



2022 Annual Report

Wildlife Trade Management Plan for the Commercial Harvest
of Kangaroos in New South Wales 2022–26

Department of Planning and Environment



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Introduction

The NSW Department of Planning and Environment and its predecessor organisations have been researching, monitoring, and managing the commercial harvesting of kangaroos in New South Wales since the 1970s. During this period, kangaroo management plans have provided the framework for harvesting kangaroos, in accordance with legislative requirements and population variations.

In December 2021, the Australian Government declared the Wildlife Trade Management Plan for the Commercial Harvest of Kangaroos in New South Wales 2022–26 to be an approved wildlife trade management plan for the purposes of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. This plan sets the framework for the commercial harvest of kangaroos in New South Wales.

This report gives details of the operation of the Wildlife Trade Management Plan for the Commercial Harvest of Kangaroos in New South Wales 2022–26 in its first year (2022), as required by *Action 7.1: Produce and publish regular reports of the Plan*. Appendix A describes each performance indicator and the progress made against it during 2022.

The following information is presented:

- actual harvest, by zone and species, compared with the approved quotas
- details of any special quota used (see page 4 for an explanation of special quotas)
- harvest gender bias for each species in each zone
- average carcass weights for each species in each zone
- compliance statistics
- number of licensees
- number of premises inspected
- number of penalty infringement notices issued and the reasons
- number of prosecutions undertaken (offence and outcome)
- any joint surveillance or enforcement activities completed
- any unusual situations that arose (e.g., flood, disease outbreaks, market factors)
- any experiments or research undertaken by the department or sponsored by the department.

Details of population survey methods, the results of aerial surveys and the setting of quotas are given in a separate report, the 2022 Quota Report, available from the Kangaroo management plans, reports and research webpage.

Actual harvest in 2022 by zone and species

The 2022 harvest for each management zone is summarised in Table 1. Data includes management zone name and number, combined population estimate (p), combined quota per zone (q), quantity harvested (harvest), the commercial harvest as a percentage of the population estimate (%p), the commercial harvest as a percentage of the approved quota (%q), the percentage of harvested animals that were males (% harvest male) and the average carcass weight in kilograms (Av. wt) of harvested females (F) and males (M).

Table 1 Harvest by zone for all species combined during 2022

Zone	Population (p)	Quota (q)	Harvest	% p	% q	% harvest male	Av. wt. (F)	Av. wt. (M)
01 – Tibooburra	367,335	61,835	7,873	2.1	12.7	77.1	18.4	27.9
02 – Broken Hill	1,465,376	245,428	55,860	3.8	22.8	77.0	18.6	26.3
04 – Lower Darling	1,032,286	169,850	37,799	3.7	22.3	80.9	18.8	27.4
06 – Cobar	248,724	40,918	3,570	1.4	8.7	70.7	17.9	26.7
07 – Bourke	200,813	31,587	10,185	5.1	32.2	87.7	17.2	25.7
08 – Narrabri	621,876	83,578	18,923	3.0	22.6	78.0	18.2	27.6
09 – Armidale	539,190	80,879	27,561	5.1	34.1	75.3	19.0	29.5
10 – Coonabarabran	1,261,644	193,775	37,032	2.9	19.1	79.2	18.1	27.2
13 – Glen Innes	680,065	102,010	17,607	2.6	17.3	78.4	18.8	29.4
14 – Upper Hunter	210,900	31,635	16,425	7.8	51.9	83.4	19.9	29.6
16 – SE NSW	1,428,800	214,320	33,567	2.3	15.7	63.3	20.2	31.5
17 – Griffith North	966,388	150,638	47,092	4.9	31.3	71.9	19.4	29.1
18 – Griffith South	624,326	95,912	57,679	9.2	60.1	79.3	20.2	27.6
48 – C/T North	777,350	116,602	16,587	2.1	14.2	70.9	19.5	30.2
49 – C/T South	488,270	73,240	14,959	3.1	20.4	74.6	19.7	29.4
Total	10,913,343	1,692,207	402,719	3.7	23.8	76.3	19.2	28.2

C/T: Central Tablelands

Average weights are in kilograms.

The 2022 commercial harvest is lower than that reported for the previous year, in both absolute terms and as a percentage of quota. The total kangaroos harvested in 2021 (497,285) and as a percentage of the population (4.8 %) and quota (31.1 %) were higher than 2022. This is attributed to the widespread heavy rainfall and flooding that occurred in the latter half of 2022, impacting harvester’s ability to access properties.

The harvest data in Table 1 are shown graphically in Figure 1 to illustrate the absolute and relative contributions to the total harvest made by each commercial kangaroo management zone in 2022. This shows the Griffith South zone contributed the highest number of kangaroos, with 14.3% of the total harvest. It also shows there were very low numbers of kangaroos harvested in Tibooburra, Cobar, and Bourke zones.

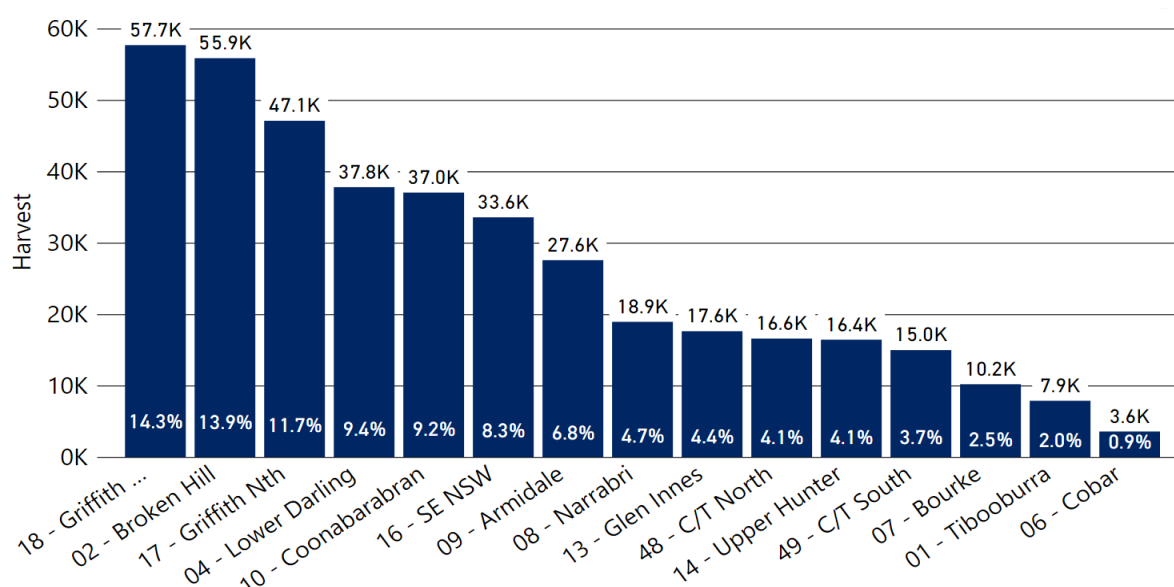


Figure 1 Total harvest and percentage contribution to the 2022 harvest for each zone. Note: Zone 18 is Griffith South.

Table 2 lists the details of the 2022 harvest by zone and species. Data includes the management zone name and number, population estimate (p), quota per zone (q), quantity harvested (harvest), the commercial harvest as a percentage of the population estimate (%p), the commercial harvest as a percentage of the approved quota (%q), the percentage of harvested animals that were males (% harvest male) and the average carcass weight in kilograms (Av. wt) of harvested females (F) and males (M).

Table 2 Harvest by zone and species during 2022

Zone	Population (p)	Quota (q)	Harvest	%p	%q	% harvest male	Av. wt (F)	Av. wt (M)
Eastern grey								
01 - Tibooburra	24,480	3,672	0	0.0	0.0	-	-	-
02 - Broken Hill	77,388	11,608	1,108	1.4	9.5	65.2	20.0	29.5
04 - Lower Darling	87,395	13,109	8,540	9.8	65.1	87.8	20.4	28.2
06 - Cobar	28,654	4,298	785	2.7	18.3	66.7	17.7	26.4
07 - Bourke	22,606	2,261	467	2.1	20.7	90.4	17.8	26.5
08 - Narrabri	308,728	30,873	13,659	4.4	44.2	77.1	18.2	27.7
09 - Armidale	421,900	63,285	25,132	6.0	39.7	73.0	19.0	29.5
10 - Coonabarabran	962,767	144,415	28,011	2.9	19.4	79.3	18.2	27.4
13 - Glen Innes	545,200	81,780	15,561	2.9	19.0	75.9	18.9	29.7
14 - Upper Hunter	166,500	24,975	12,860	7.7	51.5	78.8	19.9	29.8
16 - SE NSW	1,428,800	214,320	33,567	2.3	15.7	63.3	20.2	31.5
17 - Griffith Nth	566,363	84,954	26,779	4.7	31.5	71.1	19.8	29.6
18 - Griffith Sth	424,297	63,645	41,358	9.7	65.0	79.3	20.7	27.8
48 - C/T North	777,350	116,602	16,587	2.1	14.2	70.9	19.5	30.2
49 - C/T South	488,270	73,240	14,959	3.1	20.4	74.6	19.7	29.4
Eastern grey total	6,330,698	933,037	239,373	3.8	25.7	74.5	19.6	29.1
Red								
01 - Tibooburra	336,735	57,245	7,744	2.3	13.5	77.1	18.4	27.9
02 - Broken Hill	1,281,119	217,790	47,643	3.7	21.9	78.3	18.5	26.0
04 - Lower Darling	750,367	127,562	21,554	2.9	16.9	79.8	18.4	26.9
06 - Cobar	180,501	30,685	1,719	1.0	5.6	75.5	17.8	26.6

Zone	Population (p)	Quota (q)	Harvest	%p	%q	% harvest male	Av. wt (F)	Av. wt (M)
07 - Bourke	164,351	27,940	9,617	5.9	34.4	87.6	17.1	25.6
08 - Narrabri	310,030	52,705	5,264	1.7	10.0	80.3	18.4	27.3
10 - Coonabarabran	226,411	38,490	8,691	3.8	22.6	79.0	17.8	26.9
17 - Griffith Nth	284,023	48,284	16,329	5.7	33.8	73.1	18.9	28.5
18 - Griffith Sth	113,125	19,231	15,689	13.9	81.6	79.0	18.9	27.0
Red total	3,646,662	619,932	134,250	3.7	21.7	78.7	18.5	26.7
Wallaroo								
09 - Armidale	117,290	17,594	2,429	2.1	13.8	98.8	22.7	28.9
13 - Glen Innes	134,865	20,230	2,046	1.5	10.1	97.5	16.8	27.2
14 - Upper Hunter	44,400	6,660	3,565	8.0	53.5	99.8	17.2	29.1
Wallaroo total	296,555	44,484	8,040	2.7	18.1	98.9	18.8	28.6
Western grey								
01 - Tibooburra	6,120	918	129	2.1	14.1	77.5	17.9	28.2
02 - Broken Hill	106,869	16,030	7,109	6.7	44.3	70.6	18.6	27.7
04 - Lower Darling	194,524	29,179	7,705	4.0	26.4	76.1	18.8	27.7
06 - Cobar	39,569	5,935	1,066	2.7	18.0	65.5	18.1	27.1
07 - Bourke	13,856	1,386	101	0.7	7.3	83.2	17.9	23.3
08 - Narrabri	3,118	0	0	-	-	-	-	-
10 - Coonabarabran	72,466	10,870	330	0.5	3.0	79.1	16.5	25.7
17 - Griffith Nth	116,002	17,400	3,984	3.4	22.9	71.9	18.9	27.9
18 - Griffith Sth	86,904	13,036	632	0.7	4.8	89.1	18.5	27.7
Western grey total	639,428	94,754	21,056	3.3	22.2	73.4	18.7	27.6
Total all species	10,913,343	1,692,207	402,719	3.7	23.8	76.3	19.2	28.2

The proportion of the total harvest that is made up by each species is shown in Figure 2. It illustrates that 59.4% of the kangaroos harvested in 2022 were eastern grey kangaroos. Wallaroos contributed just 2.0% of the total harvest in 2022.

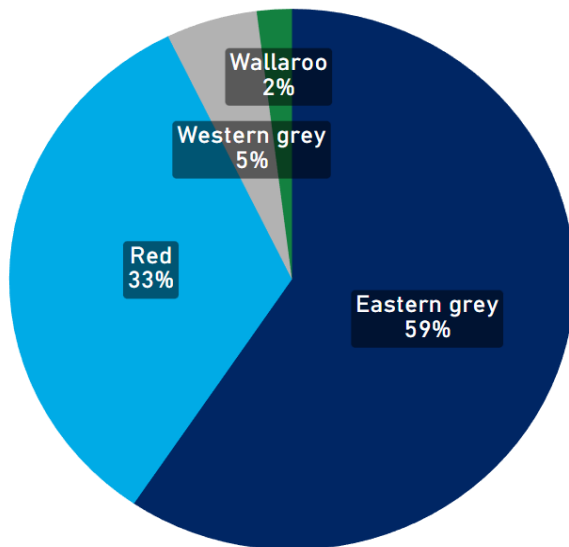


Figure 2 Percentage contribution to the total harvest made by each of the 4 commercially harvested species (note that percentages don't total 100 due to rounding)

The Wildlife Trade Management Plan for the Commercial Harvest of Kangaroos in New South Wales 2022–26 allows for the setting of a special quota as an addition to the overall commercial quota, if the commercial quota was exhausted or likely to be fully allocated. The intent of using a special quota is to minimise the number of kangaroos shot under non-commercial licences by allowing increased commercial use of kangaroos that would otherwise be shot and left in the field.

In deciding whether to release a special quota, the department will consult the Kangaroo Management Advisory Panel and consider local conditions, climatic trends, population trends and Western Lands de-stocking orders to ensure populations can remain viable with increased harvest. When used, special quotas will be set at a maximum of 5% of the population estimate of each kangaroo species in any one zone, and a maximum of 1.5% of the population of each species across all zones. Special quotas will not be allocated where the commercial harvest is reduced or suspended due to low populations.

The special quota was not used during 2022.

Gender bias by species and zone

Harvesting is typically biased toward male animals because they are larger, heavier and provide a better return as harvesters are paid a price per kilogram. For the 23-year period 1999 to 2021, the average proportion of males harvested was 74.3% for eastern greys 75.5% for red kangaroos, 92.2% for wallaroos and 71.1% for western greys (Figure 3). These percentages vary between years. In 2022 larger percentages of eastern greys (74.5%), red kangaroos (78.7%), wallaroos (98.9%) and western greys (73.4%) were harvested when compared with the average of the previous 23 years.

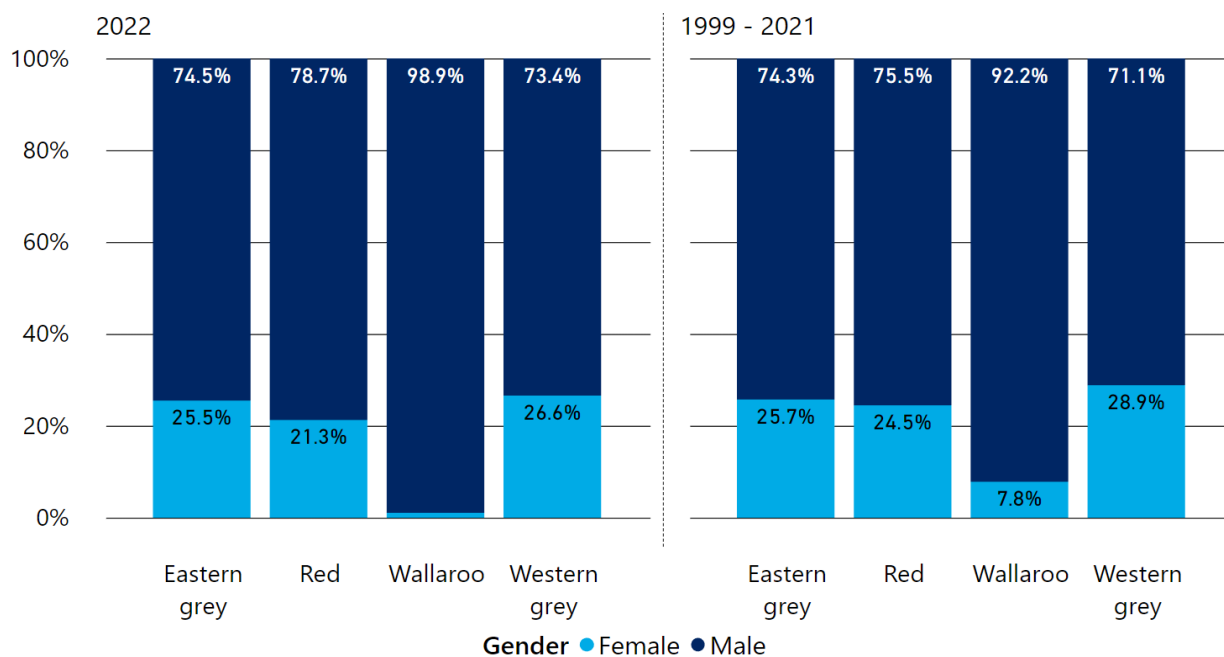


Figure 3 Average gender bias per species in the commercial harvest for 2022 compared with the average of the 23-year period from 1999–2021

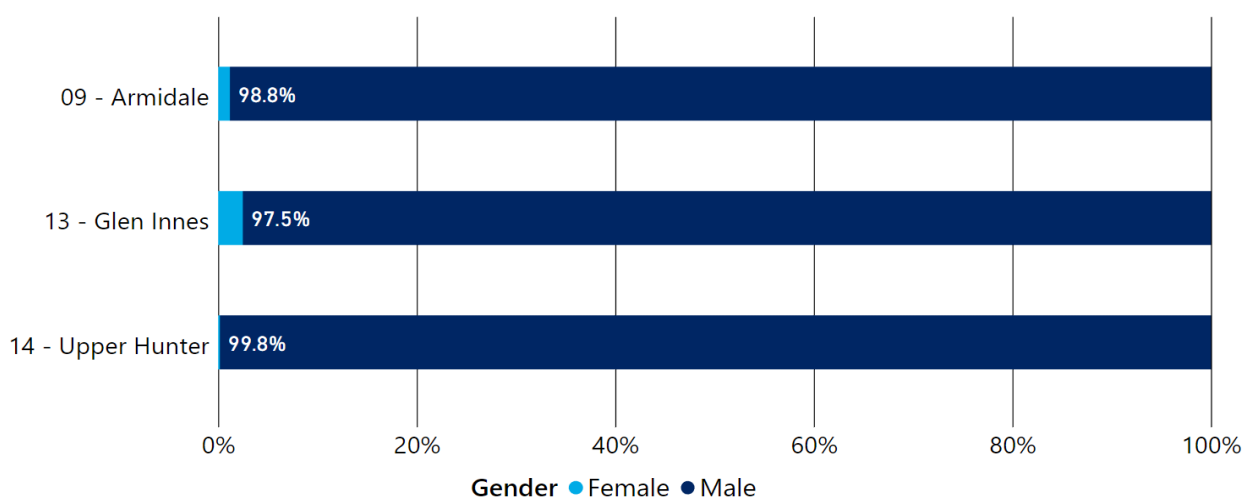


Figure 4 Wallaroo gender bias by zone in the 2022 commercial harvest

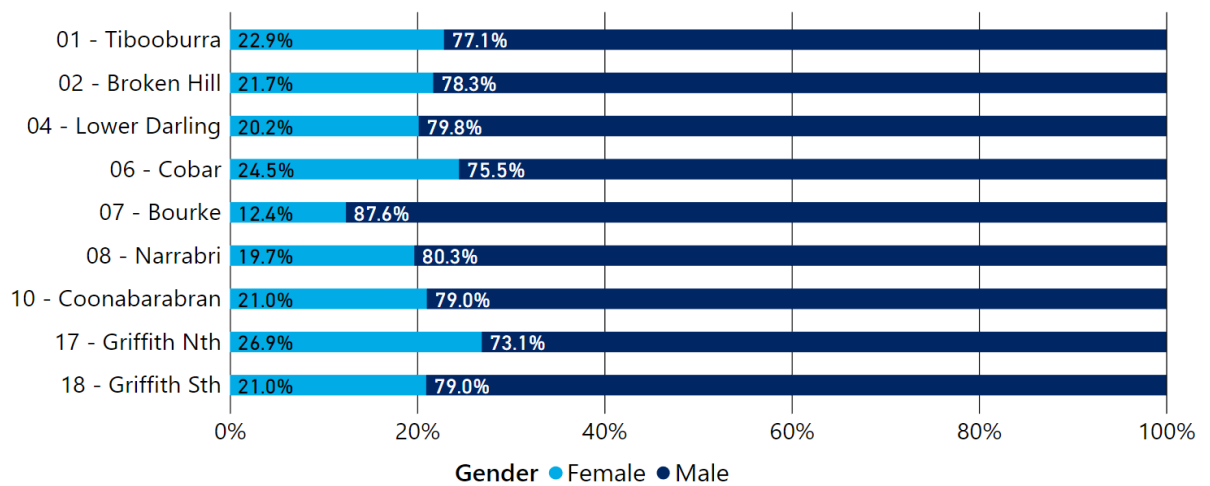


Figure 5 Red kangaroo gender bias by zone in the 2022 commercial harvest

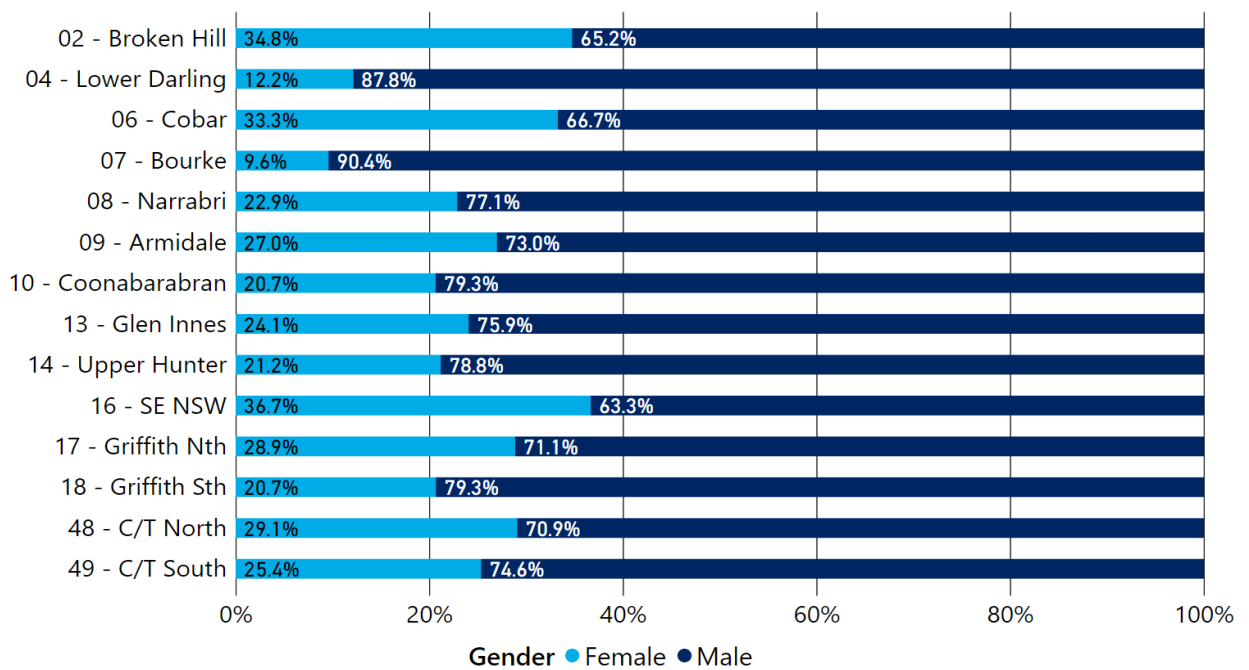


Figure 6 Eastern grey gender bias by zone in the 2022 commercial harvest

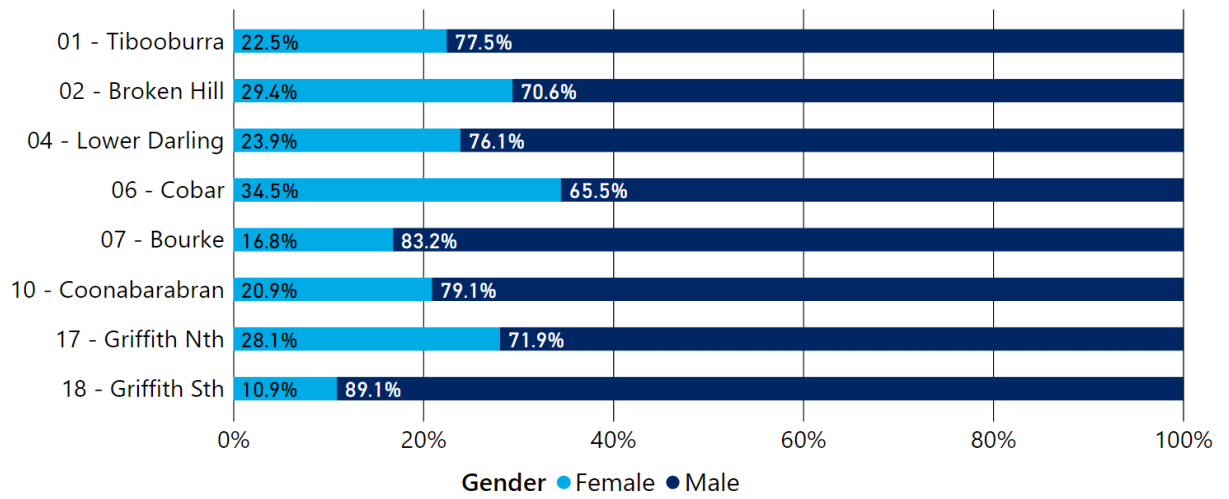


Figure 7 Western grey gender bias by zone in the 2022 commercial harvest

Average weights by species and zone

During 2022, commercial harvest licence conditions required that kangaroo carcasses delivered to chillers for sale were not to weigh less than 14 or 15 kilograms (the 2 different values reflect differences in the way the carcasses are dressed). Before 1 January 2008, the minimum carcass weights were 12 and 13 kilograms dressed and undressed, respectively. Above these minimum weights, a wide range of weights are consigned by harvesters.

The 23-year average (1999–2021) carcass weights by gender and species (across all zones) are shown in Figure 8. Data collected from harvester returns during 2022 indicate average carcass weight across all species was 28.2 kilograms for males and 19.2 kilograms for females (Table 1 and 2); these values are higher than the long-term averages. This is to be expected, given the increase in minimum carcass weight as part of licence conditions.

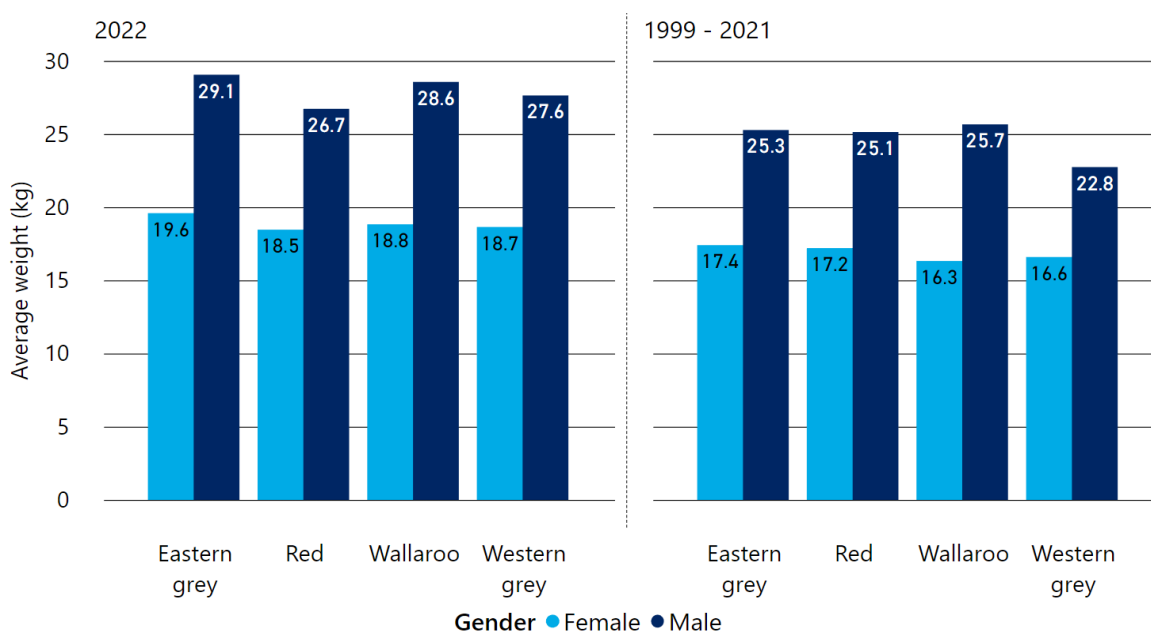


Figure 8 Average weights of male and female carcasses by species for 2022 compared with the average of the previous 23 years (1999–2021)

The department does not require licensees to record individual carcass weights. Instead, harvester returns provide total weights for each category of carcass (e.g. mean weight of male eastern grey kangaroos = total weight of male eastern grey kangaroos divided by the number of male eastern grey kangaroos). These totals are used to calculate the average weights of carcasses by gender, species and zone (Figures 8–12).

For most combinations of species, gender and zone, average carcass weights were reasonably consistent from month to month. In the following charts, no consideration is given to the differences in sample sizes between gender, species and zones.

Where large fluctuations occur, the sample size is usually very small and statistical reliability is lower. This variation is usually a result of statistical processes and is not a reflection of changes in the kangaroo population. Weights do not vary very much where larger samples are available.

In the charts that follow (Figures 9 to 12), there are several months in which no animals of a given gender or species were harvested in a particular zone; this results in missing columns in the charts. For example, in Figure 12 there were no western grey males or females harvested in the Tibooburra zone in July, October, November and December 2022.

During routine inspections of chiller premises and processing works, a selection of smaller animals is weighed individually by compliance officers to ensure the minimum weight standards are being maintained. If underweight carcasses are detected, the harvester responsible may be cautioned or fined, depending on the circumstances.

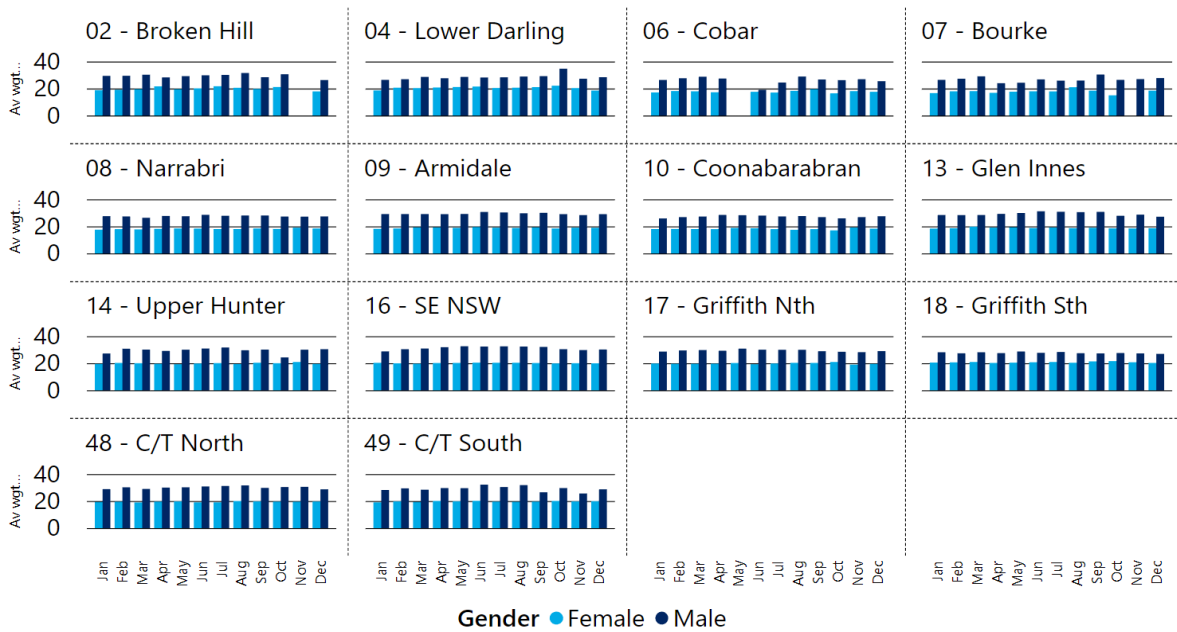


Figure 9 Eastern grey kangaroo male and female average carcass weights for each zone in the 2022 commercial harvest

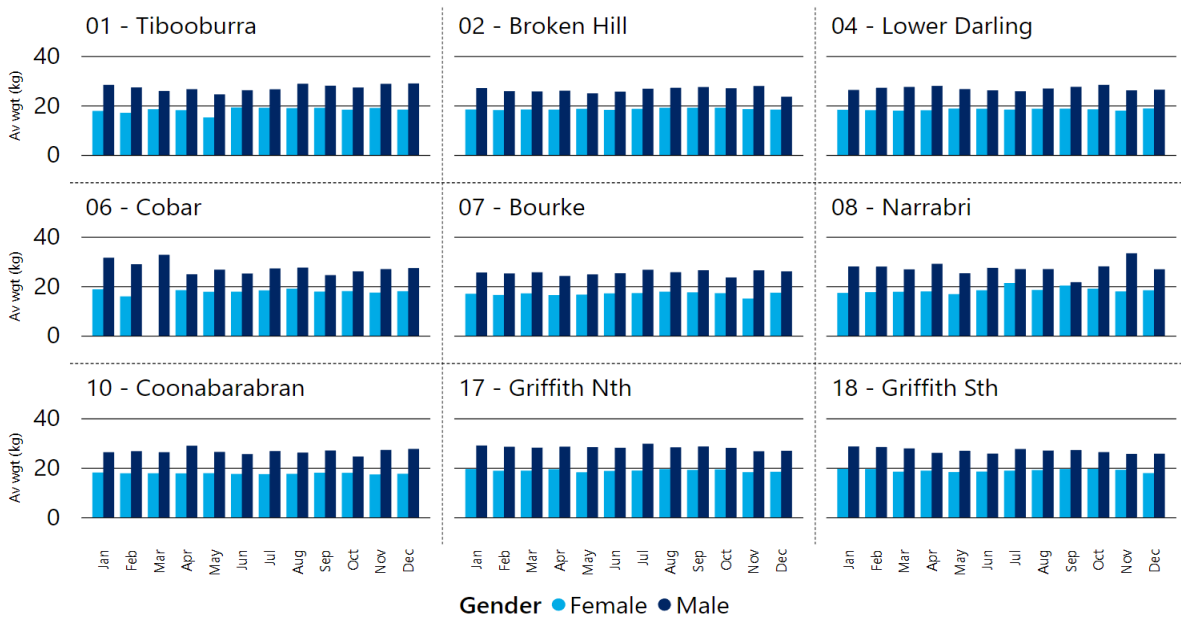


Figure 10 Red kangaroo male and female average carcass weights for each zone in the 2022 commercial harvest

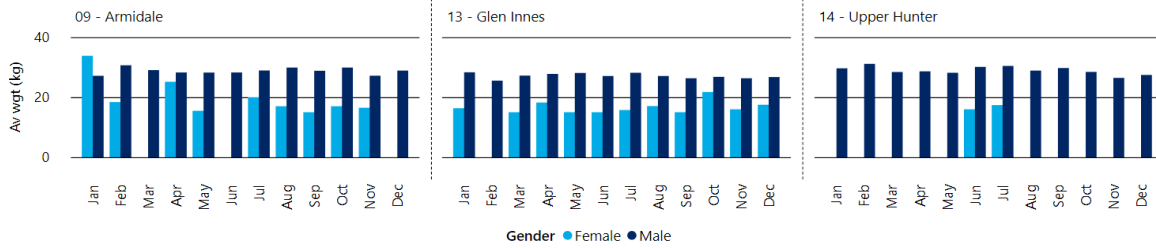


Figure 11 Common wallaroo male and female average carcass weights for each zone in the 2022 commercial harvest

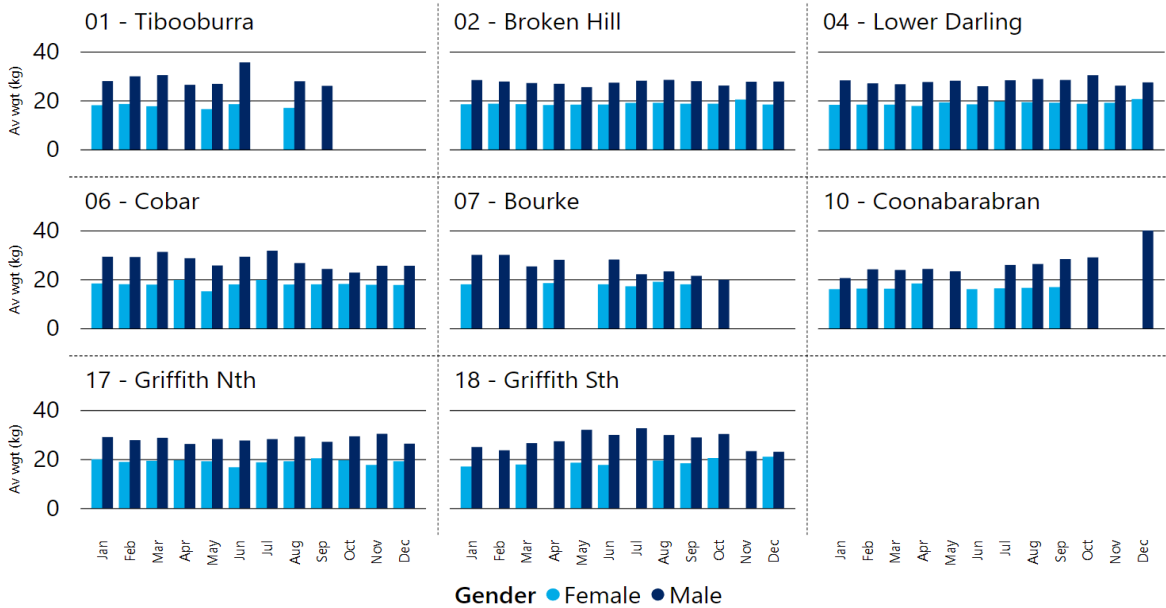


Figure 122 Western grey kangaroo male and female average carcass weights for each zone in the 2022 commercial harvest

Non-commercial culling within the commercial harvest zones

In New South Wales, landholders who are negatively impacted by kangaroos may apply to the NSW National Parks and Wildlife Service for a non-commercial culling licence. These licences are generally issued where impacts such as property damage, risk to human health or safety, or economic hardship cannot be adequately managed by non-lethal measures or commercial harvesting. Non-commercial licences are available statewide and can be issued for properties where commercial harvesting is also undertaken. While these licences may authorise culling of any non-threatened macropod species, for consistency with the rest of this report, the figures below only relate to the 4 species subject to commercial harvest in New South Wales. The non-commercial cull is usually highest in those areas where high-value pastures and winter crops are important.

In 2022, licences were issued to cull 100,043 kangaroos within the commercial harvest zones. Licensees who submitted reports indicated 28,178 kangaroos were actually culled under these licences authorising culling of up to 71,608 kangaroos. A number of licensees have not yet submitted reports, with these licences authorising culling of up to 28,435 kangaroos. Combining the number reported as culled (where a return has been received = 28,178) with the number authorised to be culled (where a return has not been received = 28,435) gives a maximum non-commercial cull figure of 56,613 kangaroos. Please note that these figures are the non-commercial cull for the 4 commercially harvested large macropod species across the commercial kangaroo management zones of New South Wales.

Maximum non-commercial cull by species and by commercial kangaroo management zone is shown in Table 3.

Table 3 Maximum non-commercial cull by species and by commercial zone

Zone	Wallaroos	Eastern grey kangaroos	Red kangaroos	Western grey kangaroos	Total
01 – Tibooburra	0	0	0	0	0
02 – Broken Hill	370	643	1,981	1,486	4,480
04 – Lower Darling	50	685	1,251	971	2,957
06 – Cobar		35	46	118	199
07 – Bourke		300	300	300	900
08 – Narrabri	34	1,643	467	1	2,145
09 – Armidale	26	647			673
10 – Coonabarabran	105	796	21		922
13 – Glen Innes	325	1,330			1,655
14 – Upper Hunter	20	210			230
16 – South East NSW	214	19,793	1		20,008
17 – Griffith North		5,277	2,250	2,127	9,654
18 – Griffith South		4,445	211		4,656

Zone	Wallaroos	Eastern grey kangaroos	Red kangaroos	Western grey kangaroos	Total
48 – Central Tablelands North	385	3,480			3,865
49 – Central Tablelands South	13	4,241	5	10	4,269
Totals	1,542	43,525	6,533	5,013	56,613

The highest maximum non-commercial cull was in the South East zone at 20,008 kangaroos. This is approximately two-thirds of the commercial harvest in the South East zone in 2022 (33,567) and is 1.4% of the estimated kangaroo population in the South East zone (Table 4).

Table 4 Maximum non-commercial cull as a percentage of total kangaroo population

Zone	Total kangaroo population	Potential non-commercial cull	Non-commercial cull percentage
01 – Tibooburra	367,335	0	0.0
02 – Broken Hill	1,465,376	4,480	0.3
04 – Lower Darling	1,032,286	2,957	0.3
06 – Cobar	248,724	199	0.1
07 – Bourke	200,813	900	0.4
08 – Narrabri	621,876	2,145	0.3
09 – Armidale	539,190	673	0.1
10 – Coonabarabran	1,261,644	922	0.1
13 – Glen Innes	680,065	1,655	0.2
14 – Upper Hunter	210,900	230	0.1
16 – South East NSW	1,428,800	20,008	1.4
17 – Griffith North	966,388	9,654	1.0
18 – Griffith South	624,326	4,656	0.7
48 – Central Tablelands North	777,350	3,865	0.5
49 – Central Tablelands South	488,270	4,269	0.9
Totals	10,913,343	56,613	0.5

The difference in method for calculating maximum non-commercial cull figures (based on reports and extrapolation) and commercial harvest figures (solely based on reports) should be taken into account when combining data from these 2 different sources.

Monitoring compliance in the commercial harvest zones

Compliance audits

During 2022 there were 542 licensed commercial harvesters with approximately 2,647 approved landholder consents (some properties may have provided consent to multiple harvesters) for commercial harvesting. These properties cover 12,109,826 million hectares. There were also 129 registered chillers, 16 licensed animal dealers and 4 licensed skin dealers.

Compliance audits of licensees are performed continuously by the department's compliance officers, with additional monitoring by NSW Food Authority, firearms licensing audits by NSW Police Force and field inspections by departmental regional compliance and regulation officers. Regional compliance and regulation officers inspect carcasses, harvesters' vehicles and equipment, chiller premises and processors for compliance with licence conditions. Licensing staff contributed to compliance by communicating with and educating licensees, assessing applications, compiling reports and reporting suspect activities and irregularities to regional compliance officers.

Regional compliance and regulation officers investigate reports of illegal harvesting activities to the fullest extent possible. During 2022, 37 reports of potential licence breaches and other illegal activity were received, either involving commercial licensees or for commercial purposes. On investigation, several were dismissed because no evidence was found to substantiate the report, or the activities were licensed.

Information to assist law enforcement, including compliance with the *Biodiversity Conservation Act 2016* (BC Act), *Firearms Act 1996* and *Food Act 2003*, is shared as required with NSW Police Force, NSW Food Authority, the Australian Department of Agriculture, Water and the Environment and interstate fauna protection agencies, within the boundaries of NSW privacy legislation. For example, from late 2020, a monthly report detailing licensed professional kangaroo harvesters and registered chiller premises has been supplied to NSW Police Force.

Reports involving matters related to food safety were referred to NSW Food Authority in accordance with the memorandum of understanding between the department and the NSW Food Authority. Activities involving non-commercial shooting were referred to the relevant NSW National Parks and Wildlife Service (NPWS) office.

Inspections of premises

Regional compliance officers and NSW Food Authority compliance staff inspected chillers in commercial kangaroo management zones for:

- non-head-shot carcasses
- underweight carcasses
- valid tags
- correctly affixed tags (correct species and zone)
- untagged carcasses
- display of premises registration number and certificate
- presence of other animal carcasses.

Harvester vehicles are checked opportunistically for:

- appropriate NSW Food Authority registration (for either human consumption or pet food)
- correct set-up and fit-out (in accordance with a NSW Food Authority memorandum of understanding)
- untagged and underweight carcasses.

Harvesters are also checked to ensure they are carrying a kangaroo harvester’s licence issued under the BC Act.

During 2022, there were 129 chiller premises registered. A total of 109 chiller inspections, 10 processing works inspections and 3 skin dealer inspections were conducted by the department during 2022. A further 71 audits of chiller premises and 139 inspections of game meat harvester vehicles were conducted by NSW Food Authority.

Widespread flooding in the latter half of 2022 and the Varroa mite emergency response impacted accessibility and staff capacity, resulting in lower audit and inspection numbers.

Table 5 shows the number of chiller and processing works inspections undertaken in each of the last 5 years.

Table 5 Number of chiller and Animal Dealer/Skin Dealer inspections undertaken by year

Year	Chiller inspections	Animal dealer/skin dealer processing works inspections
2018	>121	26
2019	>121	27
2020	364	32
2021	152	16
2022	109	13

Penalty infringement notices

Issuing of verbal cautions, written warnings or infringement notices is at the discretion of the regional compliance officer, in accordance with the department’s Compliance Policy (OEH 2018). A total of 37 matters were investigated by compliance teams. Although cautions do not attract penalties, they are recorded and taken into account in any future compliance considerations and risk assessment procedures. Table 6 summarises compliance response outputs for 2022.

Table 6 Compliance outputs 2022

	Advisory letter	Official caution	Warning letter	Penalty infringement notice	Total
Non-head shot	2		3	1	6
Underweight carcasses			4	13	17
Incorrect display on chiller	1		1	2	4

	Advisory letter	Official caution	Warning letter	Penalty infringement notice	Total
All other breach of licence conditions	4	1	1	4	10
Total	7	1	9	20	37

Licence suspensions

In the 2022 licensing year there were 7 professional kangaroo harvester licence suspensions, one animal dealer licence suspension and 2 chiller registration suspensions. The reasons for these suspensions are summarised in Table 7 below.

Table 7 Summary of licence and premises registration suspensions in 2022

Licence type	Reason	Number
Professional Kangaroo Harvester	Conviction in court – see Appendix B for details	2
	Firearms licence suspension	3
	Multiple offences including: <ul style="list-style-type: none"> firearms licence suspension alleged breach of licence conditions alleged animal welfare offences alleged Biodiversity Conservation Act offences 	1
Professional Kangaroo Harvester	Multiple offences including: <ul style="list-style-type: none"> incorrect return using tags from incorrect zone harvesting without approved landholder consent possessing and selling underweight carcass 	1
	Animal Dealer	Conviction in court – see Appendix B for details
Chiller Registration	Overdue chiller returns	2

Prosecutions

There were 3 prosecutions completed during 2022. The details of these prosecutions are shown in Appendix B.

Other factors affecting the commercial harvest in 2022

Reduced or suspended quotas

A number of zones had reduced quotas in 2022. These are listed in Table 8. The zone quota is reduced to 10% of the population estimate when the population falls between 1.5 standard deviations and 2.0 standard deviations below the long-term average. There were no zones closed in 2022. The zone is closed when the population estimate is less than 2 standard deviations below the long-term average.

Table 8 Zones with reduced or suspended quota in 2022

Management zone*	Species	Status
Tibooburra – Zone 01	Eastern grey	Open – 15% quota
	Western grey	Open – 15% quota
Bourke – Zone 07	Eastern grey	Reduced (10% quota)
	Western grey	Reduced (10% quota)
Narrabri – Zone 08	Eastern grey	Reduced (10% quota)

*This table does not include all zones with quotas set in 2022. It shows only zones with suspended or reduced quotas, or zones that reopened in 2022 after being reduced or closed the previous year.

No quota is set for western grey kangaroos in Narrabri kangaroo zone because it has only a small population due to being the eastern edge of their range.

Carcass price

Prices paid by dealers to harvesters for kangaroo carcasses were maintained at record levels of \$1.30–\$1.50 per kilogram throughout 2022. This was largely the result of several factors, including sustained dealer demand, improved competition, and relatively low supply. Supply was suppressed at times throughout 2022 due to wet weather and lower numbers in some areas due to the previous drought. Widespread flooding across New South Wales prevented access to many properties and resulted in difficulty harvesting kangaroos.

Program and policy developments

Mobile chiller trial

A trial of mobile chillers was conducted during 2022. Three licensed harvesters registered mobile chillers for the trial and several valuable lessons were learnt. Mobile chillers are now included as a routine part of the NSW Commercial Kangaroo Management Program licensing framework..

Digital tags proof-of-concept

Technology to support a proof-of-concept trial of digital tags was developed during 2022. Tags will have a QR code printed on them that will be scanned by the harvester when the tag is fitted to the kangaroo carcass at the time of harvest. Some key information, including precise location and time of harvest will be recorded automatically upon scanning and other key information, including species, gender and weight will be entered by the harvester into the TagTrac app.

The proof-of-concept trial is expected to take place during the winter of 2023 with about 50 harvesters, 20 chiller managers and 10 animal dealers fitting and scanning about 10,000 tags with QR codes to harvested kangaroos to test the new technology.

Harvester knowledge course and assessment

In 2022 a harvesters knowledge refresher course and assessment was developed in conjunction with TAFE Digital. The course and assessment is fully integrated with the Wildlife Management System to ensure easy access for harvesters. The knowledge course and assessment will be rolled out for all harvesters over the next 2–3 years.

Online licensing system enhancements

Significant work was done throughout 2022 on the Wildlife Management System (WMS) that is used to manage licences, tags, landholder consents and returns. This has resulted in further improvements to the functionality of the WMS, making it more user-friendly. New functions added to WMS during 2022 included:

- the addition of new fields on the internal system to better update the compliance team on the status of the premises registration stickers
- improved automatic data validation functions with ABN and Address verification
- further enhancement of the mobile chiller features after the successful 2022 trial period
- essential changes to start preparing for the upcoming trial of the Digital Tags project to commence in 2023.

These enhancements are part of an ongoing continuous improvement approach adopted by the KMP.

Research involvement in 2022

Apart from annual population surveys, no research projects were completed by the Kangaroo Management Program in 2022.

Research funded in 2022

In 2022 the NSW Kangaroo Management Program and AgriFutures jointly funded 2 PhD scholarships for research to improve the NSW Kangaroo Management Program.

One of the PhDs is being undertaken by Evan Curtis and is titled 'Determining optimal management strategies for 4 large macropods in NSW'. It commenced in late 2022.

The other PhD scholarship is focussed on kangaroo welfare aspects of the commercial harvest. At this stage, the topic has not been finalised, nor a student selected for the scholarship.

Appendix A: Progress against performance indicators in 2022

Action	Performance Indicator	Performance in 2022
Aim 1: Ensure commercial harvest of kangaroos in New South Wales is humane		
Action 1.1: Implement and enforce the National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes across all commercial harvesting activity in New South Wales	1. Licence conditions specify the commercial harvesting of kangaroos in New South Wales must be done in accordance with the National Code.	100% of harvester licences include conditions requiring compliance with the National Code
	2. All identified incidences of non-compliance with licence conditions related to inhumane harvesting are investigated, and appropriate compliance action is taken.	Complete. All detected incidences of non-compliance were investigated and appropriate action was taken.
	3. Harvester licences are issued only to applicants who have completed the game harvester statement of attainment or equivalent, have met shooter competency standards, and hold a current firearms licence.	100% of harvesters licensed in 2022 had completed game harvester statement of attainment or equivalent, met shooter competency standards, and held a current firearms licence. These are a prerequisite to obtaining a harvester licence.
Action 1.2: Facilitate capacity building and engagement opportunities to maintain harvester competency to meet National Code requirements	1. Copies of the National Code and education materials are provided to all licensees and made available through the department's website.	All harvesters are mailed a copy of the National Code upon their first licence approval following publication of the code in late 2020.
	2. A capacity building program to improve and maintain harvester competency, and increase voluntary compliance with licence conditions, is developed and implemented within the life of this plan.	In 2022 NSW KMP worked with TAFE NSW to develop an online harvester course and assessment focussed on the National Code and the harvester licence conditions. This will be implemented from June 2023 to new and existing harvesters.

Action	Performance Indicator	Performance in 2022
Aim 2: Ensure commercial harvest of kangaroos in New South Wales is ecologically sustainable		
Action 2.1: Kangaroo population estimates are determined using scientifically rigorous population surveys	1. Fixed-wing aircraft surveys are conducted annually on the inland plains during winter. Population estimates are calculated for each inland plains commercial kangaroo management zone by 30 November each year.	Completed for 2022.
	2. Helicopter surveys are completed in one region annually, and tableland regions are surveyed triennially. Population estimates are calculated by 30 November in the year of survey.	Completed. In 2022 the Northern Tablelands region was surveyed.
Action 2.2: Proportional commercial harvest quotas are set and reported annually for each commercial kangaroo management zone	1. Quota reports are submitted to the relevant Australian Government department and published on the NSW Department of Planning and Environment website by 1 December each year.	Completed.
	2. Annual commercial harvest quotas are set for each species and commercial kangaroo management zone for harvesting to commence 1 January each year.	Completed. See quota report.
	3. Maximum harvest quotas are set at 15% of the population for eastern grey kangaroos, western grey kangaroos and common wallaroos, and 17% of the population for red kangaroos.	Completed. See quota report.
	4. Quotas on populations that are between 1.5 and 2 standard deviations below their long-term averages are calculated at a reduced rate of 10% of the population.	Completed. See quota report.
	5. Quotas on populations that are 2 or more standard deviations below their long-term averages are suspended.	Completed. See quota report.
Action 2.3: Harvest data are monitored to ensure quotas are not exceeded	1. Proportion of monthly harvester returns submitted on time.	Harvester returns were monitored monthly. Harvesters with late returns were emailed and blocked from ordering new tags. Across the year 99% of returns were submitted.
	2. Proportion of monthly harvester returns submitted accurately.	
	3. Monthly tag allocations and harvester returns analysed and published online within 14 days of the end of the month.	Completed.

Action	Performance Indicator	Performance in 2022
Action 2.4: Identify any potential threats to population health	1. Any reports received relating to kangaroo health or mortality events are recorded and referred to the appropriate authorities.	Completed. No reports of unusual health or mortality events were received in 2022.
Aim 3: Be open, accountable and transparent		
Action 3.1: Maintain public website with relevant documents and current information	1. The following information, as a minimum, is regularly reviewed and kept current on the Kangaroo Management Program webpages: <ul style="list-style-type: none"> a. a statement of the reasons commercial harvest is undertaken in this state b. current versions of the NSW Commercial Kangaroo Harvest Management Plan, annual report and quota report Wildlife Trade Management Plan for the Commercial Harvest of Kangaroos in New South Wales 2022–26 12 c. annual reports and quota reports from the past 5 years d. commercial harvest and tag allocation reports from at least the past 12 months e. current licence conditions for kangaroo harvesters, kangaroo dealers and kangaroo skin dealers f. National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes g. contact information for the NSW Kangaroo Management Program. 	Completed. The ‘Kangaroo management in NSW’ website is regularly revised and new reports published to maintain website currency.
Action 3.2: Engage a Kangaroo Management Advisory Panel to provide expert advice on relevant kangaroo management issues	1. The panel meets at least twice per year to review progress and provide advice on implementation and review of the management plan.	Completed. KMAP met on the 6 April 2022 and 3 November 2022. Minutes are on the KMP website.
	2. The department provides the panel with timely and relevant information and reports to perform its functions throughout the life of the plan.	Completed. Regular updates were provided to KMAP members.
Action 3.3: Respond to information requests	1. A stakeholder communication and engagement strategy is developed in the first 12 months and implemented throughout the life of this plan.	Completed.

Action	Performance Indicator	Performance in 2022
	2. Media releases on issues of interest to the community are prepared for approval by the NSW Minister when appropriate.	No media releases were produced during 2022.
	3. Responses to all media enquiries are provided in a timely way.	Completed.
	4. Approved relevant departmental staff will participate in relevant interviews with the media upon request.	No media interviews were provided during 2022.
	5. Enquiries received will be responded to within 2 working days for simple requests and within 28 working days for more complex responses.	Completed.
Aim 4: Implement effective and efficient regulation and administration		
Action 4.1: All activities relating to the commercial harvest of kangaroos in New South Wales are licensed in accordance with BC Act, Regulation and policy	1. Databases of licensee and registration information are accurate, complete and up to date.	Completed. The Wildlife Management System (WMS) is a real time licensing system.
	2. A sample of licences is assessed annually to confirm they are being processed and issued in accordance with relevant legislation and departmental policy.	Completed.
Action 4.2: Licence conditions are effectively applied	1. Licence conditions are reviewed biennially.	Completed. Licence conditions were reviewed prior to the 2022 and 2023 licensing years commencing.
	2. Licensees are advised of changes to licence conditions in writing within 7 days of the changes taking effect.	Completed.
	3. Advisory materials to explain changes to licence conditions are developed and distributed with the notification of change.	Not required. Changes to licence conditions were minor.
Action 4.3: Tagging, landholder consent and reporting processes enable program accountability and compliance	1. Opportunities to improve carcass traceability, compliance, data accuracy and utility will be evaluated when available.	In progress. NSW KMP are developing and trialling a digital tagging system that, if successful, will significantly improve carcass traceability, compliance, and data accuracy.
Aim 5: Effectively promote, monitor and enforce compliance		

Action	Performance Indicator	Performance in 2022
Action 5.1: Develop and implement a kangaroo management compliance strategy and annual action plan	1. Annual review and prioritisation of compliance and enforcement focus areas that respond to current risks and trends in the industry.	Regional compliance workshop held in Broken Hill August 2022. Standardised inspection reporting template developed and agreed.
Action 5.2: Regular and opportunistic monitoring of licensees for compliance with licence conditions and legislation	1. Chiller premises and processing works (kangaroo carcasses and skins) are inspected on average a minimum of 1.5 times per year to ensure compliance with NSW legislation and licence conditions.	There were 122 chiller inspections by department compliance officers and 71 by NSW Food Authority. There were 129 registered chillers in 2022. The department inspection rate is lower than the targeted 1.5 inspections per chiller on average. This was due to widespread heavy rainfall and flooding in the latter half of 2022 impacting roads and inundating properties, reducing the opportunity for inspections.
	2. At least 0.5% of carcasses are inspected each year for signs of unlicensed activities, breaches of licence conditions and other evidence contrary to the program's objectives for a humane and sustainable harvest.	Widespread heavy rainfall and flooding in the latter half of 2022 impacted roads and inundated properties, reducing the opportunity for inspections of premises.
Action 5.3: Investigation of and appropriate response to non-compliance	1. All reports of unauthorised activities and activities in breach of licence conditions are submitted to relevant compliance teams. Compliance teams may impose enforcement actions such as issue of verbal cautions, written warnings or infringement notices, and prosecution or revocation of licences and registrations in accordance with the department's Compliance Policy and Prosecution Guidelines.	Completed.
Action 5.4: A collaborative approach to compliance	1. Review and establish formal agreements with other New South Wales and cross-border agencies to develop collaborative approaches, establish cross-authorisation and share intelligence and information that leads to improved compliance.	Work in progress. NSW KMP is working with NSW Food Authority to review and update the existing MOU.

Action	Performance Indicator	Performance in 2022
Aim 6: Facilitate adaptive management and research		
Action 6.1: Foster and support research to improve animal welfare outcomes	1. Contribute to any review of the National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes during the life of this plan.	N/A. No code review was undertaken during 2022.
	2. Assess all research proposals for opportunities to facilitate improvements to animal welfare outcomes in the Kangaroo Management Program.	NSW KMP has funded 2x PhD scholarships. One focussed on improving population estimation and management and the second focussed on kangaroo welfare during the harvest process.
	3. All research led by the department involving animals will be conducted in accordance with approval from the department's Animal Ethics Committee and the Australian code for the care and use of animals for scientific purposes (National Health and Medical Research Council, 2013).	N/A. No research was led by the NSW KMP.
Action 6.2: Foster and support research to improve kangaroo census and population modelling	1. All research proposals are assessed for opportunities to identify improvements in kangaroo census and population modelling techniques.	NSW KMP has funded 2x PhD scholarships. One focussed on improving population estimation and management and the second focussed on kangaroo welfare during the harvest process.
	2. All research led by the department involving animals will be conducted in accordance with approval from the department's Animal Ethics Committee and the Australia code for the care and use of animal for scientific purposes.	N/A. No research was led by the NSW KMP.
Action 6.3: Facilitate adaptive management experiments to test deliberate management interventions where practicable	1. Any proposals to undertake active adaptive management experiments are reviewed and assessed by the department in accordance with the criteria outlined in this plan.	N/A. No adaptive management experiments were proposed during 2022.
	2. All adaptive management experiments undertaken by, or in partnership with, the department are monitored and conducted according to approved conditions, including any animal welfare and ethics approvals.	N/A. No adaptive management experiments were proposed during 2022.

Action	Performance Indicator	Performance in 2022
Action 6.4: Share historical survey and harvest data	1. A strategy, data structure and suitable platform to make historical survey and harvest data available to the public is investigated within the first 2 years of this plan.	Work in progress. Publishing historical survey and harvest data in a more accessible format will be considered as part of a website rebuild in 2024–25.
	2. Subject to the plausibility of this strategy (as above), historical data are released by the end of year 4 of this plan.	N/A at this stage.
Aim 7: Undertake program reporting and review		
Action 7.1: Produce and publish regular reports	1. The following reports will be produced and published on the department’s kangaroo management website: <ul style="list-style-type: none"> a. monthly tag allocation report by the fifth day of the month for the preceding month b. monthly harvest report by the fifteenth day of the month for the preceding month. 	Completed. Monthly tag allocation and harvest reports are published within the required timeframes.
	2. The following reports will be produced and published on the department’s kangaroo management website and provided to the Australian Government on time: <ul style="list-style-type: none"> a. annual allocation and harvest reports by the end of February each year for the preceding year b. annual report on the operation of the plan by the end of March each year for the preceding year c. c. quota report, stating population size and quota allocated for the following year, by 1 December each year. 	Partial completion. 2022 annual allocation and harvest reports are included in the Annual Report rather than separately reported. 2022 Annual Report has been delayed slightly. 2023 quota report was provided to the Australian Government on time.
	3. The annual report on the operation of the plan will include as a minimum the following information: <ul style="list-style-type: none"> a. actual harvest, by commercial harvest zone and species, compared with available quotas b. any special quota used c. gender bias and average weights for each species in each commercial harvest zone 	Completed.

Action	Performance Indicator	Performance in 2022
	<ul style="list-style-type: none"> d. non-commercial cull allocation statistics within the commercial harvest zones e. compliance statistics including: <ul style="list-style-type: none"> o premises inspected o penalty infringement notices issued and reasons for the issue o prosecutions f. any unusual situations affecting the commercial harvest (e.g. disease outbreaks, drought conditions, market factors) g. any research on kangaroos supported by the department h. progress against performance indicators. 	
<p>Action 7.2: Review of the Wildlife Trade Management Plan for the Commercial Harvest of Kangaroos in New South Wales 2022–26</p>	<ol style="list-style-type: none"> 1. The department will commence review of this plan at least 12 months before its expiry and resubmit for public exhibition and assessment by the Australian Government before approval by the Commonwealth Minister for the Environment in the timeframe prescribed by the Commonwealth department. 	<p>N/A at this stage.</p>

Appendix B: Kangaroo Management Program prosecutions during 2022

Person	Offence(s)	Sentence	Location and date of sentence	Licence suspension
Brian Richardson Tink	Offence 1 (fail to display certificate)	Offence 1 - fail to display certificate – section 10A of the Crimes (Sentencing Procedure) Act, conviction recorded but no penalty imposed.	Dubbo Local Court - 12 May 2022	Three months suspension and 12 months probation
	Offence 2 (breach licence condition by possessing underweight carcass, 10 additional offences to be taken into account)	Offence 2 (breach licence condition by possessing underweight carcass, 10 additional offences to be taken into account): convicted and fined \$5,000.		
	Offence 3 (breach licence condition by possessing one underweight carcass)	Offence 3 (breach licence condition by possessing one underweight carcass): convicted and fined \$1,000.		
	Offence 4 (breach licence condition by possessing one underweight carcass)	Offence 4 (breach licence condition by possessing one underweight carcass): convicted and fined \$1,000.		
Brandon Wayne Blackhall	Offence 1 (not fixing a tag on kangaroo carcass)	Offence 1 (not fixing a tag on kangaroo carcass) – section 10A of the Crimes (Sentencing Procedure) Act, conviction recorded but no penalty imposed.	Parkes Local Court – 9 June 2022	Two months suspension and 12 months probation
	Offence 2 (breach licence condition by possessing underweight carcass; 7 additional offences to be taken into account)	Offence 2 (breach licence condition by possessing underweight carcass; 7 additional offences to be taken into account); convicted and fined \$5,000.		

Person	Offence(s)	Sentence	Location and date of sentence	Licence suspension
	Offence 3 (breach licence condition by possessing one underweight carcass)	Convicted and fined \$1,000.		
	Offence 4 (breach licence condition by possessing one underweight carcass)	Convicted and fined \$1,000.		
Rinsie Charles Jamieson	Offence 1 – Dishonestly obtain financial advantage by deception	Convicted and directed to enter into a Community Correction Order for 9 months.	Cooma Local Court – 8 June 2022	Six months suspension of Professional Kangaroo Harvester Licence and 2 years suspension as a chiller manager
	Offence 2 - Dishonestly obtain financial advantage by deception			
	Offence 3 – Impersonate an authorised officer			

More information

- [2023 Quota Report: NSW Commercial Kangaroo Management Program](#)
- [Kangaroo management plans, reports and research](#)