potentially threatening processes to address the important underlying causes of biodiversity decline; and
- to ensure the use of biodiversity as a natural resource is ecologically sustainable; and
- to identify and conserve areas of Victoria in respect of which critical habitat determinations are made.

Meat Industry Act 1993

Establishes the standards for meat production and the regulatory framework for meat production for human consumption and pet food.

W*ildlife Processors* who wish to process grey kangaroos must also be appropriately licensed under the *Meat Industry Act 1993 (*Meat Industry Act) to produce meat for pet food or human consumption.

Kangaroos are treated as game under this Act. They can be processed at either:

- a licensed 'game processing facility' if the processing is for human consumption or

- a licenced ‘pet food processing facility’ if the processing is for pet food.

A field depot and harvest vehicle used for the commercial harvesting of grey kangaroos can be licenced as either a game processing facility or pet food processing facility.

Prevention of Cruelty to Animals Act 1986

Establishes offences for acts or omissions that result in the pain and suffering of any animal – including grey kangaroos. However, these offences do not apply to harvesters provided that a harvester complies with this Plan, as a ‘recognised wildlife management plan’ under the Wildlife Act.

Firearms Act 1996

Regulates the purchase, possession, carriage, storage, and use of firearms in Victoria. Harvesters must comply with the *Firearms Act 1996* to maintain their Firearms Licence.

Commonwealth legislation

The EPBC Act sets the requirements for exporting wildlife for commercial purposes. As part of the application for approval, this Plan has been prepared so as it can be declared as an approved WTMP in accordance with section 303FO of the EPBC Act.

For comprehensive information regarding exporting wildlife products refer to the Australian Government website (see Supporting links).

Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act specifies that the Minister must only declare an approved WTMP if the Minister is satisfied that the Plan is consistent with the objects of Part 13A of the EPBC Act. This is addressed through various actions outlined in this Plan, with further information included in Appendices (see **Appendix 5: Threats** and **Appendix 6: Impact assessment**). These actions include, but are not limited to:

- an assessment of the environmental impacts of the activities covered by the Plan
- management controls directed towards ensuring the impacts of the activities covered by the Plan are ecologically sustainable in terms of the species, the activity, and relevant ecosystem
- not detrimental to the species, the conservation status of the species or any relevant ecosystem covered by the plan
- measures to mitigate, monitor, and respond to the environmental impacts of the activities covered by the Plan.

If satisfied the Minister may declare the approved WTMP in the Commonwealth Gazette for a period of 5 years or for the life of this Plan. In deciding whether to declare a plan as an approved WTMP, the Minister must also have regard to whether:

- legislation relating to the protection, conservation, or management of the species to which the Plan relates is in force in the State or Territory concerned
- the legislation applies throughout the State or Territory concerned
- in the opinion of the Minister, the legislation is effective.

Administrative arrangements

DEECA

DEECA is responsible for:

- maintaining the sustainable harvest model
- arranging population surveys
- preparing quota reports and the setting of quota for each Harvest Zone
- monitoring the number of animals taken under both the commercial harvesting program and the ATCW system throughout the year
- decisions to reduce or suspend quotas in any Harvest Zone if required.

Approval by the Secretary of DEECA enables this Plan to be treated as a 'recognised wildlife management plan' for the purposes of section s28A of the Wildlife Act.

Conservation Regulator

The Conservation Regulator (CR) forms part of DEECA. It is responsible for administering the ATCW system and Wildlife Processor Licences. For the purposes of this Plan, activities by the CR include:

- monitoring compliance with conditions set by Wildlife Processor Licences
- collecting information on ATCW data for quota consideration.

DJSIR

DJSIR or its agents are responsible for:

- providing information on KHP data for quota consideration
- providing platforms to process harvester and quota applications
- providing a platform that captures real-time harvest data
- publishing and maintaining a webpage with all required KHP information.

Game Management Authority (GMA) (an agent of DJSIR)

The GMA was established under the *Game Management Authority Act 2014* and is an agent of DJSIR for the purposes of this Plan. Activities for which the GMA are responsible include:

- authorising harvesters as a delegated power from the Secretary DEECA
- allocating tags, monitoring, and reporting of quota
- compliance activities associated with harvester conduct
- providing an annual KHP compliance plan.

The Secretary of DEECA, is responsible for issuing authorisations under section 28A(1) of the Wildlife Act for the control of kangaroos. The Secretary has delegated the power to make decisions regarding the issuing of authorisations to harvesters to support this Plan to officers under the *Game Management Act 2014* that are employed by the GMA. For the purposes of the Wildlife Act Authorised Officers of the GMA also carry out the necessary compliance and enforcement functions.

Service Victoria - Digital systems (an agent of DJSIR)

Administration of the program, including issuing authorisations, monitoring harvest quotas, and linking landholders with harvesters is managed by Service Victoria via an online system.

The Secretary of DEECA has delegated the delivery of written authorisations under section 28A of the Wildlife Act to Service Victoria to enable the operation of the system. Service Victoria is delivering this function as an agent of DJSIR.

PrimeSafe

PrimeSafe is responsible for the issuing of licenses to *meat processing facilities* as required under the Meat Industry Act.

PrimeSafe will monitor compliance with licensing requirements at *meat processing facilities* and take enforcement action as necessary where breaches of the Meat Industry Act are identified.

Goal

Goal

The overarching goal of the Victorian Kangaroo Harvest Management Plan is:

"To provide for the sustainable and humane use of grey kangaroos in a way that protects the welfare of all animals involved."

This goal aligns with the objects of the EPBC Act and is guided by the principles of ecologically sustainable development through conservation, and ecologically sustainable use of a natural resource, as defined in the Act.

The key priorities of this Plan are to ensure sustainable grey kangaroo populations and that any killing of kangaroos is humane to minimise pain or suffering.

Aims

There are 8 aims described in this Plan with a series of corresponding actions and indicators. The actions and indicators guide the activities undertaken under the Plan to ensure the aims are met to accomplish the overarching goal.

Agencies will work collaboratively to deliver the actions outlined under each aim with lead agencies defined for the relevant actions.

Aims
Aim 1: Ensure that commercial kangaroo harvesting in Victoria is ecologically sustainable.
Aim 2: Ensure that commercial kangaroo harvesting in Victoria is conducted according to animal welfare standards.
Aim 3: Ensure that commercial kangaroo harvesting activities are effectively regulated.
Aim 4. Effectively monitor and enforce compliance.
Aim 5: Work with Traditional Owners to identify opportunities for involvement.
Aim 6: Facilitate research and development.
Aim 7: Maintain accountability and transparency.
Aim 8: Undertake program review and reporting.

Aims, actions, and indicators

Aim 1: Ensure that commercial kangaroo harvesting in Victoria is ecologically sustainable.

Ecological sustainability of kangaroo harvesting is managed based on statewide kangaroo population survey data, population modelling, sustainable harvest principles, and other available information about grey kangaroo populations throughout their Victorian range. Management approaches for sustainability also include considerations regarding Harvest Zones, control of kangaroos through ATCWs on public and private land, animals killed by vehicle collisions (where data is available) and impacts of emergencies such as flooding and fire.

Harvest Zones

This Plan permits the commercial harvesting of eastern grey and western grey kangaroos on private land and some public land in designated areas of Victoria.

Harvest Zones for 2024

For the period of 1 January 2024 to 31 December 2024 the state is divided into 7 Harvest Zones (see **Appendix 1: Harvest Zones for 2024**). Harvest Zones are based on ecological units and, at the time of publishing, existing local government area (LGA) borders.

Metropolitan Melbourne and areas with minimal or no kangaroo populations such as French Island, are not included in Harvest Zones. Harvesting in 2024 may only occur in the LGAs listed (see **Table 1)**. Annual *commercial quotas* will be set for each Harvest Zone.

Central	Gippsland	Lower Wimmera	Mallee	North East	Otway	Upper Wimmera
Ballarat	Bass Coast	Ararat	Mildura	Alpine	Colac Otway	Buloke
Brimbank	Baw Baw	Central Goldfields		Benalla	Corangamite	Hindmarsh
Hepburn	Cardinia	Gannawarra		Campaspe	Golden Plains	Horsham
Hume	Casey	Glenelg		Greater Bendigo	Greater Geelong	Swan Hill
Macedon Ranges	East Gippsland	Loddon		Greater Shepparton	Hobsons Bay	West Wimmera
Melton	Latrobe	Northern Grampians		Indigo	Moyne	Yarriambiack
Mitchell	Mornington Peninsula	Pyrenees		Mansfield	Surf Coast	
Moorabool	South Gippsland	Southern Grampians		Moira	Warrnambool	
Mt Alexander	Wellington			Strathbogie	Wyndham	
Murrindindi				Towong		
Nillumbik				Wangaratta		
Whittlesea				Wodonga		
Yarra Ranges						
Exclusion Zone (No harvesting, ATCWs only)						
Banyule	Greater Dandenong	French Island	Knox	Maroondah	Merri-bek	Stonnington
Bayside	Darebin	Glen Eira	Manningham	Melbourne	Port Phillip	Whitehorse
Boroondara	Frankston	Kingston	Maribyrnong	Moonee Valley	Queenscliff	Yarra City

Table 1. Local Government Areas contained in each kangaroo Harvest Zone in Victoria.

New Harvest Zones for 2025-2028

For the period of 1 January 2025 to 31 December 2028 the state is divided into 5 Harvest Zones and 1 Exclusion Zone (see **Appendix 2: Harvest Zones for 2025-2028**).

The new Harvest Zones are based on consideration of a number of factors including:

- areas with minimal or no kangaroo populations
- urban growth and establishment of new suburbs in the outskirts of Melbourne
- local government areas where landowners preferentially access the Authority to Control Wildlife (ATCW) system
- ensuring Harvest Zones are based on areas with ecological and environmental similarities
- using existing LGA borders to define boundaries for Harvest Zones.

The majority of take in the previous Mallee Harvest Zone (Mildura) was undertaken on public land through the ATCW system, hence Mildura has been included in the Loddon Mallee Harvest Zone. If public land managers require access to the KHP, this will be provided for as a *separate quota*, but included within the *total quota* as direct replacement for ATCW numbers as described below (see **Public land and separate quota** section below).

The Exclusion Zone is extended to include Melbourne Central Business District (CBD), outer suburbs and urban growth corridors, Port Phillip and Western Port Bays, Mornington Peninsula, the Dandenong's, and the Western Grasslands.

Harvesting in 2025 - 2028 may only occur in the LGAs listed (see **Table 2)** and annual *commercial quotas* are set for each Harvest Zone.

Barwon South West	Grampians	Loddon Mallee	Hume	Gippsland
Colac Otway	Ararat	Buloke	Alpine	Bass Coast
Corangamite	Ballarat	Campaspe	Benalla	Baw Baw
Glenelg	Golden Plains	Central Goldfields	Greater Shepparton	East Gippsland
Greater Geelong	Hepburn	Gannawarra	Indigo	Latrobe
Moyne	Hindmarsh	Greater Bendigo	Mansfield	South Gippsland
Southern Grampians	Horsham	Loddon	Mitchell	Wellington
Surf Coast	Moorabool	Macedon Ranges	Moira	Yarra Ranges
	Northern Grampians	Mildura	Murrindindi	
	Pyrenees	Mount Alexander	Strathbogie	
	West Wimmera	Swan Hill	Towong	
	Yarriambiack		Wangaratta	
			Wodonga	
Exclusion Zone (No harvesting, ATCWs only)				
Banyule	Darebin	Knox	Moonee Valley	Queenscliff
Bayside	Frankston	Manningham	Mornington Peninsula	Stonnington
Boroondara	French Island	Maribyrnong	Merri-bek	Whitehorse
Brimbank	Glen Eira	Maroondah	Nillumbik	Whittlesea
Cardinia	Hobsons Bay	Melbourne	Port Phillip	Wyndham
Casey	Hume	Melton		Yarra
Greater Dandenong	Kingston	Monash		

Table 2. Local Government Areas contained in each kangaroo Harvest Zone in Victoria.

Population modelling

Under the previous KHMP 2021-2023, the assessment of kangaroo populations for management purposes was undertaken using a design-based approach. A new model-based approach has been developed and will be used for grey kangaroo population estimates under this Plan.

The previous design-based approach was based on calculating average kangaroo density estimates within a Harvest Zone over the entire area. This approach assumes that kangaroo density within a Harvest Zone is constant. The advantage is that this approach is based on a minimal set of assumptions, however, is not as useful for estimating kangaroo populations over areas smaller than a Harvest Zone.

In contrast the new model-based approach examines relationships between kangaroo densities along the survey transects and the associated habitat or climate variables of those areas. These relationships are then used to predict kangaroo abundance across a Harvest Zone which can provide insight into the habitat preferences of grey kangaroos, as well as the ability to make predictions of kangaroo abundance for smaller areas than is possible with the design-based approach. Initial investigations of the model-based approach indicate it can improve precision of population estimates (Scroggie et al. submitted).

Adoption of the new model-based approach will allow better flexibility for the setting of sustainable harvest quotas by allowing them to be set for any arbitrary area. For example, quota could be set for a modified Harvest Zone that excluded areas affected by emergencies such as bushfires or floods.

Quota

Quotas are calculated each year based on population estimates and accepted proportional harvest strategies, as used in other jurisdictions. The quotas allocated each year are conservative.

Eastern and western grey kangaroos

When developing quota for 2024, the number of eastern and western grey kangaroos will not be separated in the *total quota* or *commercial quota* for each Harvest Zone. Using a single quota for both species is considered to pose minimal risk to the viability of either species in any given Harvest Zone, or more broadly, as the habitat range of each species extends well beyond Victoria and both species are considered secure in Victoria and nationally. Species overlap only occurs in the current (2024) Harvest Zones of Mallee, Upper Wimmera, and Lower Wimmera.

However, the *commercial quota* for 2025 will be developed for each species, in each Harvest Zone. Species overlap occurs in the new (2025-2028) Harvest Zones of Loddon Mallee, Grampians and Barwon South West.

Harvesters are required to report on the number of each species harvested. Reported data is closely monitored to ensure the harvest of each species is aligned with modelled population ratios in respective Harvest Zones. The number of species reported will be reconciled against the respective quota for each species.

Population modelling and ratios are based on aerial and ground surveys. Ground surveys of the two species undertaken in 2017, 2018 and 2020 provide an indication of ratios within each Harvest Zone at the LGA level, and future ground surveys will continue to monitor the populations of the two species, in addition to the reported data from harvesters and processers.

If at any point, data indicates that one species in a given Harvest Zone is predicted to exceed the respective quota, then appropriate adjustments to harvesting arrangements may be made. Given the difficulty in distinguishing between species under harvest conditions, harvesting may also be suspended in a Harvest Zone or part thereof, where there are known high density western grey kangaroo populations to mitigate potential error in misidentification.

Total quota

Under this Plan, the *total quota* for take of grey kangaroos will be set each year as recommended by the Arthur Rylah Institute for Environmental Research (ARI) as part of the population monitoring surveys. The *total quota* will be no more than 10% of the estimated population of grey kangaroos for the whole state. Harvest Zones provide a mechanism for DEECA to ensure that commercial harvesting is sustainable. Each Harvest Zone will receive an allocation of *total quota* proportional to the size of the kangaroo population in that zone and will include both:

- estimated control approved under the ATCW system
- approved *commercial quota* under the KHP.

Take of kangaroos through the ATCW system and the KHP will be closely monitored in each Harvest Zone.

Commercial quota and ATCWs

The *commercial quota* is the maximum number of grey kangaroos that may be harvested through the KHP over a given period. Each Harvest Zone has an allocation of *commercial quota.* As the *total quota* is a combined measure, *commercial quota* will always be less than 10% of the total estimated population, and its calculation influenced by the number of ATCWs (predicted and actual) granted.

Once the *commercial quota* is exhausted for a Harvest Zone, no more quota will be allocated until the new quota is set in the following calendar year.

While the *commercial quota* is issued on an annual basis, it will be reviewed on a quarterly basis (or at any other time if required). If monitoring shows that total take (through the KHP and ACTW system) in a Harvest Zone is likely to exceed its *total quota,* the *commercial quota* will be adjusted or suspended.

Any adjustments to the *commercial quota* will be considered using information of local kangaroo populations, trends in control through ATCW and KHP and assessment of impacts to sustainable kangaroo populations. This will ensure that the statewide take of kangaroos does not exceed the recommended 10% population of grey kangaroos across the state.

It's important to note that while DEECA will utilise the ability to adjust the *commercial quota* to aim to keep take within the recommended *total quota,* there is no legal mechanism in the Wildlife Act to impose a cap on ATCW numbers. Therefore, the total take at the Harvest Zone and state level could exceed the *total quota* in some instances.

Surveys

The statewide kangaroo population survey methodology and frequency is advised by ARI to ensure timely and accurate data to inform population modelling. Population modelling helps to determine quotas for each Harvest Zone. Aerial surveys are completed every second year.

The number of dependent young impacted by harvesting activity will be captured to further assist in developing an understanding on the potential impacts of harvest activities to grey kangaroo populations.

Ground surveys are undertaken periodically to determine the ratio of eastern grey kangaroos to western grey kangaroos in the Harvest Zones where the two species overlap. As this ratio is monitored and not expected to be as dynamic as changes in abundance, ground surveys are not required as frequently as aerial surveys and will be conducted as advised by ARI.

The current survey frequency is sufficient to reflect the dynamics of kangaroo populations, however considerations may be given to additional surveys in extraordinary circumstances such as prolonged, widespread drought.

Public land and separate quota

All kangaroo control on public land currently occurs under ATCWs which are issued to the relevant public land manager. Public land managers can be required to produce a wildlife management plan that identifies the required scale of control to support an ATCW application.

Areas of public land, from which harvesting is excluded under current arrangements, will continue to provide refuge for the harvested species. However, under special circumstances, on the request of the relevant public land manager, harvesting may be authorised to occur on specified areas of public land. Harvesting that occurs on specified public land will be provided for with a *separate quota* outside of the released *commercial quota* for each Harvest Zone, but still incorporated into the *total quota* for that year.

Any harvesting that occurs on specified public land will directly replace control that would otherwise be undertaken under an ATCW. As the specified *separate quota* will still be factored into the *total quota*, harvesting on public land will not increase the total number of grey kangaroos approved for control.

A wildlife management plan will be required before a *separate quota* allocation is given for harvesting purposes.

Where the quota for harvesting of grey kangaroos on public land has been required, it will be outlined as a component of the *total quota* and included in the KHP Annual Report.

Emergency management

Emergencies such as fires and floods may affect grey kangaroo populations and the welfare of individual animals.

During an emergency event, targeted emergency interventions to assess and manage the welfare needs of impacted wildlife will be undertaken by DEECA. The type of emergency, its intensity and the species impacted will determine the method and scale of intervention but will generally involve field-based assessments of wildlife.

Where euthanasia is required based on animal welfare grounds, affected kangaroos will be euthanised by persons in accordance with the relevant National Code.

The impact of emergency events on the population of grey kangaroos will be considered in determining whether any changes to quotas for each Harvest Zone are required. In the event of a significant emergency event that affects populations of grey kangaroos, the total number of animals killed by the event as a whole is difficult to estimate due to the diffuse nature of an event like significant flooding, however the number of grey kangaroos that are euthanised as part of emergency response will be considered in setting or adjusting quotas.

DEECA may consider suspending harvesting in affected Harvest Zones during and after emergency events. Any decision to suspend, or subsequently reinstate harvesting in an affected Harvest Zone, or any part of a Harvest Zone, will be informed by a range of factors including, but not limited to:

- the type of emergency event, its scale and impact within the Harvest Zone
- risk and safety factors for persons moving in and around the area impacted by the emergency event
- impacts from the emergency event on the environment and grey kangaroo populations in the affected areas.

Any changes to the *commercial quota* because of an emergency event will be communicated to harvesters by the relevant Department or authority.

Quota Adjustments and other Management Actions

Where *commercial quota* adjustment or other management actions are required in a Harvest Zone or part thereof to ensure sustainability of grey kangaroo populations, this may include but is not limited to:

- Reduction of quota: Reduce *commercial quota* in a Harvest Zone or part thereof.
- Suspension of quota: Do not allocate *commercial quota* to harvesters, for the period and area specified.
- Suspension of harvesting: Harvesters must not carry out any harvesting in the specified area, where harvesting has been declared suspended in a Harvest Zone or part thereof even if in possession of tags that would otherwise allow them to do so.

DJSIR will assist in notifying harvesters of any response or management actions and they will be implemented immediately.

Aim 1: Ensure that commercial kangaroo harvesting in Victoria is ecologically sustainable.		
Action 1.1	Populations of grey kangaroo species covered by the Plan will be estimated annually. Population estimates will be generated from population models developed for this purpose.	
Indicator 1.1.1	ARI deliver population modelling using the latest survey data, harvest data, ATCW data and climatic variables to estimate grey kangaroo numbers to inform quotas in an Annual Quota Report.	**DEECA**
Action 1.2	DEECA undertake aerial and/or ground grey kangaroo population surveys at regular intervals to inform population models and quota setting.	
Indicator 1.2.1	Surveys delivered according to the methodology as advised by ARI. Survey reports shared with the Australian Government prior to being published online. • Aerial surveys are delivered biennially. • Ground surveys are delivered every four years or as advised by ARI.	**DEECA**

Action 1.3	Harvest quotas will be set annually (from 1 January 2025 for each species) in each Harvest Zone. Quotas will be calculated using a proportional harvesting strategy based on sustainable levels of take for grey kangaroos.	
	Ensure sustainability of grey kangaroo populations across Harvest Zones over time by monitoring harvest information, quota, and survey data for each species.	**DEECA**
	Where harvesting occurs on public land, and a *separate quota* is required: • ensure quota is identified from an approved kangaroo management plan as part of the application process • account for in the *total quota* • specify any *separate quota* in the KHP Annual Report.	
Indicator 1.3.1	*Commercial quota* set each year in line with this Plan. Publish quota report on the KHP website.	
Indicator 1.3.2	The Australian Government is advised of harvest quota for the following calendar year by 31 December in the Annual Quota Report.	
Action 1.4	Take (including ATCWs) will be monitored throughout the year with the intention that *the total quota* is not exceeded within a particular Harvest Zone.	
	Review *commercial quota* allocations for each species and approvals under the ATCW system on a quarterly basis (January, March, June, September) and assess whether *commercial quota* adjustment required.	**DEECA** **DJSIR or its agents**
	Quota periods are commenced yearly following approval by the Secretary to DEECA.	
	Harvesters report on the number of each species harvested.	
	Collect data through Wildlife Processor Licence processors on species and numbers harvested.	
	Monitor grey kangaroo species taken through the KHP and approved for control under ATCW system to ensure harvesting occurs at the rate to which each species naturally occurs.	
	Provide educational material to harvesters to aide in species identification.	
Indicator 1.4.1	*Commercial quota* for each species announced annually and released each quarter following review and any adjustments required to ensure *total quota* is not exceeded and grey kangaroo populations remain sustainable. Where total take is predicted to exceed the *total quota* in a Harvest Zone, DEECA reduces *commercial quota* or suspends harvesting in a Harvest Zone or part thereof. Any changes to the *commercial quota* or suspension of harvesting are made based on DEECAs assessment of impacts on local kangaroo populations and potential impacts on statewide *total quota*.	
Indicator 1.4.2	Reports on the number of each species harvested included in the KHP Annual Report.	
Indicator 1.4.3	Data is collected on species harvested through licence processes: • Record books. • Audits and returns. • Interstate import and export permits.	
Indicator 1.4.4	Reports on species harvested through the KHP and approved for control under the ATCW are compared to species quotas and included in the KHP Annual Report.	

Action 1.5	Decisions on the allocation of the quota will take a precautionary approach.	
Indicator 1.5.1	*Total quota* will be set at no more than 10% of the population for each species and allocated proportionally to each Harvest Zone.	**DEECA**
Indicator 1.5.2	Where there is an absence of data or uncertainty in data analysis, a precautionary approach is taken to set quota using conservative estimates.	
Action 1.6	In the event of an emergency, or where environmental factors are affecting grey kangaroo populations, whether long or short term (for example drought, bushfire or flood) harvesting may be suspended, or quota reduced in an affected Harvest Zone or part thereof with immediate effect.	
	Establish triggers for the review of the quota as a result of declared emergencies and include a summary of kangaroos euthanised on welfare grounds in the KHP Annual Report.	**DEECA**
	If significant impacts to grey kangaroos are detected as a result of local environmental factors or an emergency (including prolonged, widespread drought, bushfire, or flooding): • DEECA to consider appropriate response actions which may include suspension of harvesting, or quota changes in a Harvest Zone or part thereof. • Consider impacts of emergencies on a case-by-case basis and as advised by DEECA emergency response teams, wildlife welfare teams and ARI.	
	Emergency response actions in a Harvest Zone or part of a Harvest Zone, may include: • reduction or suspension of *commercial quota* in a Harvest Zone or part thereof • suspension of harvesting activities in a Harvest Zone or part thereof DJSIR to notify harvesters of any response actions and they will be implemented immediately.	**DEECA** **DJSIR or its agents**
Indicator 1.6.1	Agencies to consider all relevant factors and DEECA to advise of any changes to the quota and/or the quota to be reinstated if a decision is made to recommence harvesting. Response actions taken as a result of emergency included in KHP Annual Report.	**DEECA**
Indicator 1.6.2	Triggers established and included in KHP Annual Report.	

Aim 2: Ensure that commercial kangaroo harvesting in Victoria is conducted according to animal welfare standards.

The *National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes* (the National Code for Commercial Purposes) describes the standard for humanely harvesting kangaroos.

Authorisation conditions require that all harvesters in Victoria comply with the welfare standards described in the National Code for Commercial Purposes. Conditions include that grey kangaroos must be killed in a manner to minimise pain and suffering such as an accurately placed head shot.

Aim 2: Ensure that commercial kangaroo harvesting in Victoria is conducted according to animal welfare standards.		
Action 2.1	Enforce the conditions imposed through the commercial harvesting authorisation.	
	Authorised harvesters are required to comply with the National Code for Commercial Purposes which identifies requirements for ensuring harvesting activities are humane.	**DJSIR or its agents**
	Authorised Officers monitor compliance by conducting inspections of kangaroos taken by commercial authorisation holders and follow-up reports in cases of non-compliance.	
Indicator 2.1.1	Authorised Officers conduct in-field audits of harvesters to observe dispatching of kangaroos, both adult and young at foot, to ensure compliance with the National Code for Commercial purposes.	
Action 2.2	Harvesters are required to demonstrate the minimum standard of competency set out in the National Code for Commercial Purposes before receiving authorisation to harvest under the KHMP.	
Indicator 2.2.1	Authorisations only issued to harvesters who provide documented evidence of: • a valid firearms proficiency accreditation which includes an accuracy test undertaken every 5 years • completing a recognised Game Harvester competency program* • an appropriately licenced harvest vehicle with PrimeSafe. *Any accredited Game Harvester competency program that meets the requirements for licensing in another kangaroo harvesting jurisdiction will be recognised.	**DJSIR or its agents**
Indicator 2.2.2	Authorisation templates specify kangaroos cannot be shot, sold, or received unless they have been taken in accordance with the National Code for Commercial purposes.	
Indicator 2.2.3	A copy of the National Code for Commercial Purposes is made available to all new authorised harvesters and published on the KHP website.	

Aim 3: Ensure that commercial kangaroo harvesting activities are effectively regulated.

Kangaroo harvesters and processors participating in the KHP are required to hold suitable permissions under both the Wildlife Act and the Meat Industry Act.

This Plan describes the current legislative basis for authorisations and licensing arrangements. Conditions are applied to licences and authorisations to reflect the actions set out in this Plan.

Harvesters must apply for quota in a specified Harvest Zone and barcoded tags are issued accordingly upon approval. Harvesters must adhere to tagging procedures as described in this Plan.

Aim 3: Ensure that commercial kangaroo harvesting activities are effectively regulated.		
Action 3.1	All participants are required to hold the appropriate authorisations and licences under relevant Victorian legislation.	

	All participants operating under this Plan hold the appropriate licences and authorisations.
	• Kangaroo harvesters;
	  ○ hold an authorisation under section 28A(1)(h) of the Wildlife Act
	  ○ are listed as an Approved Supplier under the Food Safety Plan of a participating *meat processing facility*.
	• Operators of Harvest Vehicles use a Game processing facility (harvest vehicle) licence.
	• *Meat processing facilities* hold a
	  ○ Wildlife Processor Licence
	  ○ Game meat processing facility (Premises) or a Pet food processing facility licence under the Meat Industry Act.
	• Operators of field depots hold a Game Meat Processing Facility (Field Depot) license as specified in PrimeSafe's Wild Game Meat Harvesting Guidelines.
		DEECA
		DJSIR or its agents
		PrimeSafe

Indicator 3.1.1	All harvesters prior to being authorised under the Wildlife Act 1975, produce evidence of firearms accreditation and proficiency, game harvester skillset accreditation and evidence of a vehicle registered with PrimeSafe. These records are manually sighted and recorded.	**DJSIR or its agents**
Action 3.2	Conditions are applied to authorisations and licences to reflect the actions of this Plan.	
	Review and update conditions as required in response to changes in regulatory arrangements or operational/administrative policies.	**DEECA** **DJSIR or its agents**
	Licence and authorisation holders are informed in writing of changes to conditions, prior to those changes being implemented.	
Indicator 3.2.1	Standard conditions reflecting the actions of this Plan are included: • in authorisation templates which authorised harvesters receive with their authorisation • on Wildlife Processor licences issued under the Wildlife Act.	

Action 3.3	Ensure tags are issued and used in accordance with conditions and harvester allocation rules published on the KHP website.	
	DJSIR or its agent: • specify the maximum number of *commercial quota* a harvester can apply for at any one time • apply *commercial quota* consistently and ensure individual allocation of tags to harvesters does not exceed the specified maximum number • publish harvester allocation rules on the KHP website.	**DJSIR or its agents**
	Harvesters affix tags to each kangaroo taken regardless of whether the kangaroo is removed from the property for processing. Tagging is not required for pouch young and young at foot that are euthanised in accordance with the National Code for Commercial Purposes.	
	Where a *separate quota* is issued for a specified area of public land, the relevant public land managers advise DJSIR or its agent of the requested number of tags to be issued to each of its nominated harvesters.	
Indicator 3.3.1	DJSIR or its agent issue tags to kangaroo harvesters that correspond to an individual allocation of the *commercial quota* for each Harvest Zone.	
Indicator 3.3.2	Harvester quota allocation rules published on the KHP website.	
Action 3.4	Reporting systems enable acquisition of GPS coordinates and property details of harvest locations.	
	Tags are barcoded and scanned tags are linked to a harvest property via an online reporting platform.	
	Record harvest locations and monitor to ensure quota is used in the correct Harvest Zone.	**DJSIR or its agents**
Indicator 3.4.1	Ensure that harvesting occurs in permitted areas only and tags are used in the correct Harvest Zones.	

Aim 4. Effectively monitor and enforce compliance.

A risk and outcomes-based compliance strategy will be implemented. Participants in commercial kangaroo harvesting must comply with the actions of this Plan to protect animal welfare, ensure sustainable grey kangaroo populations, and build community confidence in the integrity of Victoria's commercial KHP. Non-compliance will be treated as a breach of authorisation conditions.

Appointed inspectors under the Meat Industry Act examine kangaroo carcases at processing facilities in accordance with the procedure set out in the *Australian standard for the hygienic production of wild game meat for human consumption (AS 4464: 2007).*

Aim 4: Effectively monitor and enforce compliance.		
Action 4.1	Provide material outlining the requirements of relevant laws, codes, or conditions as reflected in this Plan to applicants and processors. Distribute to all relevant participants, the recommended practises for before, during, and after harvesting.	

Indicator 4.1.1	Educational material:
	• is distributed to authorised harvesters upon receiving their authorisation
	• is made available on the KHP website
	• includes but is not limited to:
	  ○ responsible disposing of offal
	  ○ harvester considerations for responsible practice.
		DEECA
		DJSIR or its agents

Action 4.2	Local training courses are available to ensure participants meet the prerequisites for authorisation and fulfil their obligations under the National Code for Commercial Purposes.	
	Monitor the availability of suitable training for local harvesters and facilitate opportunities where possible.	**DJSIR or its agents**
Indicator 4.2.1	Harvesters informed of any training opportunities.	
Action 4.3	Risk-based and intelligence led compliance activity is undertaken to monitor compliance with the actions of this Plan.	
	Develop and share with DEECA an approved annual compliance plan that outlines priorities, activities, and target metrics to ensure authorised harvesters adhere to this Plan.	**DJSIR or its agents**
Indicator 4.3.1	Annual compliance priorities and themes is shared with the Australian Government and DEECA.	
Indicator 4.3.2	All *meat processing facilities* are audited a minimum of two times annually.	**PrimeSafe**
Indicator 4.3.3	Regular compliance for Wildlife Processor Licences undertaken and returns for Wildlife Processor Licences are monitored.	**DEECA**
Action 4.4	Monitor the accuracy of industry returns and investigate discrepancies.	
	Monitor Harvester industry returns and complete regular audits.	**DJSIR or its agents**
	Where discrepancies are detected, use this information to inform compliance activities and ensure compliance monitoring is targeted where required.	
Indicator 4.4.1	All harvester returns are audited to ensure that kangaroos are being harvested in the allocated HarvestZones and the correct species is being recorded. Any discrepancies are investigated.	**DJSIR or its agents**

Action 4.5	Investigate and appropriately respond to suspected unlawful activity.	
	Operate in accordance with an approved Compliance Strategy to establish a consistent approach to compliance/enforcement activities decisions.	**DJSIR or its agents**
Indicator 4.5.1	Investigate and appropriately respond to reports of activities in breach of authorisation/licence conditions.	**DEECA** **DJSIR or its agents** **PrimeSafe**
Action 4.6	DJSIR and its agents, DEECA, PrimeSafe and other government regulators share intelligence and information relevant to the commercial harvesting of grey kangaroos in Victoria in accordance with the requirements of the *Privacy and Data Protection Act 2014*.	
	Maintain compliance records in a database and share compliance information with other agencies as agreed or requested.	**DEECA** **DJSIR or its agents** **PrimeSafe**
	DJSIR or its agents provides DEECA with quarterly compliance reports.	
	Agencies use compliance information to assist in discussions for focal areas for compliance activities.	
Indicator 4.6.1	Annual compliance reports published on KHP website.	
Action 4.7	Interstate export of kangaroo carcasses is conducted in accordance with export permits issued under the Wildlife Act.	
Indicator 4.7.1	Domestic export of carcasses to processors in other states complies with export permit requirements issued under section 50 of the Wildlife Act.	**DEECA**

Aim 5: Work with Traditional Owners to identify opportunities for involvement.

Engagement with Traditional Owners is ongoing, and the Victorian Government will continue to work with Traditional Owner groups based on their capacity, aspirations, and interests to establish tangible commercial opportunities for involvement in the KHP.

This will be in line with the Victorian Government's Self-Determination Reform Framework to ensure decisions about Traditional Owners involvement are made by Aboriginal Victorians to support self-determination.

Where relevant, DEECA is committed to make changes to this Plan to deliver on this aim.

Aim 5: Work with Traditional Owners to identify opportunities for involvement.		
Action 5.1	Identify and support opportunities for involvement in the KHP by working with Traditional Owners.	
	DEECA and DJSIR work with interested Traditional Owner groups to understand their interests and aspirations regarding the KHP.	**DEECA** **DJSIR or its agents** **Traditional Owners**
	Work with Traditional Owners to identify opportunities for their involvement. This may include identifying employment opportunities for Traditional Owners involvement as program participants (harvesters or processors).	
Indicator 5.1.1	Traditional Owner groups are provided opportunity for involvement in the KHP.	
Action 5.2	Develop partnerships with interested Traditional Owner groups to ensure contributions to relevant kangaroo management actions on country.	
	Provide Traditional Owners information related to permissions and access to kangaroos under the Wildlife Act.	**DEECA** **DJSIR or its agents** **Traditional Owners**
Indicator 5.2.1	Consult and involve Traditional Owners in the Wildlife Act review and implement processes to ensure their desired involvement in the KHP.	
Indicator 5.2.2	Improved information is available for Traditional Owners in relation to Wildlife Act permissions and access to kangaroos.	
Action 5.3	Develop and share material to educate participants of the KHP and community on the cultural importance of macropods to Traditional Owner groups.	
Indicator 5.3.1	Relevant websites will provide information on the cultural importance of macropods to Traditional Owner groups.	**DEECA**

Aim 6: Facilitate research and development.

This aim will promote research and development including collecting data on harvest levels, kangaroo populations, and other environmental conditions to support the delivery of sustainable commercial kangaroo harvesting in Victoria.

Aim 6: Facilitate research and development.		
Action 6.1	The Plan will provide for any policy improvements or new research findings.	
	Ensure that educational material is updated with any new research findings to support management practices including compliance activities and protection of animal welfare.	**DEECA** **DJSIR or its agents**
	KHP Steering Committee assess effectiveness of the Plan and publish any relevant findings in KHP Annual Report.	**KHP Steering Committee**
Indicator 6.1.1	Data on kangaroo management activities is used to inform any necessary changes to the Plan: • Survey data. • KHP data such as numbers on harvesting, species, sex, dependent young euthanised. • Kangaroos approved for control under ATCWs. • Compliance metrics.	
Indicator 6.1.2	New research is discussed and considered to inform any necessary changes to the Plan.	
Action 6.2	Changes to program arrangements are documented and communicated effectively.	
Indicator 6.2.1	Program arrangements and the actions of this Plan improved as needed and any changes to program communicated to participants or community.	**DEECA**
Action 6.3	Kangaroo population survey data is used to build long-term population data sets of Victorian kangaroos to inform future management of kangaroos.	
Indicator 6.3.1	Kangaroo population survey data used to inform decision making into future management of kangaroos.	**DEECA**
Action 6.4	Update and refine sustainable harvest models, using data from kangaroo population surveys and harvest returns, ATCW information, and other relevant data sources.	
Indicator 6.4.1	Sustainable harvest models updated based on expert advice and evaluation of relevant data. The advice will be used to inform the next years quotas.	**DEECA**
Action 6.5	Identify, facilitate and where relevant collaborate with other agencies and research institutions (for example ARI) for information sharing and potential research to address knowledge gaps.	
	Collaborate with other agencies and research institutions and promote research to address knowledge gaps in: • kangaroo population dynamics • impact of harvesting on animal welfare • population control to address welfare concerns during times of critical stress (for example natural disaster, drought).	**DEECA**

	Participate in relevant kangaroo management forums and conferences. Share appropriate information with other States on kangaroo harvesting practices and research.	**DEECA**
Indicator 6.5.1	Relevant research considered in developing the Plan throughout its operation.	

Aim 7: Maintain accountability and transparency.

Transparency and accountability are achieved through the publication of up-to-date information and data for commercial kangaroo harvesting. The primary transparency measures include:

- making relevant data (for example harvest data) collected as part of this Plan publicly available as soon as practicable
- publishing annual reports as close to their time of completion as possible.

Aim 7: Maintain accountability and transparency.		
Action 7.1	Maintain up to date documents online and ensure information about the actions of this Plan and the operation of the program are accessible to all interested parties.	
Indicator 7.1.1	Relevant documents are published on the appropriate websites (see **Supporting links**). These include: • the KHMP • annual summary of harvest return data • Annual Quota Report for the following year (published within two weeks of their finalisation and submission to the Australian Government) • KHP Annual Report on the take of eastern and western grey kangaroos across both the KHP and the ATCW system in each Harvest Zone.	**DEECA** **DJSIR or its agents**
Action 7.2	Provide opportunities for community feedback on the KHP and KHMP.	
	Provide Knowledge Articles to the Customer Contact Centre to help respond and refer community enquiries.	**DEECA** **DJSIR or its agents**
Indicator 7.2.1	Community enquiries will be responded to in a timely manner.	
Action 7.3	Develop a communication approach to support the KHMP and communication with the community on relevant issues.	
Indicator 7.3.1	A stakeholder communication and engagement framework is developed in 2024 to support the implementation of the Plan and a summary version published on the DEECA website.	**DEECA** **DJSIR or its agents**
Action 7.4	Collection of data, additional to that which is required under authorisations and licences, is provided by harvesters and processors, and is reported on.	
Indicator 7.4.1	Data on grey kangaroos provided by harvesters and processors, such as the species, sex, and number of joeys euthanised, included in the KHP Annual Report.	**DEECA** **DJSIR or its agents**

Aim 8: Undertake program review and reporting.

The Plan will be reviewed before it expires. However, the Plan could also be reviewed prior, if there are any significant scientific, policy, regulatory and/or administrative changes to ensure the Plan is fit for purpose throughout its life.

Review of the program will be reported through a variety of reports, including annual reports submitted to the Australian Government, quota reports, and quarterly quota allocation reports.

Aim 8: Undertake program review and reporting.		
Action 8.1	Evaluate the Plan before it expires, or if there are significant policy, regulatory or administrative changes.	
	Public consultation will be conducted for any comprehensive review of this Plan and relevant public consultation summary report will be published on DEECA's website.	**DEECA**
	Update the plan to reflect any significant and time critical legislative, regulatory, or administrative arrangements as required.	
Indicator 8.1.1	Public consultation, stakeholder engagement and review will occur at least 12 months prior to the Plans expiry.	
Indicator 8.1.2	Public consultation summary report is published on DEECA's website.	
Action 8.2	Produce annual reports for the Australian Government, in line with obligations under this Plan's approval process under the EPBC Act.	

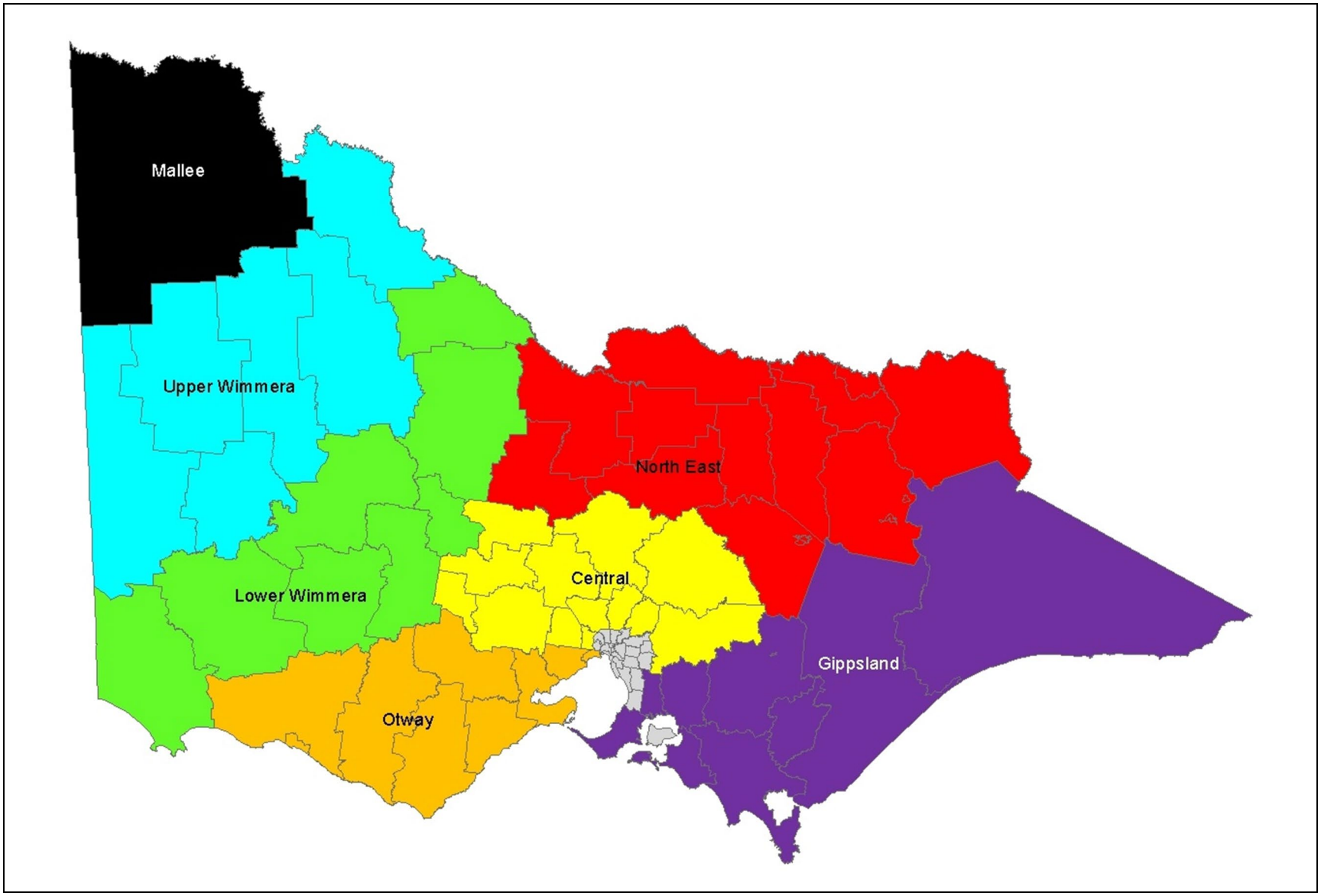
	Annual reports will be provided to the Australian Government in accordance with the requirements of the EPBC Act, these reports include a KHP Annual Report and an Annual Quota Report.
	The KHP Annual Report will include:
	• actual quota harvested of eastern and western grey kangaroo by Harvest Zone compared to the available quota
	• eastern and western grey kangaroos permitted to be harvested under the ATCW system
	• sex ratio of harvested kangaroos as reported by harvesters
	• dependant young euthanised as reported by harvesters
	• any natural disasters affecting commercial harvesting
	• compliance statistics including:
	  ○ number of compliance investigations
	  ○ number of harvesters subjected to in field-audits
	  ○ number of authorisations suspended/cancelled.
	The Annual Quota Report will include:
	• population estimates for each Harvest Zone
	• quota calculations for the following year
	• any changes to quota or Harvest Zones
	• data outlining trends in populations estimates, quotas and harvest.
		DEECA
		DJSIR or its agents

Indicator 8.2.1	KHP Annual Report provided to the Australian Government by 31 March each year.	

Indicator 8.2.2	Annual Quota Report provided to the Australian Government by 31 December each year.	**DEECA** **DJSIR and its agents**
Indicator 8.2.3	Reports are made publicly available on the relevant websites including: • KHP Annual Report • Annual Quota Report • Quarterly quota allocation reports.	
Action 8.3	Scientific approaches, including survey methods and the sustainable harvest model developed for Victoria are regularly reviewed and made publicly available.	
	Population model used by ARI to determine grey kangaroo population estimates will be peer reviewed and regularly evaluated.	**DEECA**
Indicator 8.3.1	Survey methods and the sustainable harvest model reviewed at appropriate intervals and relevant information made available on DEECA website.	
Indicator 8.3.2	Share raw survey data used to prepare Annual Quota Report with Australian Government. Release and publish online.	
Action 8.4	Explore opportunities to improve the KHP and future KHMPs throughout the life of this Plan.	
	Investigate the feasibility of cost recovery for the administration of the program.	**KHP Steering Committee**
Indicator 8.4.1	Opportunities explored to improve operational processes of the ATCW system and the KHP (for example better reconciliation of reporting information).	

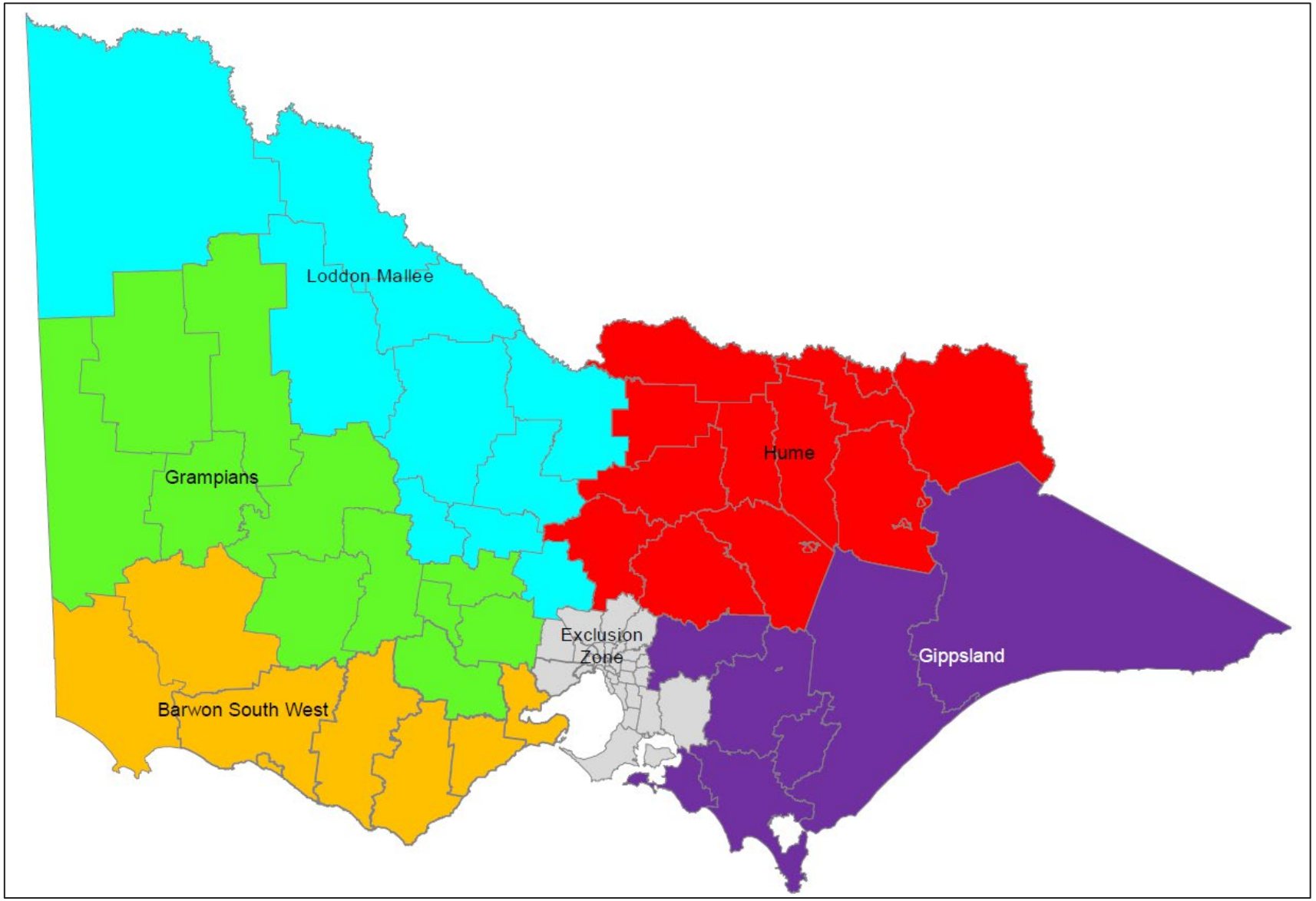
Appendix 1: Harvest Zones for 2024

Figure 1. Victorian Harvest Zones for the KHP. Effective from 1 January 2024 to 31 December 2024



Appendix 2: Harvest Zones for 2025-2028

Figure 2. Victorian Harvest Zones for the KHP. Effective from 1 January 2025 to 31 December 2028



Appendix 3: Managing the KHP alongside the ATCW system

The commercial harvest arrangements operate in parallel to the ATCW system that allows landholders to apply for permits to undertake kangaroo control for damage mitigation purposes. The ATCW system remains available to landholders who do not wish to engage a harvester or who are unable to access a harvester.

Applicants for ATCWs must provide sufficient evidence to support their application including evidence of damage to property, farmland, the environment, or risks to human health and safety, and demonstrate consideration of alternative options, including non-lethal control.

A key purpose of establishing Victoria's KHP is to provide landholders with an alternative to undertaking their own legal kangaroo control and allow for utilisation of the carcasses of grey kangaroos that are taken under the authority provided by this Plan which is not permitted under the ATCW system.

In order to link landholders to commercial harvesters, the online system used by the GMA to administer the program includes a function whereby harvesters can provide contact details which can be accessed by landholders.

Since the introduction of the KHMP, the proportion of kangaroos taken under the harvest program has been increasing with a corresponding drop in the number of ATCW's issued for kangaroo control.

Some of the benefits of this trend include:

- improved animal welfare outcomes:
    - Resulting from the participation of professional skilled harvesters.
    - Improved monitoring and oversight on kangaroo control activities.
    - Enhanced requirements on shooters.
- scientific rigour through quota setting to manage sustainability of kangaroo populations across the state
- ability to target compliance and enforcement activities.

There is no legal mechanism in the Wildlife Act to impose a cap on ATCW numbers. However, the ability to adjust the *commercial quota* quarterly under the KHP is used to aim to keep take within the recommended *total quota*.

Appendix 4: Biology, ecology, and conservation of Victorian kangaroos

Conservation status

Both eastern and western grey kangaroos are considered secure in Victoria and nationally. The International Union for the Conservation of Nature (IUCN) Red List of Threatened Species regards both species as 'Least Concern' due to their wide distribution (see **Figures 1 and 2**), large populations, occurrence in a number of protected areas, lack of major threats and lack of observable declines.

Distribution

Kangaroos are the dominant native herbivores across much of Victoria and there are three species found within the State. The eastern grey kangaroo (*Macropus giganteus*) occurs in much of the state except the semi-arid north-west. The western grey kangaroo (*Macropus fuliginosus*) is less common and occurs only in the west of the state, overlapping with the eastern grey in much of that area. The Red Kangaroo (*Osphranter rufus*) is uncommon in Victoria and restricted to the far north-west of the state (Note: Red Kangaroos are not included in the KHP).

Since the European settlement forests, woodlands, heathland and shrubland have been cleared to develop fertile lands for agriculture production, infrastructure, and new housing. As a result, populations of the three largest macropods, described above have increased (Dempster 1961, Edwards 1989, Barker and Caughley 1992, Norbury *et al*. 1993; Coulson *et al*. 1999). Kangaroos are often found on farmland, modified landscapes including peri urban and urban areas, and sometimes damage fences, crops, pasture, and additionally compete with livestock. **Figures 1 and 2** illustrate the distribution of grey kangaroos in Victoria.

Eastern grey kangaroo



Figure 1: Eastern grey kangaroo distribution in Victoria

Western grey kangaroo



Figure 2: Western grey kangaroo distribution in Victoria

Ecology and biology

Eastern grey kangaroo

The eastern grey kangaroo is believed to have expanded their range inland westwards, due to the increase in watering points for sheep and cattle (Tyndale-Biscoe 2005).

The eastern grey kangaroo is an abundant species that occupies a range of habitats including semi-arid mallee scrubs, shrub woodlands and forests (Poole 1982). They are a large kangaroo with grey fur apart from their lighter bellies. Males can reach weights of over 70kg, while females rarely exceed 35kg (Dawson 2012).

Eastern grey kangaroos in woodlands tend to have small overlapping home ranges, which tend to be larger in cleared agricultural areas (Jarman and Taylor 1983). In semi-arid and agricultural regions, home ranges were observed to be around 430 to 528 hectares. In comparison, areas of mixed woodland and adjacent farmland had relatively smaller home ranges, ranging from 27 to 158 hectares (Moore, Coulson, and Way 2002). The presence of farmers, dogs and domestic stock may affect the size of home ranges in areas of

woodland with adjacent farmland. Kangaroos may be inclined to remain closer to cover to avoid these disturbances (Moore et al. 2002, Viggers and Hearn 2005).

Western grey kangaroo

The western grey kangaroo has a lower abundance than the eastern grey kangaroo, and although its range seems to have increased in recent times the extent of this increase is unknown (Dawson 2012). The species occurs in a range of habitats including sclerophyll forest, woodland (including mallee), shrubland, heathland and farmland with remnant native vegetation (Coulson 1990, 1993).

Western grey kangaroo were recognised as a separate species in the 1970s (Kirsch and Poole 1972); they are usually browner and slightly more slender in appearance than eastern Greys (Dawson 2012). They are thought to have diverged from a common ancestor relatively recently (i.e., sometime in the Pleistocene epoch) (Dawson 2012) and as such, differ little in their ecology and biology.

Population monitoring for grey kangaroos in Victoria

Aerial surveys are conducted every two years to estimate grey kangaroo abundance, and ground surveys are undertaken every four years to establish the rate at which eastern and western grey kangaroos occur.

Surveys have been conducted since 2017. In 2022, the estimated eastern grey population in Victoria was 2,146,000 individuals, and the estimated western grey population is 218,000 individuals.

The data collected from surveys informs the population estimates (**Figures 3 and 4**) and development of the proportional harvest quota. Population estimates will be monitored over time to establish long-term trends and help to build knowledge on kangaroo ecology and populations in Victoria. Survey reports can be found here: [Kangaroos (wildlife.vic.gov.au)]

Estimated Eastern grey kangaroo populations in Victoria

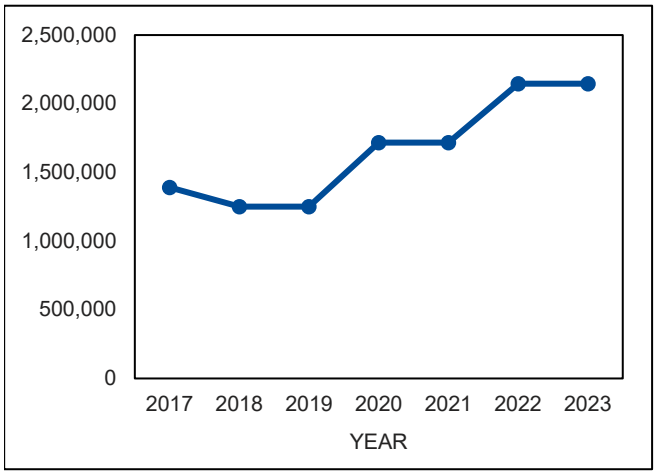


Figure 3: Estimated eastern grey kangaroo populations in Victoria 2017-2023 (modelled from aerial and ground surveys as described in Annual Quota reports for the KHP).

Estimated Western grey kangaroo populations in Victoria

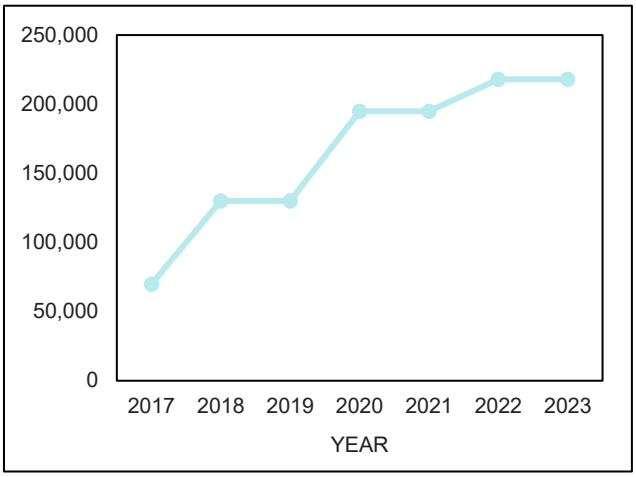


Figure 4: Estimated western grey kangaroo populations in Victoria 2017-2023 (modelled from aerial and ground surveys as described in Annual Quota reports for the KHP)

Reproduction

The reproductive biology of western and eastern grey kangaroos has been extensively studied (Tyndale-Biscoe and Renfree 1987); they are seasonal breeders, exhibiting peak fertility and births between September and March, while remaining sexually inactivate between April and August (Poole 1973, 1976). Post-partum ovulation does not occur in either species. Unlike other large macropod species like the Red Kangaroo, they do not generally carry dormant embryos in the uterus, a phenomenon known as diapause (Tyndale-Biscoe 2005). While there is the potential for diapause in eastern grey kangaroos the function has vanished completely in western grey kangaroos (Poole 1975).

These species are gregarious (Southwell 1984a) and form mobs that can range from only a few to hundreds (Fletcher 2006). The size of these groups have been found to be positively correlated to the population density in the area (Taylor 1982, Southwell 1984a, Jarman and Coulson 1989) and influenced by habitat, with groups in dense woodland areas smaller than those at equivalent densities in open cleared pasture habitat (Coulson and Raines 1985, Heathcote 1987, Jarman and Coulson 1989).

Appendix 5: Threats

The EPBC Act requires all threats that could negatively impact kangaroo populations or the sustainability of kangaroo harvesting to be summarised in this Plan.

Threat	Comments
Climate change	The average global temperature is predicted to rise 2-3°C by the end of the century, placing approximately 20-30% of the world's species at risk of extinction. The possible impacts on Victorian kangaroo populations are not well understood, but these could include changes in food availability, fertility, species distribution, and heat-related die-offs. The proportional harvesting strategy employed by this plan is developed to accommodate any policy changes in wildlife management to respond to climate change impacts. References: Ritchie and Bolitho 2008; Dunlop and Brown 2008; Jonzen et al. 2010; IPCC 2007; Saintilan et al. 2021.
Disease	Kangaroos are susceptible to a variety of diseases and parasites. Long-term population monitoring indicates that populations are not significantly impacted by them. References: Pople and Grigg 1999
Drought	There is a clear correlation between kangaroo numbers and increases in plant biomass and productivity, influenced by rainfall. Conversely, droughts can dramatically reduce kangaroo numbers. However, kangaroos are adapted to variable rainfall patterns, with their reproductive patterns enabling populations to recover quickly after drought conditions end. References: Caughley et al. 1985, Bayliss 1987; Caughley and Sinclair 1994; McCarthy 1996; Ampt and Baumber 2006; Descovich et al. 2016; Boyle and Hone 2014.
Emergencies	A study of the short-term effects of flooding on kangaroo populations found they are able to successfully move to higher ground when their usual habitat is flooded. Floods are occasionally associated with localised epizootic disease outbreaks, but these are not considered a long-term threat to kangaroo populations. References: Olsen and Braysher 2000; Hale 2004. When flooding follows long-term drought, longer-term effects may impact kangaroo health and demography. References: Juillard and Ramp, 2022.
Habitat loss and modification	Overall, habitat modification has improved conditions for kangaroos because of land clearing and the provision of watering points. References: Caughley et al. 1984; Archer, M.. 1985; Calaby, J.1989; Pople and Grigg 1999; Olsen and Low 2006; Descovich et al. 2016.
Harvesting (genetic impacts)	There is concern that commercial kangaroo harvesting could affect species fitness and evolutionary potential if the harvest selects for fitness traits. In particular, prioritising large kangaroos for their yield is sometimes speculated to affect species fitness. However, comparisons of harvested and unharvested populations do not demonstrate any loss of genetic diversity as a result of harvesting. Finally, harvest numbers are too low to remove alleles from the population. The likelihood that kangaroo harvesting has long-term genetic consequences is limited. References: Hale 2004; Pople and Grigg 1999; Pople 2006.

Human predation	Despite concern that harvesting could reduce the viability of kangaroo populations, longstanding programs in other Australian states have not had this impact. Changes in the relative value of kangaroo meat, or the extent to which kangaroos are considered a valuable resource, impacts the proportion of the kangaroo harvesting quota that is used. However, harvest quotas in Victoria are set conservatively to ensure kangaroo harvesting operates at levels that are considered sustainable. Damage mitigation control also poses a risk to kangaroo populations, but kangaroo control undertaken under ATCWs will be counted as part of Victoria's overall sustainable kangaroo harvesting quota and commercial harvest quotas set more conservatively to allow a buffer for ATCW control. Hunting of kangaroos by Victorian Traditional Owners on country is another form of human predation on kangaroos. At present, only a small number of Traditional Owner groups have agreements in place that provide for hunting of wildlife for traditional purposes and the impact on kangaroo populations is likely to be negligible. References: Pople and Grigg 1999; Dawson et al. 2004; Grigg and Pople 2001; Olsen & Low 2006; Cooney et al. 2012; Lunney 2010; Ampt and Baumber 2006; Hacker et al. 2004.
Predation	Dingoes are considered the only significant non-human predators of mature kangaroos, but foxes and possibly wedge-tailed eagles have been known to prey on young kangaroos. In pastoral areas, it is likely that dingoes would prefer sheep to kangaroos as prey. Victorian dingo populations are small and unlikely to have a meaningful impact on the state's kangaroo population. References: Robertshaw and Harden 1989; Marchant and Higgins 1993.
Vehicle collisions	Macropods are not migratory but have large home ranges and road crossings are frequent. Collision rates are highest at roads with medium traffic volumes, which are low enough not to deter crossing attempts but high enough to present a collision risk. Factors that have been linked with higher macropod road-kill rates include flightiness, which is highest for red and grey kangaroos; drought; peri urban development; and road attributes, such as sharp bends or obstructions that reduce drivers' visibility. Although roads may play a significant role in decreasing the viability of vulnerable and endangered macropod populations, such as the Brush-tailed Rock Wallaby, these species will not be harvested. References: Bond and Jones 2014; Lee et al. 2010; Lee 2006; Herbert et al. 2021.

Appendix 6: Impact assessment

Impacts for species, habitats, and ecosystems that result from actions outlined in this Plan are not expected to be significant and in various cases, there are potential benefits that may arise from the outcomes.

Impacts, both potentially positive and negative have been identified and described below, along with mitigation strategies where potentially negative impacts have been recognised.

Impacts to kangaroos (individuals or populations)

Overharvest

Although Moloney, Ramsey and Scroggie (2019) found little change in Victoria's kangaroo population between 2017 and 2018, the KPFT Evaluation Report identified overharvesting as one potential threat to kangaroos' sustainability. The KHMP is intended to address this risk.

Similar commercial kangaroo harvesting programs have long been established in other Australian states, with research and population monitoring conducted in these jurisdictions demonstrating that harvesting is sustainable if appropriate precautions are taken (see for example, Olsen and Low 2006; Pople and Grigg 1999; Cooney et al 2012; Wilson and Edwards 2019).

In Victoria, overharvesting will be prevented through regular population monitoring, applying proportional harvest quotas that respond to fluctuating populations, and employing a precautionary approach. A harvest quota of 10-20% of the population is generally considered ecologically sustainable, and Victoria's quotas are set at the low end of the range. will be set within this range (Caughley et al. 1987; Hacker et al. 2004; Moloney et al. 2019).

Historically it has been rare for kangaroo harvesting in Australia to come close to reaching full quotas. For instance, in 2021 the combined commercial harvest for all Australian states amounted 30.1% of their sustainable quotas (see summary statistics accessible via https://www.environment.gov.au/biodiversity/wildlife-trade/natives#a3).

Mitigation strategy:

- Regular monitoring and quota-setting to respond to population fluctuations.
- Proportional harvest strategy that sets quotas at levels that are sustainable for kangaroo populations and allows for uncertainty in population estimates (Milner-Gulland et al. 2001; Caughley 1987).
- If kangaroo populations fall significantly, the suspension of harvesting activities, or reduction of quota will be considered and implemented as necessary.
- Population estimates will be based on aerial survey data, which is generally believed to underestimate kangaroo abundance (Pople 2004).

Population demographics

The genetic diversity of species can be influenced by the selective removal of individuals that display specific traits, potentially reducing the species' fitness (Hale 2004; Markert et al. 2010). This could become a risk if harvested kangaroos are selected for specific traits, in numbers that are high enough to have long-term genetic impacts.

The impacts of harvesting kangaroo male bias were considered in the ARI report 'A spatial harvest model for kangaroo populations in Victoria'. It was determined that ecological risks to grey kangaroo populations under a male-biased harvest strategy are minimal however, the sex ratio of harvested kangaroos is included in the model and monitored through harvester reports.

The biennial kangaroo population surveys help monitor changes in kangaroo populations and are critical input into population estimations and setting the quota – whilst sex is not recorded during surveys, regular monitoring through other means ensures that kangaroo harvesting remains sustainable.

Mitigation strategy:

- Monitoring the sex of harvested kangaroos.
- Regular population surveys

Poor animal welfare outcomes

When kangaroos are shot, there is a risk that it will not be done humanely. There are also welfare issues associated with harvesting female kangaroos that have pouch young or young-at-foot. However, professional harvesting under the KHP would result in improved animal welfare (Wilson and Edwards 2019).

Mitigation strategy:

- The requirement for all kangaroos harvested under Victoria's KHMP to be humanely killed in accordance with the National Code for Commercial Purposes.
- The requirement for harvesters to demonstrate firearms proficiency before being authorised.
- The requirement for existing harvesters to maintain firearms proficiency as in accordance with the National Code for Commercial Purposes.
- Providing the National Code for Commercial Purposes to all authorised harvesters; in addition, replicating key requirements from the National Code for Commercial Purposes in harvester authorisation conditions.
- Compliance checks and audits on harvesters to monitor compliance with animal welfare requirements.

Impacts to habitats and ecosystems

Impacts on habitats are likely to be positive overall, with biodiversity benefits resulting from grazing pressure management (Choquenot et al. 1998). High kangaroo densities have been associated with reduced occurrence, height and seeding rates of some native grasses; reduced habitat quality for some ground-nesting birds; and reduced habitat quality for eastern barred bandicoots (Neave and Tanton 1989; Winnard and Coulson 2008).

Grazing trials in south-west Queensland found that kangaroo grazing pressure limits regeneration of native grasses in areas that have been excluded from livestock grazing (Page and Beeton 2000). Kangaroo harvesting allows grazing pressure to be managed, increasing the success of regeneration of native vegetation and a reduction in the spread of non-palatable weed species.

Commercial kangaroo harvesters could negatively impact habitats by introducing or dispersing invasive weeds. However, there is no evidence that commercial kangaroo harvesters contribute to the introduction and/or spread of invasive weeds more than other land users. Further, commercial harvesters are unlikely to cause erosion or land degradation as they generally operate on existing tracks and are reluctant to risk damage to their vehicles by venturing off-road (Wilson and Read 2003).

Offcuts from harvesting activities, if not disposed of properly, can provide food source for predators such as foxes, wild dogs, or raptors (Read and Wilson 2004).

Mitigation strategy:

- Minimising the presence of offcuts in ecosystems, including by mandating full carcass shooting (i.e., not permitting a skin-only trade).
- Distribution of educational material to harvesters and landholders on the recommended practices to minimise ecosystem impacts.
- Continued management of introduced predators, such as foxes.

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