

# 2021 Harvest Report

Commercial Kangaroo Harvest  
South Australia



**Government  
of South Australia**

Department for  
Environment and Water

Department for Environment and Water

GPO Box 1047, Adelaide SA 5001

Website: [www.environment.sa.gov.au](http://www.environment.sa.gov.au)

Contact link: <http://www.environment.sa.gov.au/contact-us>

#### Disclaimer

The Department for Environment and Water and its employees do not warrant or make any representation regarding the use, or results of the use, of the information contained herein as regards to its correctness, accuracy, reliability, currency or otherwise. The Department for Environment and Water and its employees expressly disclaims all liability or responsibility to any person using the information or advice. Information contained in this document is correct at the time of writing.

© Crown in right of the State of South Australia, through the Department for Environment and Water 2022

This work is Copyright. Apart from any use permitted under the *Copyright Act 1968* (Cwlth), no part may be reproduced by any process without prior written permission obtained from the Department for Environment and Water. Requests and enquiries concerning reproduction and rights should be directed to the Chief Executive, Department for Environment and Water, GPO Box 1047, Adelaide SA 5001.

#### Preferred way to cite this publication

DEW (2022), *2021 Commercial Kangaroo Harvest Report for South Australia*, Government of South Australia, through Department for Environment and Water, Adelaide

Download this document at [www.environment.sa.gov.au](http://www.environment.sa.gov.au) and search for "2021 Harvest Report"

# Foreword

Kangaroos are an iconic part of South Australian landscapes. They are valued for their role in ecosystems, and as a resource that can be used sustainably. The Department for Environment and Water (DEW) is responsible for the conservation and management of kangaroos in South Australia in accordance with the *National Parks and Wildlife Act 1972* (NPW Act), ranging from policy leadership to on-ground operations in consultation with government, industry and communities.

Widespread changes to the environment since European settlement have changed the abundance of many native species. Some species have declined in number, while others have adapted to the changes and can exploit the opportunities provided by altered habitats. These species which have adapted well – including kangaroos – are now present in larger numbers, or are more widespread than before.

Large numbers of kangaroos may be in conflict with various land uses and the objectives for which land is being managed. When this conflict occurs, kangaroos can cause detrimental impacts that may be environmental, economic, or social in nature. The drying conditions associated with drought can magnify these conflicts, especially where localised movement of kangaroos may occur as they seek feed and water resources.

The NPW Act provides for the destruction of kangaroos for the purposes of mitigating or preventing damage and allows for the commercial harvest of the common kangaroo species (Red Kangaroo, Western Grey Kangaroo, Eastern Grey Kangaroo, Euro and Tammar Wallaby). High-quality science, effective monitoring and compliance provide the foundation for the management of our environment and natural resources, including our kangaroo species. This is achieved through appropriate management of legislation, research, investigations, assessments, monitoring and evaluation.

DEW's partnerships with industries, government agencies, Landscape Boards and the community ensures that there is continual capacity building with respect to kangaroo management, and that the best skills and expertise are used to inform decision making.



**Michael Williams**

**DIRECTOR OF NATIONAL PARKS AND WILDLIFE**

**DEPARTMENT FOR ENVIRONMENT AND WATER**

## Contents

<b>Tables and Figures .....</b>	<b>ii</b>
<b>Summary .....</b>	<b>1</b>
Legislation.....	1
2021 Quotas .....	1
2021 Harvest regions .....	1
<b>2021 Harvest .....</b>	<b>3</b>
Harvest region data .....	4
Carcass weights .....	6
<b>Harvest Quota Management .....</b>	<b>8</b>
Sustainable Use Quota.....	8
Special Land Management Quota.....	8
<b>Non-commercial destruction permits .....</b>	<b>9</b>
<b>Compliance .....</b>	<b>10</b>
2020 Commercial Code of Practice.....	10
Compliance checks .....	10
Compliance action .....	10
Compliance priorities for 2021 .....	11
Compliance priorities for 2022 .....	11
Interstate Liaison.....	11
<b>Kangaroo Management on Reserves.....</b>	<b>12</b>
<b>Research .....</b>	<b>13</b>
<b>References .....</b>	<b>13</b>

# Tables and Figures

Table 1: Kangaroo harvest regions and sub-regions for South Australia during 2021. ....	1
Table 2: Harvest statistics from kangaroo field processor returns for the 2021 calendar year. ....	3
Table 3: Harvest statistics from kangaroo meat processor returns for the 2021 and 2020 calendar years. ....	3
Table 4: Harvest of Red Kangaroos during 2021 calendar year. ....	4
Table 5: Harvest of Western Grey Kangaroos during 2021 calendar year. ....	5
Table 6: Harvest of Euros during 2021 calendar year. ....	5
Table 7: Harvest of Eastern Grey Kangaroos during 2021 calendar year. ....	5
Table 8: Harvest of Tammar Wallabies during 2021 calendar year. ....	6
Table 9: Average weights and sex bias of harvested Red Kangaroos during 2021. ....	6
Table 10: Average weights and sex bias of harvested Western Grey Kangaroos during 2021. ....	7
Table 11: Average weights and sex bias of harvested Euros during 2021. ....	7
Table 12: Average weights and sex bias of harvested Eastern Grey Kangaroos during 2021. ....	7
Table 13: Average weights and sex bias of harvested Tammar Wallabies during 2021. ....	7
Table 14: Non-commercial destruction of kangaroos per commercial harvest region during 2021. ....	9
Table 15: Kangaroo management compliance activities for kangaroos harvested in South Australia during 2021. ....	11
Table 16: Numbers of non-commercially destroyed kangaroos on reserves declared under the National Parks and Wildlife Act 1972 in South Australia during 2021. ....	12
Figure 1: Map of harvest regions and sub-regions of South Australia. ....	2

# Summary

## Legislation

All kangaroo species in South Australia are protected under the *National Parks and Wildlife Act 1972* (NPW Act), have value in ecosystem processes, and contribute to biodiversity. The NPW Act (section 60G) and associated regulations, allow for the sustainable harvest of the following common kangaroo species:

- Red Kangaroo (*Macropus rufus*)
- Western Grey Kangaroo (*M. fuliginosus*)
- Eastern Grey Kangaroo (*M. giganteus*)
- Euro (*M. robustus*)
- Tammar Wallaby (*M. eugenii*)

The NPW Act recognises the genus of all of these species as being *Macropus*, rather than *Notamacropus* or *Osphranter* as some are now recognised in the Australian Faunal Directory, therefore *Macropus* has been used in this report for consistency.

The wildlife trade provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) regulate the export of kangaroo products from Australia. The harvest and export of these protected species requires a management plan endorsed under the NPW Act and a Wildlife Trade Management Plan endorsed under the EPBC Act.

The Department for Environment and Water (DEW) manages the commercial harvest of kangaroos in South Australia. Management of the commercial harvest in 2021 was implemented through the South Australian Commercial Kangaroo Management Plan 2020 – 2024 (the Management Plan). The Management Plan meets the requirements of the NPW Act, and the EPBC Act, as an approved Wildlife Trade Management Plan.

This harvest report details the operation of the Management Plan and includes the following information:

- Actual harvest for 2021, by harvest sub-region and species;
- Harvest quota management;
- Special Land Management Quota issued;
- Non-commercial destruction statistics;
- Compliance statistics;

- Current management programs on reserves; and
- Research that the Department is involved with, relating to kangaroos.

## 2021 Quotas

In accordance with the Management Plan, annual harvest quotas were based on the results of kangaroo population surveys (aerial and ground) and modelled population estimates.

## 2021 Harvest regions

The Management Plan defines five harvest regions that consist of 17 sub-regions (Table 1 and Figure 1). Harvest sub-regions are primarily based on the administrative boundaries of the former Soil Conservation Board districts (or an amalgamation thereof).

*Table 1: Kangaroo harvest regions and sub-regions for South Australia during 2021.*

Harvest Region	Harvest Sub-region
Eastern Pastoral	North Flinders North East Pastoral Eastern Districts Mallee
Western Pastoral	Marla-Oodnadatta Marree (inside dog fence) Marree (outside dog fence) Kingoonya Gawler Ranges
Eastern Agricultural	South Flinders Yorke Mid North
Western Agricultural	Eyre East Eyre West
Southern Agricultural	Hills and Fleurieu Kangaroo Island Upper South East Lower South East

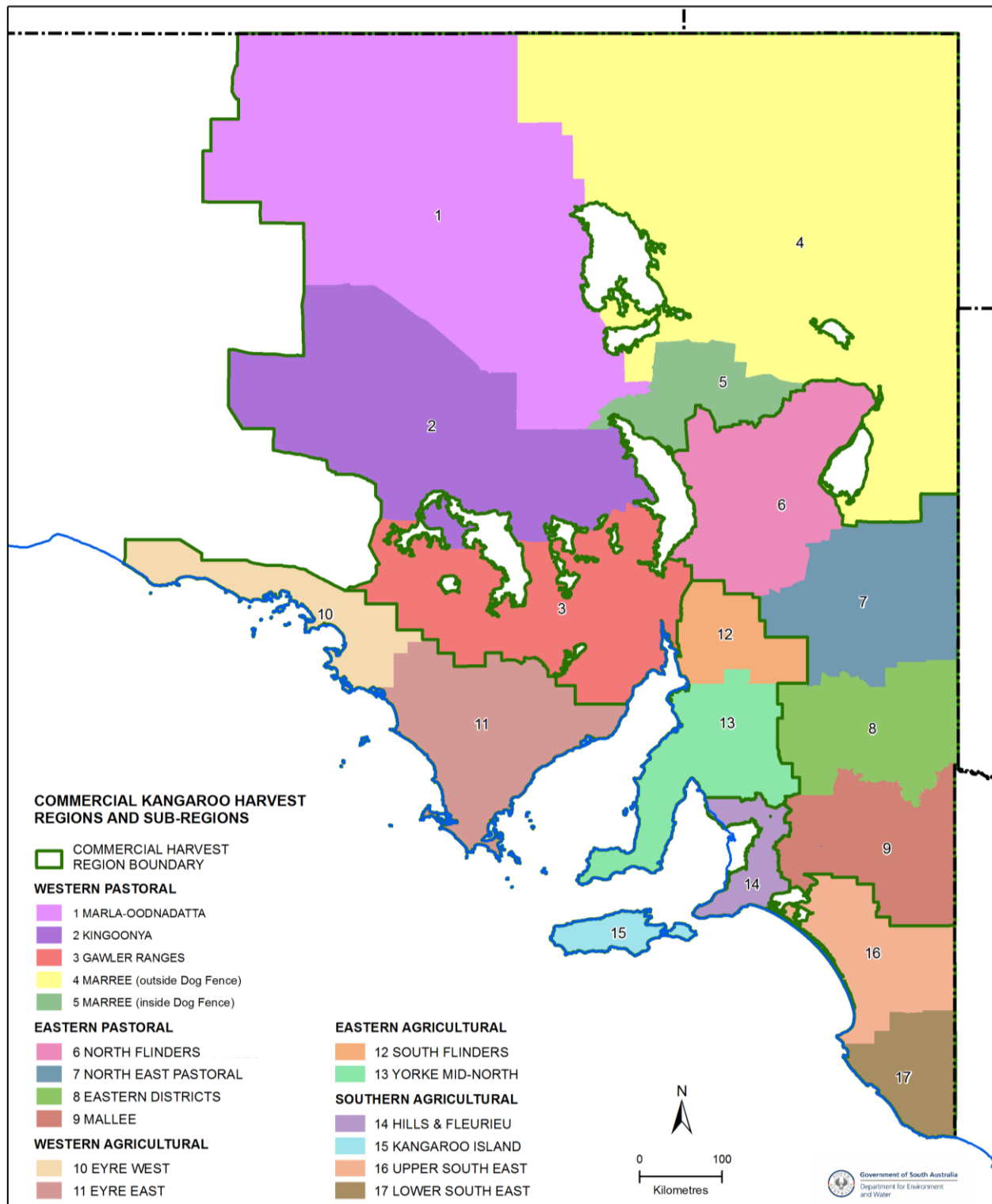


Figure 1: Map of harvest regions and sub-regions of South Australia

# 2021 Harvest

Harvest returns are received each month by the Department for Environment and Water (DEW) from kangaroo field processors (shooters) and kangaroo meat processors. Data from kangaroo field processor returns may be subject to amendment (Table 2). Data sourced from kangaroo meat processor returns (Table 3) are regarded as the more accurate in terms of numbers, as these data are related to payments made to kangaroo field processors.

Prior to the expansion of the commercial harvest area in January 2020, Red Kangaroos were consistently the largest harvest of the three kangaroo species. However, since the opening of new areas in the southern parts of South Australia, the harvest of Western Grey Kangaroos has been increasing. During 2021, the harvest of Western Grey Kangaroos exceeded that of Red Kangaroos, with 42,063 kangaroos being harvested (Table 3).

*Table 2: Harvest statistics from kangaroo field processor returns for the 2021 calendar year.*

Species	Pop. est.	Quota*	Harvest*	% Quota harvested
Red Kangaroo	1,178,888	214,100	42,112	20%
Western Grey Kangaroo	1,054,937	165,100	42,491	26%
Euro	517,108	60,800	7,881	13%
Eastern Grey Kangaroo	34,883	5,700	5,589	98%
Tammar Wallaby	42,221	3,500	0	0%
<b>Total</b>	<b>2,828,037</b>	<b>449,200</b>	<b>98,073</b>	<b>22%</b>

\* Including Special Land Management Quota.

There is a discrepancy between meat processor and field processor totals of 684 kangaroo carcasses. This represents 0.2% of the quota and is not considered significant, given the varied sources from which these data are compiled. The higher number of kangaroos

recorded using the field processor returns may relate to outstanding issues awaiting resolution with field processors and meat processors, where errors have been identified on their returns. The discrepancy may change once these matters have been resolved.

*Table 3: Harvest statistics from kangaroo meat processor returns for the 2021 and 2020 calendar years.*

Species	Pop. est.	Quota*	Harvest*	% Quota harvested
Red Kangaroo				
2021	1,178,888	214,100	41,775	20%
2020	1,552,679	277,500	49,784	18%
Western Grey Kangaroo				
2021	1,054,937	165,100	42,063	25%
2020	1,361,376	177,200	36,603	21%
Euro				
2021	517,108	60,800	7,918	13%
2020	570,021	60,300	4,303	7%
Eastern Grey Kangaroo				
2021	34,883	5,700	5,633	>99%
2020	61,826	8,300	8,272	>99%
Tammar Wallaby				
2021	42,221	3,500	0	0%
2020	87,043	9,100	0	0%
<b>Total</b>				
<b>2021</b>	<b>2,828,037</b>	<b>449,200</b>	<b>97,389</b>	<b>22%</b>
<b>2020</b>	<b>3,632,945</b>	<b>532,400</b>	<b>98,962</b>	<b>19%</b>

\* Including Special Land Management Quota.



## Harvest region data

The 2021 kangaroo harvest data by harvest region and species is provided in Tables 4-8 and is sourced from kangaroo field processor returns. These tables do not include the Special Land Management Quota (SLMQ) which is detailed in the Harvest Quota Management section.

The largest harvest of Red Kangaroos occurred in the Eastern Pastoral harvest region, with 19,027 kangaroos harvested, however the harvest region with the highest percentage of available quota harvested was Eastern Agriculture (48%, Table 4). Western Grey Kangaroos were most harvested and highest percentage of available quota taken in the Southern Agricultural harvest region, with 19,046 kangaroos harvested representing 66% of the available quota (Table 5). Euros were most harvested in both total take and percentage of quota taken in the Eastern Agricultural harvest region (3,923 kangaroos, 45% of quota, Table 6). Eastern Grey Kangaroos were available for harvest in one harvest sub-region (Lower South East) within the Southern Agricultural harvest region and were the only species to have their quota effectively fully harvested (99.9% of available quota harvested, Table 7). No Tammar Wallabies were harvested during 2021, despite there being an available quota for first time since the 2019/20 bushfires (Table 8).

The male bias in the harvest has been declining since 2018, most likely in response to the lifting of the 'male only' harvest requirement of some kangaroo meat processors. During 2018, the sex bias was reported as 70-95% male bias for the Red and Western Grey Kangaroos in the 2018 Harvest Report (DEW 2019). During 2021, the male bias reduced to 45-63% for the large kangaroo species (Table 4, 5 and 7). Euros continue to show a high male bias as females are not usually economically viable due to their small size (Table 6).

Table 4: Harvest of Red Kangaroos during 2021 calendar year.

Harvest Region	Pop. est.	Quota <sup>1</sup>	Harvest <sup>1,2</sup>	% q*	% p*	# Males	# Females	Male bias (%)
Western Pastoral	670,862	108,200	16,006	15%	0-20%	9,966	6,037	62%
Eastern Pastoral	433,921	73,600	19,027	26%	10-20%	8,568	10,458	45%
Eastern Agricultural	74,105	14,700	7,082	48%	20%	3,939	3,143	56%
<b>Total</b>	<b>1,178,888</b>	<b>196,500</b>	<b>42,115</b>	<b>21%</b>	<b>0-20%</b>	<b>22,473</b>	<b>19,638</b>	<b>53%</b>

<sup>1</sup>Quota and Harvest do not include Special Land Management Quota

<sup>2</sup> Harvest includes 4 carcasses left in field (did not meet industry standards) that are not included in the # Females and # Males.

\* % q = commercial take as percentage of approved quota; % p = allowed commercial take as percentage of population estimate (range relates to individual harvest sub-region quotas).

Table 5: Harvest of Western Grey Kangaroos during 2021 calendar year.

Harvest Region	Pop. est.	Quota <sup>1</sup>	Harvest <sup>1,2</sup>	% q*	% p*	# Males	# Females	Male bias (%)
Western Pastoral	222473	33,200	3,704	11%	15%	2,333	1,370	63%
Eastern Pastoral	284801	39,600	4,361	11%	0-15%	2,280	2,081	52%
Western Agricultural	93520	10,800	1,734	16%	10-15%	839	895	48%
Eastern Agricultural	245332	36,700	13,230	36%	15%	7,183	6,039	54%
Southern Agricultural	208,811	29,000	19,046	66%	10-15%	10,347	8,698	54%
<b>Total</b>	<b>1,054,937</b>	<b>149,300</b>	<b>42,075</b>	<b>28%</b>	<b>0-15%</b>	<b>22,982</b>	<b>19,083</b>	<b>55%</b>

<sup>1</sup>Quota and Harvest do not include Special Land Management Quota

<sup>2</sup>Harvest includes 10 carcasses left in field (did not meet industry standards), that are not included in the # Females and # Males.

\* % q = commercial take as percentage of approved quota; % p = allowed commercial take as percentage of population estimate (range relates to individual harvest sub-region quotas).

Table 6: Harvest of Euros during 2021 calendar year.

Harvest Region	Pop. est.	Quota <sub>1</sub>	Harvest <sup>1,2</sup>	% q*	% p*	# Females	# Males	Male bias (%)
Western Pastoral	142,874	15,900	1,259	8%	10-12%	12	1,247	99%
Eastern Pastoral	292,168	28,500	2,699	9%	0-10%	124	2,575	95%
Eastern Agricultural	82,065	8,700	3,923	45%	10-12%	155	3,765	96%
<b>Total</b>	<b>517,108</b>	<b>53,100</b>	<b>7,881</b>	<b>15%</b>	<b>0-12%</b>	<b>291</b>	<b>7,587</b>	<b>96%</b>

<sup>1</sup>Quota and Harvest do not include Special Land Management Quota

<sup>2</sup>Harvest includes 3 carcasses left in field (did not meet industry standards), that are not included in the # Females and # Males.

\* % q = commercial take as percentage of approved quota; % p = allowed commercial take as percentage of population estimate (range relates to individual harvest sub-region quotas).

Table 7: Harvest of Eastern Grey Kangaroos during 2021 calendar year.

Harvest Region	Pop. est.	Quota <sup>1</sup>	Harvest <sup>1,2</sup>	% q*	% p*	# Females	# Males	Male bias (%)
Southern Agricultural	34,883	5,200	5,198	>99%	15%	2,303	2,895	56%
<b>Total</b>	<b>34,883</b>	<b>5,200</b>	<b>5,198</b>	<b>&gt;99%</b>	<b>15%</b>	<b>2,303</b>	<b>2,895</b>	<b>56%</b>

<sup>1</sup>Quota and Harvest do not include Special Land Management Quota and harvest

<sup>2</sup>No Sustainable Use carcasses were left in the field

\* % q = commercial take as percentage of approved quota; % p = allowed commercial take as percentage of population estimate (range relates to individual harvest sub-region quotas).

Table 8: Harvest of Tammar Wallabies during 2021 calendar year.

Harvest Region	Pop. est.	Quota <sup>1</sup>	Harvest <sup>1</sup>	% q*	% p*	# Females	# Males	Male bias (%)
Southern Agricultural	42,221	2,900	0	0%	0-10%	0	0	0
<b>Total</b>	<b>42,221</b>	<b>2,900</b>	<b>0</b>	<b>0%</b>	<b>0-10%</b>	<b>0</b>	<b>0</b>	<b>0</b>

<sup>1</sup> No harvest occurred during 2021, although there was a quota set for Tammar Wallabies on Kangaroo Island.

\* % q = commercial take as percentage of approved quota; % p = allowed commercial take as percentage of population estimate (range relates to individual harvest sub-region quotas).

## Carcass weights

Commercial harvests typically have a bias towards larger and heavier animals. The average number of kangaroos harvested and average weight per carcass for males and females for each harvest region and species are presented below (Tables 9-13). Only data relating to Sustainable Use quota is presented below to maintain consistency between regions where Special Land Management Quota (SLMQ) was released and where SLMQ was not released. Data does not include carcasses left in the field.

Weights of carcasses for the large kangaroo species ranged from 26.5-33.9 kg for males and 17.4-20.3 kg for females (Table 9, 10, 12). The heaviest kangaroos were harvested from the Southern Agricultural harvest region, the heaviest average weight for males was 33.9 kg (Western Grey Kangaroo, Table 10) and the heaviest for females was 20.3 kg (Eastern Grey Kangaroo, Table 12). Euros are sometimes smaller animals than the other kangaroo species, particularly female Euros. The heaviest average weight for male and female Euros came from Western Pastoral, 26.1 kg and 15.0 kg, respectively (Table 11). No Tammar Wallabies were harvested during 2021, therefore there are no weights associated with this species (Table 13). The weights of kangaroos reported here are similar to those reported last year in the 2020 Harvest Report (DEW 2021).

Table 9: Average weights and sex bias of harvested Red Kangaroos during 2021.

Harvest region	# Females	# Males	Ave. male weight (kg)	Ave. female weight (kg)
Western Pastoral	6,037	9,966	31.1	18.5
Eastern Pastoral	10,458	8,568	28.0	17.4
Western Agricultural	-	-	-	-
Eastern Agricultural	3,143	3,939	26.9	17.7
<b>Total</b>	<b>19,638</b>	<b>22,473</b>	<b>29.2</b>	<b>17.8</b>

Table 10: Average weights and sex bias of harvested Western Grey Kangaroos during 2021.

Harvest region	# Females	# Males	Ave. male weight (kg)	Ave. female weight (kg)
Western Pastoral	1,370	2,333	28.5	19.2
Eastern Pastoral	2,081	2,280	26.5	17.6
Western Agricultural	896	839	27.3	16.4
Eastern Agricultural	6,039	7,183	26.8	17.9
Southern Agricultural	8,698	10,347	33.9	18.9
<b>Total</b>	<b>19,084</b>	<b>22,982</b>	<b>30.1</b>	<b>18.3</b>

Table 11: Average weights and sex bias of harvested Euros during 2021.

Harvest region	# Females	# Males	Ave. male weight (kg)	Ave. female weight (kg)
Western Pastoral	12	1,247	26.1	15.0
Eastern Pastoral	124	2,575	21.4	13.6
Eastern Agricultural	155	3,765	24.9	13.2
<b>Total</b>	<b>291</b>	<b>7,587</b>	<b>23.9</b>	<b>13.4</b>

Table 12: Average weights and sex bias of harvested Eastern Grey Kangaroos during 2021.

Harvest region	#Females	#Males	Ave. male weight (kg)	Ave. female weight (kg)
Southern Agricultural	2303	2895	32.5	20.3
<b>Total</b>	<b>2303</b>	<b>2895</b>	<b>32.5</b>	<b>20.3</b>

Table 13: Average weights and sex bias of harvested Tammar Wallabies during 2021.

Harvest region <sup>1</sup>	# Females	# Males	Ave. male weight (kg)	Ave. female weight (kg)
Southern Agricultural	0	0	-	-
<b>Total</b>	<b>0</b>	<b>0</b>	<b>-</b>	<b>-</b>

<sup>1</sup> No harvest occurred during 2021.

# Harvest Quota Management

## Sustainable Use Quota

Sealed tags were sold throughout the year in accordance with the allocated harvest region quotas for 2021. Harvest reports were viewed regularly, allowing the progress of the kangaroo quota utilisation in each region to be monitored.

The harvest of kangaroos in most harvest regions was generally low when compared to the available quota in 2021, with only Eastern and Western Grey Kangaroos in the Southern Agricultural region exceeding 50% utilisation of the region's species quota.

Drought impacted most of the pastoral areas of the State during 2019 and 2020, with the aerial kangaroo survey results over this period showing a decrease in population estimates for kangaroos. Surveys conducted during July 2021 showed that kangaroo populations were beginning to recover after the drought and starting to increase in numbers in some areas.

Expanded harvest areas, including the Southern Agricultural Harvest Region, were available for commercial harvest for the first time in 2020. The commercial harvesting industry sourced kangaroos from these new areas, while taking fewer kangaroos from the drought affected regions.

The highest harvest (as a percentage of Sustainable Use Quota) occurred in the Lower South East Harvest Sub-region for Eastern Grey Kangaroos, where 5,198 of the available 5,200 were harvested (99.9%).

The kangaroo harvesting industry in South Australia has continued to take approximately 100,000 kangaroos annually since 2010, irrespective of the numbers of kangaroos present within the landscape and available quotas.

## Special Land Management Quota

Special Land Management Quota (SLMQ) may be set at up to 1.5% of the estimated population size of each species, and is used when land management issues arise that may be due to localised or widespread seasonal conditions. This reserve of tags is available within a Commercial Harvest Management Region for use when all commercial quota has been allocated, to mitigate ongoing land condition damage. This quota component is only for the harvest of kangaroos that would otherwise be culled under DEW Permits to Destroy Wildlife, and is designed to minimise the number of kangaroos destroyed under these permits and not utilised by the commercial industry.

A SLMQ of 500 Eastern Grey Kangaroos was released for the Lower South East Harvest Sub-region in 2021, as the Sustainable Use Quota was fully allocated and anticipated to be harvested, however, land management issues remained. Of these 500 kangaroos, 243 males and 148 females were harvested (total = 391).

During 2021, a SLMQ for Western Grey Kangaroos was also released for the Hills and Fleurieu Harvest Sub-region. A quota of 800 Western Grey Kangaroo was released, which resulted in 261 males and 155 females being harvested (total = 416).

# Non-commercial destruction permits

Details of permits issued for non-commercial destruction of kangaroos (Permits to Destroy Wildlife) in each commercial harvest region for 2021 are provided in Table 14.

Permits have been allocated to harvest regions using the following rules:

- Where a permit for a property straddles harvest regions, the permit is attributed to the harvest region having the majority of the property area.
- Where a permit has been issued and the majority or entirety of the land is outside the commercial harvest area, then that permit has been included in the adjoining Harvest Region.

Table 14: Non-commercial destruction of kangaroos per commercial harvest region during 2021.

Harvest region	Species available for commercial harvest										Total permits issued <sup>c</sup>	Total animals on permit
	Red Kangaroo		Western Grey Kangaroo <sup>a</sup>		Euro		Eastern Grey Kangaroo		Tammar Wallaby			
	Permits issued <sup>b</sup>	Animals on permit	Permits issued <sup>b</sup>	Animals on permit	Permits issued <sup>b</sup>	Animals on permit	Permits issued <sup>b</sup>	Animals on permit	Permits issued <sup>b</sup>	Animals on permit		
Western Pastoral	2	220	3	325	1	50	-	-	-	-	6	595
Eastern Pastoral <sup>^</sup>	60	3,105	183	11,270	10	590	2	70	-	-	255	15,035
Western Agricultural	2	100	108	9,563	5	115	-	-	-	-	115	9,778
Eastern Agricultural <sup>^</sup>	63	2,289	138	6,410	71	2,323	-	-	-	-	272	11,022
Southern Agricultural	2	30	509	26,064	3	16	23	1,120	46	6,632	583	33,862
<b>Total</b>	<b>129</b>	<b>5,744</b>	<b>941</b>	<b>53,632</b>	<b>90</b>	<b>3,094</b>	<b>25</b>	<b>1,190</b>	<b>46</b>	<b>6,632</b>	<b>1,231</b>	<b>70,292</b>

<sup>a</sup> includes both the mainland Western Grey Kangaroo and the Kangaroo Island Western Grey Kangaroo.

<sup>b</sup> number of permits that include this species.

<sup>c</sup> as a single permit may list multiple species, the reported 'total permits issued' are greater than the actual number of permits issued.

<sup>^</sup> Eastern Pastoral Region now includes Murray Plains Soil Conservation Board (SCB); Eastern Agricultural Region now includes approx. 2/3 of Lower North SCB and Yorke Peninsula; as of 1 January 2020.

# Compliance

## 2020 Commercial Code of Practice

On the 18 November 2020, the 2020 National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes (Commercial Code) was approved by the Commonwealth Ministers for the Environment and Agriculture, Drought and Emergency Management. The review of the Commercial Code was undertaken by a reference group that had representation from key stakeholder groups involved in kangaroo harvesting, these included the state governments, the kangaroo industry, animal welfare organisations and the pastoral industry. The 2020 Commercial Code includes updated research into the humane destruction of kangaroos and provides standard operating procedures for euthanasia and shooting. The Department for Environment and Water transitioned to the 2020 Commercial Code from 1 July 2021, in line with permit renewals.

## Compliance checks

During 2021, DEW staff routinely checked field processor returns for incorrect information which was then investigated and corrected. The lodgement of monthly returns was monitored, with compliance action taken against permit holders who submitted late returns. Likewise, field processors with outstanding expired sealed tags were followed-up to ensure tags were returned.

Checks of field chillers were conducted to ensure compliance with legislation, however COVID-19 impacted field operations, reducing the ability of staff to travel and meet with permit holders. This restricted the inspection of field chillers, meat processing works and tanneries, and the ability to undertake field audits of field processors. Four field audits were conducted during 2021.

Fifty-two field chiller sites (including mobile chillers and drive-through sites) were in operation throughout the pastoral and agricultural areas of South Australia during 2021. DEW wardens inspected 31 individual field chillers during 2021, however, as some of these chillers were inspected twice a total of 45 chiller inspections were conducted.

The aim of these checks was to ensure that field operations are compliant with the *National Parks and Wildlife Act 1972* (the Act) and associated regulations.

When inspected, field chillers are checked to ensure:

- Kangaroos are taken according to the National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes (2020).
- Sealed tags are correctly affixed to kangaroo carcasses.
- Sealed tags are valid for use.
- Sealed tags affixed to each carcass are correct for that species.
- Harvester ID, date of harvest and location are stated on each carcass.
- Carcasses are presented in the correct form.
- Any food safety issues are documented and reported to the Biosecurity SA Food Safety Program (PIRSA).

Field trips are also an important means of maintaining relationships with field processors (71 permit holders in 2021) and gaining an understanding of landscape condition. Not all chillers and drive-through sites (mobile chillers) were checked during the year, due to the impacts of COVID-19.

Five kangaroo meat processors and 2 skin processors (tanners) operated in South Australia during 2021. Compliance inspections at the meat processors' facilities provide a good picture of the level of field processors' adherence with carcass tagging requirements and the National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes (2020). Eight inspections were made of meat processing facilities and two inspections were conducted at the tanneries.

## Compliance action

Wardens are able to issue verbal warnings, warning letters, educational letters, written 'cautions' and expiation notices. Expiation notices attract a penalty. If a caution is issued to an individual and that person continues to commit the same offence, an expiation notice is generally issued. Serious or habitual offenders may have court action taken against them, which may

result in the cancellation of permits. Probationary periods may be used for less serious, habitual offenders, where they are formally advised their permit may be revoked or not 'renewed' for the next permit period if offending continues.

During 2021, one expiation notice, 29 caution notices, two warning letters and one educational letter were issued regarding offences in relation to kangaroos harvested in South Australia, as detailed in Table 15.

Expiation notices where a fee was incurred are recorded as a penalty notice.

*Table 15: Kangaroo management compliance activities for kangaroos harvested in South Australia during 2021.*

Description of offence	Result
Permit holder to supply returns within 14 days	21 Cautions 1 Penalty Notice (\$300)
Use of out-of-date sealed tags	2 Cautions 1 Warning Letter
Fail to return unused/ out of date sealed tag	2 Cautions
Kangaroo carcass with projectile damage	4 Cautions
Sealed tag declared as used on incorrect species	1 Warning 1 Education Letter

## Compliance priorities for 2021

The following points summarise the outcomes against the 2021 compliance priorities, as stated in the 2020 Commercial Kangaroo Harvest Report for South Australia.

- Further training of nine DEW staff within the expanded commercial harvest area was limited due to COVID-19 restrictions. Regional DEW staff assisted and were trained in kangaroo survey techniques.
- Four audits were conducted during 2021, three of whom were field processors that started harvesting in 2020.

## Compliance priorities for 2022

The priorities for 2022 are:

- Complete training of initial nine DEW staff within the expanded commercial harvest area.
- Complete the audit process for field processors who have commenced operating since 1 January 2020.
- A stronger focus on field chiller inspections (where possible), which have been disrupted due to COVID-19 restrictions during 2020 and 2021.

## Interstate Liaison

Kangaroo carcasses may be imported into South Australia from kangaroo harvested programs interstate. During routine inspections, and as a result of information received, 8 imported kangaroo carcasses were identified as requiring further investigation. Evidence was collected and forwarded to the appropriate interstate authorities for follow-up investigation.



# Kangaroo Management on Reserves

On National Parks and Wildlife (NPW) reserves, kangaroos are managed where they impact reserve conservation values. The management of kangaroos on DEW managed land is guided by a policy framework that is based on scientific principles and informed by the objectives of the *National Parks and Wildlife Act 1972*. A proposal to control kangaroo populations on reserves must demonstrate the impact of kangaroos on the conservation values of the reserve, detail monitoring programs to evaluate the success of the control program, and demonstrate adequate control measures for introduced herbivores. The objectives of these programs are to improve conservation values by aiding ecological restoration and/or threatened species recovery. All kangaroos are culled in accordance with the respective National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes (2020) or Non-Commercial Purposes.

During 2021, non-commercial kangaroo control programs were undertaken on 11 DEW reserves. A total of 2,335 Western Grey Kangaroos, 482 Red Kangaroos and 603 Euros were destroyed (Table 16). In addition, 336 Western Grey Kangaroos, 501 Red Kangaroos and 189 Euros were commercially harvested from 3 NPW Reserves. Data on the kangaroos that have been commercially harvested from NPW reserves is included in the 2021 Harvest Details section (tables) of this report.

*Table 16: Numbers of non-commercially destroyed kangaroos on reserves declared under the National Parks and Wildlife Act 1972 in South Australia during 2021.*

Harvest region	Reserve	Western Grey Kangaroo	Red Kangaroo	Euro
Western Agricultural	Venus Bay CP	41		
	Coffin Bay NP	377		
	Lincoln NP	170		
Western Pastoral	Gawler Ranges NP	1306	469	572
	Ironstone Hill CP	23		
Eastern Pastoral	Ikara-Flinders Ranges NP	6	13	31
Southern Agricultural	Para Wirra CP	231		
	Newland Head CP	16		
	Kaiserstuhl CP	66		
	Stipiturus CP	15		
	Charleston CP	84		
<b>Total</b>		<b>2335</b>	<b>482</b>	<b>603</b>

# Research

DEW has supported to the following research project, which is now complete.

## **Spatial population models for Red and Western Grey kangaroos in the South Australian rangelands**

Population (or 'demographic') models can be used to simulate the population dynamics of a given wildlife species over time, and to evaluate changes through time under different environmental or management alternatives. This project has used 44 years of aerial kangaroo monitoring to fit spatial populations models for the 2 most common species: the Red Kangaroo (*Macropus rufus*) and Western Grey Kangaroo (*Macropus fuliginosus*). These data-driven models are being used to understand the population ecology of these species through the South Australian rangelands, particularly population growth rates tied to different environmental conditions (from high rainfall and pasture availability, through to drought conditions).

The models incorporate aerial survey data from 1978 to 2021, as well as spatial covariates including dominant habitat, elevation, mean annual rainfall, longitude and latitude. To date, the spatial models have been used to produce population estimates for Red Kangaroos and Western Grey Kangaroos in the established harvest area (pre-1 January 2020 expansion area) for the 2020 and 2021 calendar years. Further details of the models were provided in the 2021 and 2022 Quota Reports. The models developed by the University of Adelaide have now been transitioned to the Department for Environment and Water for use in developing population estimates and setting harvest quotas. The models have also been used to develop Status and Outlook Reports for kangaroos in each sub-region (excluding the Southern Agricultural harvest region) to examine the range of likely kangaroo population estimates one year into the future, based on different rainfall scenarios (very low, median and very high rainfall scenarios). The reports will help to raise awareness of kangaroo population dynamics and how they may affect land condition, animal welfare and conservation concerns.

In the future, thresholds detailed in the South Australian Commercial Kangaroo Management Plan 2020-2024 may be refined through the application of the models. The models also provide a useful tool to test management scenarios (e.g., harvesting levels) and see how populations respond.

# References

AgriFutures Australia, (2020), National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes.

DEW, (2021), *2020 Commercial Kangaroo Harvest Report for South Australia*, Government of South Australia, through Department for Environment and Water, Adelaide.

DEW, (2020), *2019 Commercial Kangaroo Harvest Report for South Australia*, Government of South Australia, through Department for Environment and Water, Adelaide.

Published by the Department for Environment and Water  
Government of South Australia  
March 2022

Telephone +61 (8) 8204 9000  
Facsimile +61 (8) 8115 1256

ABN 36702093234

Report prepared by:  
Department for Environment and Water  
Conservation and Wildlife Branch  
National Parks and Wildlife Service Division

[www.environment.sa.gov.au](http://www.environment.sa.gov.au)



With the exception of the Piping Shrike emblem, other material or devices protected by Aboriginal rights or a trademark, and subject to review by the Government of South Australia at all times, the content of this document is licensed under the Creative Commons Attribution 4.0 Licence. All other rights are reserved.

© Crown in right of the State of South Australia



**Government  
of South Australia**

Department for  
Environment and Water