



Kangaroo Harvesting Program

2020 report

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OFFICIAL



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Land, Water
and Planning

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) commenced operation on 1 October 2019. This document reports on the operation of the program from 1 January until 31 December 2020, the first full year that Victoria has operated the KHP.

During that period, the KHP operated according to the *Victorian Kangaroo Harvest Management Plan 2020* (KHMP). The Department of Environment, Land, Water and Planning (DELWP) prepared the plan and is responsible for setting harvest quotas, as well as for managing the Authority to Control Wildlife (ATCW) system which allows for the control of kangaroos for damage mitigation or where they are impacting human health and safety. The Department of Jobs, Precincts and Regions (DJPR) and the Game Management Authority (GMA) administer the KHP, including authorising harvesters, allocating quota among authorised harvesters and monitoring compliance with program requirements. The KHMP sets the requirements for the KHP under a series of objectives with associated management actions and targets.

Objective 6 of the KHMP is “Maintain openness, accountability and transparency”. One of the requirements under that objective is that “DELWP and DJPR will make relevant documents available online to ensure information about the requirements of this plan and the operation of the program are accessible to all interested parties”. Included in the description of relevant documents is “a summary of harvest return data on an annual basis” and “reports on the total take of kangaroos (in Victoria) across both the commercial harvest and the ATCW system in each zone” (see Appendix A for map of harvest zones).

This report has accordingly been prepared to address the above requirement. While the report has been prepared in the context of the KHP, ATCW figures are included as they are accounted for in quota setting. Only Eastern Grey and Western Grey kangaroos may be harvested through the KHP.

Calculation of quotas

The 2020 kangaroo harvest quotas were calculated using the *Spatial Harvest Model for Kangaroo Populations in Victoria*¹. The model takes into account the most recent survey results, and environmental variables like rainfall to predict changes in grey kangaroos for years where no survey is undertaken. The model recommends that no more than 10% of the population of grey kangaroos should be controlled in a year. This includes control through the KHP and the ATCW system.

In determining the 2020 quota², the modelling used population estimates from the statewide kangaroo surveys undertaken in late 2018³.

Aerial and ground surveys were completed in late 2020 to inform the 2021 quotas. Surveys are planned to be completed every two years.

Impacts of the 2019/2020 bushfires

Due to the bushfires which affected Victoria in late December 2019 and early 2020, harvesting under the KHP was suspended in all zones during January 2020. Harvesting remained closed (control through ATCW's was still allowed) in the Gippsland and North East harvest zones to allow DELWP to carry out an assessment of kangaroo populations in these zones.

The assessment identified that the Towong, East Gippsland and Alpine local government areas (LGAs) were found to have experienced the greatest impacts of the fire⁴. Following the assessment, the KHP resumed in the North East and Gippsland zones in August 2020, with the exception of three LGA's. The KHP remained closed in Towong, East Gippsland and Alpine LGAs for the remainder of 2020 and quotas were revised down to 11,300 (from 12,550) in the Gippsland zone, and 3,100 (from 4,000) in the North East zone to reflect the shortened harvest period and the effects of fire on the population on kangaroos in these areas.

¹ 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

² Scroggie, M., & Ramsey, D. (2019). *Kangaroo harvest quotas for Victoria, 2020*. Arthur Rylah Institute for Environmental Research. Heidelberg, Victoria: Department of Environment, Land, Water and Planning

³ Moloney, P.D., Ramsey, D.S.L., and Scroggie, M.P. (2018). State-wide abundance of kangaroos in Victoria: results from the 2018 aerial survey. Arthur Rylah Institute for Environmental Research Technical Report Series No. 296. Department of Environment, Land, Water and Planning, Heidelberg, Victoria

⁴ Ramsey, D.S.L. (2020). *The impacts of the 2019/20 bushfires on Eastern Grey kangaroos in the North east and Gippsland kangaroo harvest zones*. Arthur Rylah Institute for Environmental Research Technical Report Series No. 312. Department of Environment, Land, Water and Planning, Heidelberg, Victoria

Kangaroo Harvesting Program statistics

Overall, just over 46,000 (80 per cent) of the total statewide KHP quota was utilised during 2020. This equates to just over 3 per cent of the estimated statewide kangaroo population. Table 1 provides a summary of KHP quota allocated and consumed (kangaroos harvested) for each harvest zone from January-December 2020.

Table 1: Kangaroo harvest data: 1 January – 31 December 2020

Harvest zone	Estimated population	KHP quota allocated (2020)	Quota harvested in 2020	% of quota harvested	% of est. population harvested
Mallee	47,491	2,000	908	45%	1.9%
Upper Wimmera	92,316	4,000	3,687	92%	4.0%
Lower Wimmera	402,499	17,500	16,681	95%	4.1%
Central	274,953	12,000	10,178	85%	3.7%
Otway	182,537	8,000	6,157	77%	3.4%
North East	288,098	11,300	7,890	70%	2.7%
Gippsland	90,711	3,100	563	18%	0.6%
Statewide total	1,378,605	57,900	46,064	80%	3.3%

* Revised from 12,550 following assessment of bushfire impacts

** Revised from 4,000 following assessment of bushfire impacts

The percentage of quota utilised varied between harvest zones..

While the KHP quota does not differentiate between Eastern Grey and Western Grey Kangaroos, harvesters are asked to report post-harvest on the numbers of each kangaroo species they have harvested. The harvest of 29,745 Eastern Grey Kangaroos and 16,319 Western Grey Kangaroos was reported in 2020. Table 2 provides a summary of the number of Western Grey and Eastern Grey kangaroos harvested in each zone and the proportion of harvested kangaroos that were male.

Table 2. Species and sex ratio of commercially harvested kangaroos in Victoria in 2020.

Harvest zone	EGK Harvested	WGK harvested	EGK harvested (% quota)	WGK harvested (% quota)	Male bias (%)
Mallee	112	796	12%	88%	94%
Upper Wimmera	2,802	885	76%	24%	68%
Lower Wimmera	13,438	3,243	81%	19%	69%
Central	3,836	6,342	38%	62%	63%
Otway	4,940	1,217	80%	20%	72%
North East	4,730	3,160	60%	40%	62%
Gippsland	31	532	6%	94%	62%
Statewide total	29,745	16,319	65%	35%	67%

Harvesters reported that 30,882 (67 per cent) of the kangaroos harvested were male and that 13,850 dependent young were destroyed. Modelling completed by ARI⁵ indicates that there is minimal risk to kangaroo populations when harvesting programs target males in preference to females. While there are no requirements for harvesters to meet set sex ratios as part of this program, there is a natural tendency for commercial harvesting to have a male bias. Males of these two species are larger, and therefore may offer greater economic return for harvesters. Dependant young must be destroyed in line with requirements under the *National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes*⁶, on welfare grounds.

Improvements in reporting

Harvesters reported some confusion with the mobile reporting platform they are required to use. This has likely artificially inflated the reported figure of 16,319 Western Grey Kangaroos – which equals 35 per cent of the total harvest, whereas Western Grey Kangaroos comprise around 9 per cent of the total kangaroo population. The figure for Western Grey Kangaroos includes reports from harvest zones where they do not occur, for example the North East and Gippsland harvest zones. It is likely that a majority of those reported as being Western Grey kangaroos were in fact Eastern Grey kangaroos. DJPR has implemented further enhancements in 2021 to the reporting tool to assist harvesters to more accurately report figures for Western Grey Kangaroos in future.

⁵ 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

⁶ National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes AgriFutures Australia Publication No. 20-126

Authority To Control Wildlife statistics

Authorities to Control Wildlife (ATCWs) allow the control of wildlife that is damaging property, farmland, the environment of posing a risk to human health and safety. ATCWs are issued on a case by case basis by the Office of the Conservation Regulator. ATCWs operate alongside the KHP and are available to private landholders and public land managers.

A summary of Eastern and Western Grey kangaroos approved for control under an ATCW in each KHP zone from January-December 2020 is shown in Table 3. As noted above, these figures are included in this report to enable an assessment of total kangaroo mortality across the KHP and the ATCW system.

It is important to note that the ATCW figures reported in Table 3 are numbers of kangaroos approved for control during this period – not kangaroos actually controlled. There is no reporting requirement for wildlife controlled under ATCWs. Some data is available for control undertaken by public land managers, and this was used in the 2019 report to adjust the ATCW figures so that they more closely reflected the level of control actually undertaken. Data for ‘actual’ control on public land has not been used to adjust ATCW figures in this report as it is not consistently held by all public land managers.

Table 3. Number of kangaroos (Eastern and Western Grey combined) approved for control under an ATCW in each commercial harvest zone from January – December 2020.

Harvest zone	Estimated population	Kangaroos approved for control	% of est. population approved for control
Mallee	47,491	2,826	6.0%
Upper Wimmera	92,316	2,752	3.0%
Lower Wimmera	402,499	13,431	3.3%
Central	274,953	20,408	7.4%
Otway	182,537	3,421	1.9%
North East	288,098	23,495	8.2%
Gippsland	90,711	4,419	4.9%
Statewide total	1,378,605	70,752	5.1%

It is very unlikely that all kangaroos approved for control under ATCW during this period were controlled during the reporting period. ATCWs are typically issued for one year (from date of issue) and control may happen at any time during that 12 month period. Permits are frequently not exhausted before expiry. However, it should also be noted that kangaroos may have been controlled during this period from ATCWs issued during the previous 12 months.

While ATCWs are issued for by species, numbers are aggregated in Table 3 to enable direct comparison with kangaroo harvest data. A breakdown for Eastern Grey and Western Grey kangaroos is provided in Table 4. Across the zones, 95 percent of grey kangaroos approved for control through an ATCW permit were Eastern Grey kangaroos. Overall, ATCWs issued during this period equate to about 5 per cent of the total statewide grey kangaroo population.

Table 4. Number and percentage of Eastern Grey Kangaroos (EGK) and Western Grey Kangaroos (WGK) approved for control under an ATCW in each commercial harvest zone from January-December 2020.

Harvest zone	EGK approved for control	WGK approved for control	EGK approved for control (% of total GK approved for control)	WGK approved for control (% of total GK approved for control)
Mallee	65	2,761	2%	98%
Upper Wimmera	2,357	395	86%	14%
Lower Wimmera	13,339	92	99%	1%
Central	20,408	0	100%	-
Otway	3,421	0	100%	-
North East	23,495	0	100%	-
Gippsland	4,419	0	100%	-
Statewide total	67,504	3,248	95%	5%

Summary: combined total kangaroo control January – December 2020

Across the state, 8.5 per cent of Eastern and Western Grey kangaroos were controlled either through the KHP or an ATCW. On a statewide basis and in the majority of harvest zones, this is consistent with the recommended maximum 10 per cent total take from the population for this period⁷.

Table 5 provides a summary of the combined total number of Eastern Grey and Western Grey kangaroos harvested under the KHP and approved for control under the ATCW system from 1 January – 31 December 2020.

Table 5. Combined total number of kangaroos harvested under the Kangaroo Harvesting Program and approved for control under ATCW from January-December 2020.

Harvest zone	Estimated population	Kangaroos harvested under KHP	Kangaroos approved for control under ATCW	Total number of kangaroos approved (ATCW) and harvested (KHP)	% of est. population taken
Mallee	47,491	908	2,826	3,734	7.9%
Upper Wimmera	92,316	3,687	2,752	6,439	7.0%
Lower Wimmera	402,499	16,681	13,431	30,112	7.5%
Central	274,953	10,178	20,408	30,586	11.1%
Otway	182,537	6,157	3,421	9,578	5.2%
North East	288,098	7,890	23,495	31,385	10.9%
Gippsland	90,711	563	4,419	4,982	5.5%
Statewide total	1,378,605	46,064	70,752	116,816	8.5%

The total combined control of kangaroos in two zones, the Central and North East, was above the recommended figure. DELWP monitors the total number of kangaroos controlled through the KHP and ACTWs throughout the year, as the numbers in these two zones only surpassed recommended levels in the final stages of the year, only by very small amounts and because the statewide total was below the recommended level, no further action was taken.

As in 2020, DELWP will continue to monitor the number of kangaroos control throughout 2021 and will take steps to ensure that the sustainability of kangaroo populations is maintained. In determining the 2021 KHP quota, adjustments were made to more accurately predict ATCW numbers in future years. This will help ensure the combined level of control across both systems remains within recommended levels.

⁷ Scroggie, M., & Ramsey, D. (2019). *Kangaroo harvest quotas for Victoria, 2020*. Arthur Rylah Institute for Environmental Research. Heidelberg, Victoria: Department of Environment, Land, Water and Planning

Quota Management

Quota for the KHP is released quarterly, and harvesters must specify which harvest zone they would like to apply for quota in. Tags (with quota ID) are then posted to harvesters for attaching at the time of harvesting. Harvesters must only harvest the number of kangaroos they have been allocated tags for, and only in the zones the tags specify.

DELWP monitors quota consumption for the KHP alongside take through the ATCW system to ensure the level of take across the two systems is within sustainable limits. If the number of kangaroos taken across both the KHP and ATCW system approaches unsustainable levels, action will be taken to ensure kangaroo populations remain sustainable. This could include reducing the commercial harvest quota or closing zones to commercial harvest altogether.

In 2020 there was no action required to manage the combined take of grey kangaroos.

Compliance

The GMA undertakes compliance activities in relation to the KHP as detailed in Table 6. In 2020 there were 87 harvesters authorised to operate under the KHP.

Table 6. Compliance activities conducted in 2020.

Activity	Count
Percentage of active* harvesters subject to programmed in-field audits	34.6%
Percentage of active* harvesters subject to unannounced in-field audits	11.5%
Number of Processors subject to programmed on-premise audits	0
Number of desktop/phone audits on private property where harvesting occurs	11
Number of unannounced in-field audits on private property where harvesting occurs	2
Number of Information Reports submitted specifically relating to the KHP	3
Number of complaints received against Authorised Officers undertaking duties in accordance with the KHP	0

* For compliance purposes, an active harvester is a harvester that has consumed more than 700 kangaroos per annum

As a result of the COVID19 control measures and subsequent restrictions, compliance operations were significantly impacted, hampering Authorised Officers ability to conduct in-field compliance throughout 2020.

Research in 2020

The Impacts of the 2019/20 Bushfires on Eastern Grey Kangaroos in the North East and Gippsland Kangaroo Harvest Zones

Available at: https://www.wildlife.vic.gov.au/_data/assets/pdf_file/0029/484184/Kangaroo-Bushfire-Impacts2020_FINAL.pdf

Following the 2019/20 bushfires, the KHP was suspended in the North East and Gippsland harvest zones due to the severity of the fires in these regions. DELWP undertook an assessment of the extent of the probable impacts of the bushfires on the kangaroo populations in the North East and Gippsland harvest zones. The findings outlined if the KHP could recommence in these zones and if so, whether revision of the quota allocation was required.

A Spatial Harvest Model for Kangaroo Populations in Victoria

Available at: https://www.ari.vic.gov.au/_data/assets/pdf_file/0013/511303/ARI-Technical-Report-315-Spatial-harvest-model-for-kangaroo-populations-Victoria.pdf

The implementation of the KHP in Victoria led to a requirement for a robust framework for setting harvest quotas to ensure the long-term ecological sustainability of the harvesting program. Previously kangaroo quotas were based on a simplified model of kangaroo population dynamics, and further model development was required so that more realistic policy options could be explored by managers.

Using aerial survey data, relationships between the abundance of Eastern and Western Grey Kangaroos and environmental variables were investigated to predict grey kangaroo abundance, initial harvest thresholds, and quotas over a fine resolution grid across Victoria. The resulting grid of abundance values and environmental variables was then used to develop a spatially explicit population model for grey kangaroos in Victoria. This model was used to make predictions of future grey kangaroo abundances and the level of sustainable offtake from harvesting and culling programs at both the grid cell and population level.

Program updates in 2021

Kangaroo Harvest Management Plan 2021-2023

The KHMP has been updated and a new plan was released for 2021. The new Kangaroo Harvest Management Plan 2021-2023 (<https://www.wildlife.vic.gov.au/managing-wildlife/wildlife-management-andcontrol-authorisations/commercial-harvest-of-kangaroos>) will guide the KHP for the next three years. The new plan is largely unchanged from the previous version and the sustainability of Victoria's kangaroo population remains a key objective. The key changes in the new plan are:

- The life of the plan has been extended to three years
- The annual KHP quota will be published in a report separate to the plan
- Allowing the KHP to be suspended in a zone or zone segment (local government area) when environmental or natural events (such as bushfires or floods) may affect kangaroo populations
- Allowing kangaroos harvested under the KHP to be used for human consumption, as well for pet food
- Other administrative changes which allow scope for changes during the life of the plan (e.g. allowing harvesting on specified public land).

Developmental Wildlife Trade Operation

The Victorian Kangaroo Harvesting Program has been declared a Developmental Wildlife Trade Operation (DWTO) under the *Environment Protection and Biodiversity Conservation Act 1999*. This allows kangaroo products collected under the KHP, such as skins, to be exported overseas.

The Developmental Wildlife Trade Operation runs for three-years. The new KHMP has been designed to align with this.

Interstate export

From 2021, Conditions of Authorisations for harvesters under the KHP allow carcasses to be taken to processors outside of Victoria provided that it is legal under that State or Territories legislation to import kangaroos from Victoria for processing. The harvester must obtain and act in accordance with an export permit issued under section 50 of the *Wildlife Act 1975*.

Additional requirements for harvesters

In 2021, operators of all harvest vehicles operating under the KHMP must hold a Game Meat Processing Facility (Harvest Vehicle) licence as specified in PrimeSafe's *Wild Game Meat Harvesting Guidelines* (<https://www.primesafe.vic.gov.au/licensing/meat/game-meat-processing/>).

Harvesters must comply with the revised *National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes* (<https://www.agrifutures.com.au/product/national-code-of-practicefor-the-humane-shooting-of-kangaroos-and-wallabies-for-commercial-purposes/>) which replaces the

2008 edition of the commercial code. The revised Code sets an achievable standard of humane conduct and is the minimum required of persons shooting kangaroos and wallabies for commercial purposes.

Appendix A: Kangaroo Harvesting Program – Harvest zones

Figure 1: Map of Victorian KHP harvest zones

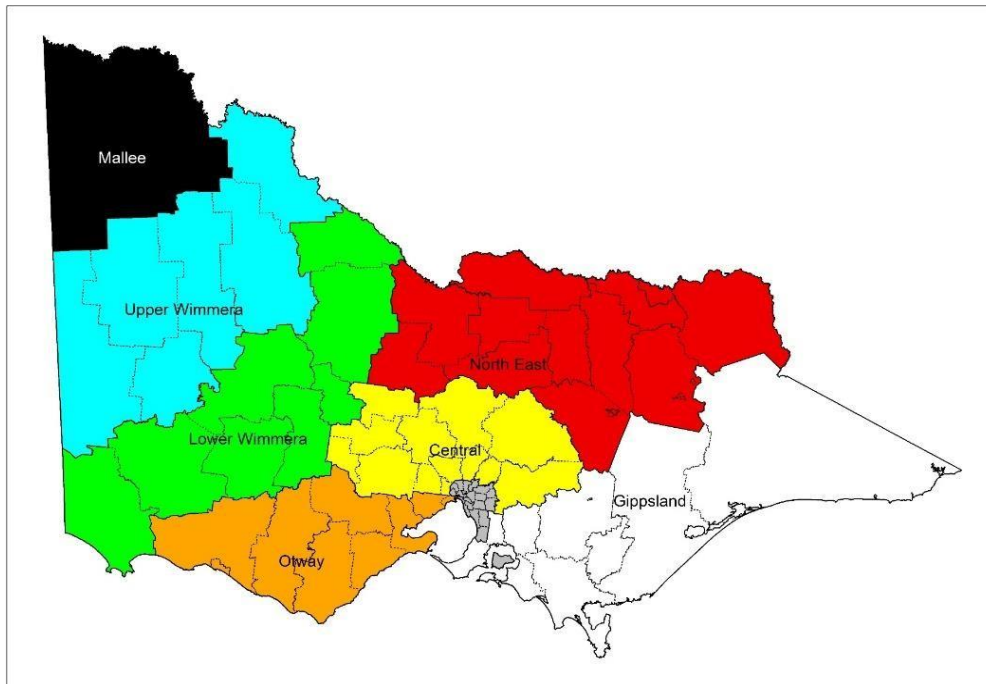


Table 1. List of Victorian local government areas within each harvest zone

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