

# Kangaroo Harvesting Program

2022 Annual Report



Energy,  
Environment  
and Climate Action

OFFICIAL

## Acknowledgements

DEECA would like to acknowledge the Game Management Authority and the former Department of Jobs, Precincts and Regions (now the Department of Jobs, Skills, Industry and Regions) for their contributions to the Kangaroo Harvesting Program and to this report.

### Acknowledgment

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.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



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## Introduction

The Victorian Kangaroo Harvesting Program (KHP) began on 1 October 2019. This document reports on the operation of the program from 1 January until 31 December 2022.

The KHP operates according to a series of objectives with associated management actions and targets which are set out in the Victorian Kangaroo Harvest Management Plan 2021-2023<sup>1</sup> (KHMP). This report has been prepared to address a requirement of the KHMP (Objective 6), which is to maintain openness, accountability and transparency.

While this document has been prepared to report on the KHP, Authority to Control Wildlife (ATCW) figures for grey kangaroos are included as they are accounted for in overall quota setting. Only Eastern Grey (EGK) and Western Grey kangaroos (WGK) may be harvested through the KHP, and the quota does not differentiate between species.

The ATCW system allows for the control of wildlife where it is causing damage to property, posing a risk to human health and safety or impacting other environmental values.

A map of Victorian harvest zones and corresponding local government areas is provided in Appendix A.

## Machinery of Government changes

Changes to Victorian Government departments came into effect on 1 January 2023. Functions that were previously the responsibility of the Department of Environment, Land, Water and Planning (DELWP) are now the responsibility of the Department of Energy, Environment and Climate Change (DEECA). Functions that were the responsibility of the Department of Jobs, Precincts and Regions (DJPR) are now the responsibility of the Department of Jobs, Skills, Industry and Regions (DJSIR).

## Roles and responsibilities

The Secretary, DEECA is responsible for giving authorisations under section 28A(1) of the *Wildlife Act 1975*. With regard to giving authorisations to harvesters to support the KHMP, the Secretary has delegated the power to make decisions to senior officers of the Game Management Authority (GMA). The GMA is delivering this function as an agent of DJSIR.

The Secretary, DEECA retains responsibility for this plan and for ensuring the sustainability of kangaroo populations via the setting of quotas.

DEECA is responsible for:

- the preparation of the KHMP
- setting the annual quota
- managing the Authority to Control Wildlife permit system, through the Conservation Regulator
- monitoring kangaroo control across the KHP and ATCW system and making decision to reduce or suspend quotas in any zone

DJSIR is responsible for:

- administering the KHP
- outward facing KHP communication

The GMA is responsible for:

- issuing harvester authorisations
- carrying out relevant compliance activities
- allocating tags to harvesters and collection of harvest data

# 2022 Quota

The 2022 kangaroo harvest quotas were set based on recommendations provided by the Arthur Rylah Institute for Environmental Research (ARI) in the report *Kangaroo harvest quotas for Victoria 2022*<sup>ii</sup>. ARI uses a spatial harvest model to make recommendations on kangaroo harvest quotas. The model takes into account the most recent kangaroo population survey results, environmental variables like rainfall, and kangaroo control numbers (through the KHP and ATCW system) to predict changes in kangaroo populations for years where no survey is undertaken. The model recommends that no more than 10 per cent of the population of grey kangaroos be taken each year. This includes through the KHP and ATCW system.

The 2022 quota was based on population estimates from an aerial and ground survey which was undertaken in 2020<sup>iii</sup>.

Table 1: Kangaroo quotas for Victoria (1 January 2022 – 31 December 2022)

Harvest zone	Population*	Recommended total take	Initial KHP quota	Revised KHP quota
Central	650,550	65,050	46,150	46,150
Gippsland	170,550	17,050	13,100	13,100
Lower Wimmera	410,400	41,050	30,550	22,915
Mallee	36,200	3,650	1,050	1,050
North East	221,100	22,100	4,950	3,715
Otway	235,900	23,600	20,650	20,650
Upper Wimmera	133,450	13,350	11,400	11,400
<b>Total</b>	<b>1,858,150</b>	<b>185,850</b>	<b>127,850</b>	<b>118,980</b>

\* from modelled estimate provided in *Kangaroo harvest quotas for Victoria 2022*.

## Quota adjustment

As required in the KHMP, the number of kangaroos taken through the KHP and ATCW system is monitored throughout the year and steps are taken to ensure the sustainability of kangaroo populations is maintained.

During 2022 the quota was revised down in two zones (the North East and Lower Wimmera) due to ATCW levels of control being higher than anticipated. The adjustment was made prior to the final release in October so that no further KHP quota was released in these zones. The revised quota is noted in Table 1.

# Kangaroo take in Victorian harvest zones in 2022

## Kangaroo Harvesting Program data

### Summary

KHP statistics for 2022 have been provided for each of the seven harvest zones (Table 2). Overall, just over 68,000 kangaroos – or four per cent of the estimated population within harvest zones – were harvested through the KHP.

Approximately 6,000 more kangaroos were harvested in 2022 compared to 2021, noting that there was 27 per cent more quota available to harvesters in 2022 (118,980) than in 2021 (93,640)

As in previous years, harvesters did not use the full allocation of quota available to them. The use of quota varied greatly between harvest zones. State-wide, 57 per cent of available KHP quota was used, less than the 66 per cent that was used in 2021.

Table 2: Kangaroo Harvesting Program statistics (1 January 2022 – 31 December 2022)

Harvest zone	KHP quota	KHP quota harvested	% Available quota harvested	% Harvest zone population harvested
Central	46,150	24,414	53%	4%
Gippsland	13,100	6,887	53%	4%
Lower Wimmera	22,915	18,671	81%	5%
Mallee	1,050	703	67%	2%
North East	3,715	2,112	57%	1%
Otway	20,650	8,691	42%	4%
Upper Wimmera	11,400	6,868	60%	5%
<b>Total</b>	<b>118,980</b>	<b>68,346</b>	<b>57%</b>	<b>4%</b>

Table 3: Summary of kangaroos harvested

Harvest zone	Total
WGK	1,339
EGK	54,222
Females	22,607
Dependant young	19,015

### Eastern and Western Grey kangaroos

While the KHP quota does not differentiate between EGKs and WGKs, harvesters are asked to report post harvest on the numbers of each species they have harvested (shown in Table 3). The variance in the combined total of EGK and WGK self-reported by harvesters and the total KHP quota harvested (Table 3) is due to harvester recall-bias, however this has no impact on population modelling. To ensure robust data for 2022, self-reports of harvested WGKs have only been applied where the known population exists.

### Sex ratio of harvested kangaroos

The proportion of females harvested (35 per cent) is consistent with previous years. There is a known bias towards harvesting male kangaroos in commercial harvest programs. Males are typically larger, easier to target and of greater economic return for harvesters.

The risk of male bias was considered by ARI in the report *A spatial harvest model for kangaroo populations in Victoria*<sup>iv</sup>, which showed that there is minimal risk to kangaroo populations when harvesting programs target males in preference to females.

### **Dependant young**

The number of dependant young humanely euthanised does not contribute to the KHP quota as dependant young are not included in the population estimate that was used to set the KHP quota. Dependant young must be euthanised in line with requirements under the *National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes*<sup>v</sup>.

## Authority to Control Wildlife permit data

### Summary

ATCW permits allow the lethal and non-lethal control of wildlife that is damaging property, farmland, or the environment, or posing a risk to human health and safety. ATCWs are issued on a case-by-case basis by the Conservation Regulator. ATCWs for kangaroos operate alongside the KHP and can be issued to private landholders and public land managers.

A summary of grey kangaroos approved for control under an ATCW in each KHP zone from January-December 2022 is shown in Table 4. As noted above, these figures are included in this report to enable an assessment of total kangaroo control across the KHP and the ATCW system.

It is important to note that the ATCW figures reported in Table 4 are numbers of kangaroos approved for control during this period – not kangaroos actually controlled. This is because

- ATCWs are typically issued for a 12-month period from date of issue. For example, an ATCW issued in October 2022 would be accounted for in the 2021 data even though kangaroos might be controlled until September 2023.
- ATCW holders are not required to report the actual number of animals controlled. The number approved for control represents that maximum that may be controlled. An ATCW may not be fully exhausted prior to its expiry (e.g., if kangaroos disperse as a result of shooting activities).

There were slightly more grey kangaroos approved for control under ATCWs within harvest zones in 2022 (58,771) than in 2021 (56,942).

**Table 4: Number of kangaroos (Eastern and Western Grey combined) approved for control under an ATCW within harvest zones (1 January – 31 December 2022)**

Harvest zone	Kangaroos approved for control	% Of est. population approved for control
Central	12,756	2%
Gippsland	2,911	2%
Lower Wimmera	12,444	3%
Mallee	4,827	13%
North East	20,798	9%
Otway	3,416	1%
Upper Wimmera	1,619	1%
<b>Total</b>	<b>58,771</b>	<b>3%</b>

### ATCWs outside of harvest zones

ATCWs have been issued for Eastern or Western Grey kangaroos in areas of Victoria that fall outside of the KHP harvest zones. This data is not included in this report. However, the Conservation Regulator publishes annual data on ATCWs issued for all species, across all of Victoria which can be found at [vic.gov.au/operational-licences-permits-issued-conservation-regulator](https://vic.gov.au/operational-licences-permits-issued-conservation-regulator).

### ATCWs in the Mallee Zone

The number grey kangaroos authorised for control under ATCW system in the Mallee KHP harvest zone was higher than anticipated for 2022. This is due to a combination of factors, including abundant kangaroo populations due to the favourable environmental conditions and interventions associated with 2022 flood emergency (see Flooding). High numbers can also be attributed to ATCWs issued during this period for the management of kangaroos on public land and as part of grazing management plans to support conservation values.



ATCW permits are valid for 12 months and control approved under a permit can be carried out at any point during that time. It is unlikely that all control approved through ATCWs issued late in 2022 was enacted during that calendar year.

## Total take of kangaroos in Victorian harvest zones in 2022

### Summary

Across the seven harvest zones, no more than seven per cent (127,117) of Victoria's grey kangaroo population was approved for control in 2022 (Table 4). This is slightly higher than in 2021 (119,176). Overall, the state total is well within the 10 per cent maximum recommended by ARI (185,850).

There are a number of factors which may have contributed to slight increase in the total number of kangaroos approved to be controlled in 2022. The primary factor is the increase in kangaroo population as identified in the 2022 survey, which found grey kangaroo abundance was 24 per cent higher in 2022 than the previous survey in 2020<sup>vi</sup>.

### North East zone

Total take reached the recommended maximum in the North East zone. Take through ATCWs accounted for the majority of the take in this zone in 2022. Prior to the final KHP quota release, the quota in this zone (and the Lower Wimmera) was adjusted. Refer to Quota adjustment on page 3.

### Mallee zone

Total take exceeded the recommended maximum in the Mallee zone due to the emergency interventions undertaken in late 2022 which accounts for more than 70 per cent of macropods approved under the ATCW system. These permits were issued after the final release of KHP quota, therefore no reduction in quota was made. Given the very low rate of harvesting in this zone (703 for 2022), a reduction of quota would not have made any significant impact on the total take.

Table 5: Number of kangaroos (Eastern and Western Grey combined) approved for control under an ATCW or harvested through the KHP within harvest zones (1 January – 31 December 2022)

Harvest zone	Recommended total take (including both ATCW and KHP quota)	KHP quota harvested	Kangaroos approved for control (ATCW)	Total take (ATCW and KHP combined)	Total take (% of population)
Central	65,050	24,414	12,756	37,170	6%
Gippsland	17,050	6,887	2,911	9,798	6%
Lower Wimmera	41,050	18,671	12,444	31,115	8%
Mallee	3,650	703	4,827	5,530	15%
North East	22,100	2,112	20,798	22,910	10%
Otway	23,600	8,691	3,416	12,107	5%
Upper Wimmera	13,350	6,868	1,619	8,487	6%
<b>Total</b>	<b>185,850</b>	<b>68,346</b>	<b>58,771</b>	<b>127,117</b>	<b>7%</b>

# Compliance and authorisations

## Harvester authorisations and compliance figures (1 January – 31 December 2022)

In 2022, DJPR engaged the GMA to carry out compliance activities and issuing harvester authorisations in relation to the KHP.

The total number of harvesters authorised to operate during 2022 is provided in Table 6. The number of harvesters who received quota in each of the harvest zones is provided Table 7. Many authorised harvesters operate across multiple zones, which is why the number of harvesters who received quota is higher than the total number of authorised harvesters provided in Table 6. Current harvester authorisations can exist for three years, with a common expiry date of 31 December 2023. As a result, cumulative harvester numbers increase annually, however, the number of active harvesters has not significantly changed. An active harvester is a harvester who records an annual take equal to, or more than the state-wide mean. For 2022, this was 435 kangaroos.

**Table 6: Harvester authorisations**

Activity	Count
Number of applications for authorisations received	43
Number of applications authorised after meeting requirements	30
Number of authorisations suspended	2
Number of authorisations cancelled	1
Current total number of authorised harvesters	157

**Table 7: Harvesters who received KHP quota for each harvest zone**

Zone	Number of harvesters
Central	76
Gippsland	45
Lower Wimmera	23
Mallee	4
North-East	61
Otway	32
Upper Wimmera	31

**Table 8: Compliance figures**

Activity	Count
Percentage of active harvesters subject to programmed in-field audits	60%
Percentage of active harvesters subject to unannounced in-field audits	15%
Number of desktop/phone audits on private property where harvesting occurs	62
Number of Information Reports submitted specifically relating to the KHP	34
Number of investigations	13
Number of complaints received against Authorised Officers undertaking duties in accordance with the KHP	0

## General program updates in 2022

### Quota management in 2022

KHP quota was released in 3 stages in 2022, with approximately half of the quota made available to harvesters from January, and two subsequent releases in July and September.

Refer to Quota adjustment on page 3 for more information about quota adjustments made in 2022.

### Quota management in 2023

2023 harvest quota will be made available across four releases in 2023; January, April, July and October. This provides DEECA greater flexibility to adjust the quota throughout the year in response to any events that threatened the sustainability of kangaroo populations. The 2023 quota is based on the ARI's recommendation in the report *Kangaroo harvest quotas for Victoria, 2023*<sup>vi</sup>.

### Flooding

In late 2022, extensive rainfall occurred across much of Victoria and New South Wales. This led to extensive flooding of many river systems across the state, particularly in the north including those feeding into the Murray River system.

During the flood event, DEECA coordinated emergency welfare responses at those sites where animals were stranded and found to be in poor and deteriorating condition due to a lack of food, fresh water and shelter and due to predation. Where animal welfare was significantly compromised, intervention was considered on a site-by-site basis. The decision to euthanise kangaroos during the emergency was based on a veterinary assessment of their health and welfare and was considered the most humane option. Where Eastern and Western Grey Kangaroos were euthanised under an ATCW for animal welfare reasons, these have been included in this report.

Although flooding had localised impacts on kangaroos and their habitat, there was no evidence of significant impacts on the state-wide population. No long-term effects on kangaroo populations or on habitat is anticipated due to the flooding.

### Victorian kangaroo abundance survey

A statewide aerial survey was conducted in September and October 2022. The survey was used to estimate kangaroo abundance within the seven Victorian harvest zones. The survey builds on data gathered from previous surveys in 2017, 2018 and 2020. The results of the survey are provided in the ARI report *Statewide abundance of kangaroos in Victoria 2022*<sup>vii</sup> and were used to set the harvest quota for 2023.

The results found that there were more than 2.3 million grey kangaroos in Victoria, an increase of 24 per cent since the last survey in 2020. The results show that kangaroo control in Victoria is being managed sustainably.

### Review of the KHMP

The current KHMP is in place until the end of 2023. DEECA will prepare a new plan during 2023, to come in effect for 2024 onwards. Consultation with Traditional Owners, harvesters and the broader community will be used to inform the next KHMP.

Once prepared, the new KHMP will be submitted to the Department of Climate Change, Energy, the Environment and Water so that kangaroo products obtained through the program can continue to be exported internationally as they currently are.

# Appendix A: Kangaroo Harvesting Program – Harvest zones

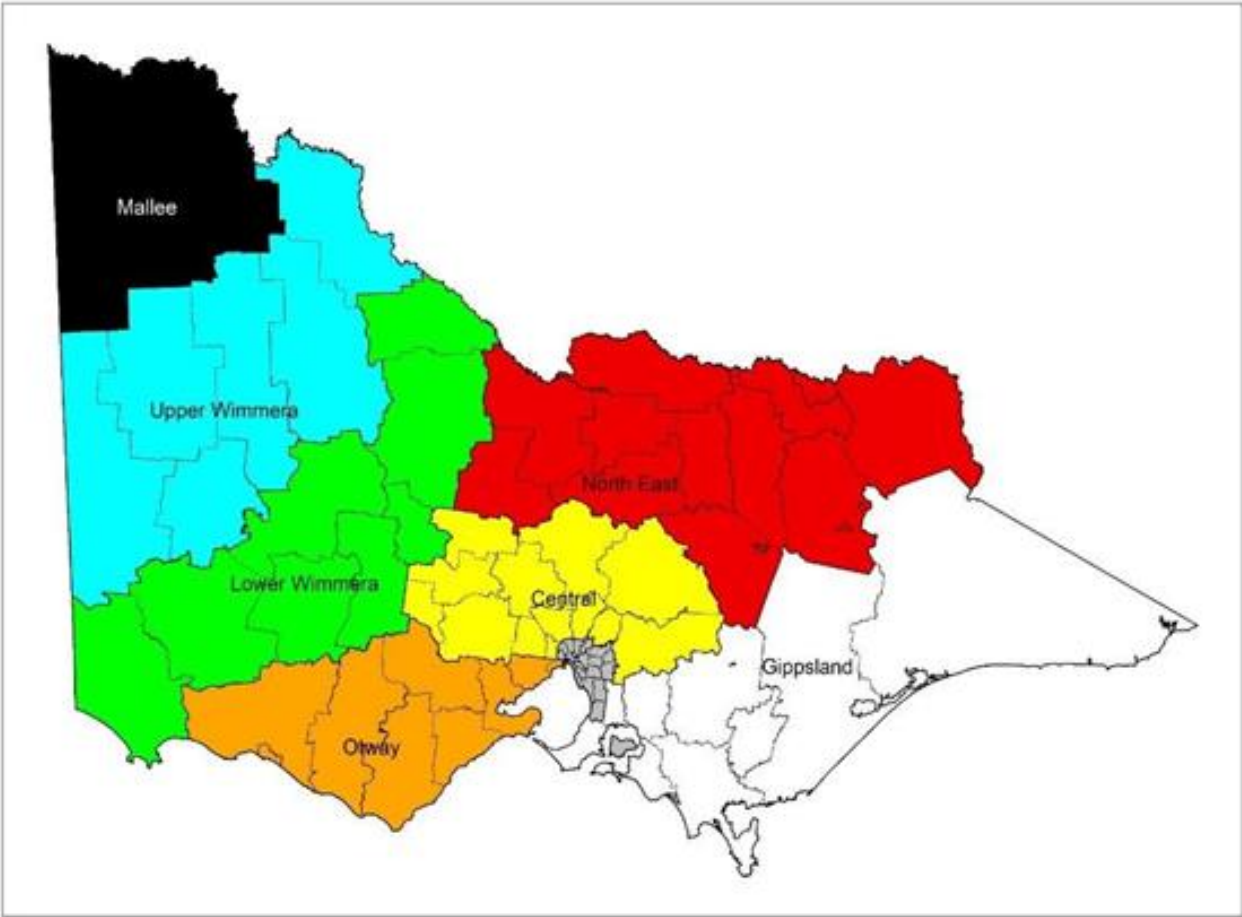


Figure 1. Map of Victorian kangaroo harvest zones

**Table 1: List of Victorian local government areas (LGAs) within harvest zones**

<b>Zone</b>	<b>LGAs</b>	<b>Zone</b>	<b>LGAs</b>	<b>Zone</b>	<b>LGAs</b>
<b>Mallee</b>	Mildura	<b>Central</b>	Ballarat	<b>North East</b>	Alpine
			Brimbank		Benalla
<b>Upper Wimmera</b>	Buloke		Hepburn		Campaspe
	Hindmarsh		Hume		Greater Bendigo
	Horsham		Macedon Ranges		Greater Shepparton
	Swan Hill		Melton		Indigo
	West Wimmera		Mitchell		Mansfield
	Yarriambiack		Moorabool		Moira
			Mount Alexander		Strathbogie
			Murrindindi		Towong
			Nilumbik		Wangaratta
			Whittlesea		Wodonga
			Yarra ranges		
<b>Lower Wimmera</b>	Ararat	<b>Gippsland</b>	Bass Coast	<b>Otway</b>	Colac Otway
	Central Goldfields		Baw Baw		Corangamite
	Gannawarra		Cardinia		Golden Plains
	Glenelg		Casey		Greater Geelong
	Loddon		East Gippsland		Hobsons Bay
	Northern Grampians		Latrobe		Moyne
	Pyrenees		Mornington Peninsula		Surf Coast
	Southern Grampians		South Gippsland		Warrnambool
			Wellington		Wyndham

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<sup>i</sup> Department of Environment, Land, Water and Planning. (2021) Kangaroo Harvest Management Plan 2021-2023.

<sup>ii</sup> Ramsey, D.S.L. and Scroggie, M.P. (2021). Kangaroo harvest quotas for Victoria, 2022. Arthur Rylah Institute for Environmental Research Technical Report Series No. 323. Department of Environment, Land, Water and Planning, Heidelberg, Victoria.

<sup>iii</sup> P.D., Ramsey, D.S.L., and Scroggie, M.P. (2021). State-wide abundance of kangaroos in Victoria: results from the 2020 aerial survey. Arthur Rylah Institute for Environmental Research Technical Report Series No. 324. Department of Environment, Land, Water and Planning, Heidelberg, Victoria.

<sup>iv</sup> Scroggie, M.P. and Ramsey, D.S.L. (2020). A spatial harvest model for kangaroo populations in Victoria. Arthur Rylah Institute for Environmental Research Technical Report Series No. 315. Department of Environment, Land, Water and Planning, Heidelberg, Victoria.

<sup>v</sup> National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes AgriFutures Australia Publication No. 20-126.

<sup>vi</sup> Ramsey, D.S.L. (2022). Kangaroo harvest quotas for Victoria, 2023. Arthur Rylah Institute for Environmental Research Technical Report Series No. 349. Department of Environment, Land, Water and Planning, Heidelberg, Victoria

<sup>vii</sup> Moloney, P.D., Ramsey, D.S.L., and Scroggie, M.P. (2023). State-wide abundance of kangaroos in Victoria: Results from the 2022 aerial survey. Arthur Rylah Institute for Environmental Research Technical Report Series No. 356. Department of Energy, Environment and Climate Action, Heidelberg, Victoria..