

## 2013 Annual Report

# **New South Wales Commercial Kangaroo Harvest Management Plan 2012–2016**

This report was prepared in March 2014 by the Senior Team Leader, Kangaroo Management Program, Office of Environment and Heritage (NSW) North Branch.

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## Contents

Introduction .....	4
Actual harvest in 2013, by zone and species .....	5
Harvest quota management.....	7
Special Quota .....	8
Sex bias by species and zone.....	9
Average weights by species and zone .....	12
Non-commercial culling within the commercial harvest zones.....	18
Monitoring compliance in the commercial harvest zones.....	19
Other factors affecting the commercial harvest in 2013.....	21
Research involvement in 2013.....	22
Appendix A: Progress against performance indicators in 2013.....	23

## Introduction

The New South Wales Office of Environment and Heritage (OEH) and its predecessor organisations have been researching, monitoring and managing the commercial harvest of kangaroos in NSW since the 1970s. During this period, a sequence of kangaroo management plans has provided the framework for the harvest, in accordance with legislative requirements.

In December 2011 the Commonwealth Government declared the New South Wales Commercial Kangaroo Harvest Management Plan 2012–2016 to be an approved wildlife trade management plan for the purposes of the *Environment Protection and Biodiversity Conservation Act 1999*. This Plan set the framework for the commercial harvest of kangaroos in NSW following the expiry on 31 December 2011 of the New South Wales Commercial Kangaroo Harvest Management Plan 2007–2011.

This report gives details of the operation of the New South Wales Commercial Kangaroo Harvest Management Plan 2012–2016 in its second year (2013), as required by Performance Indicator 18.1 of the plan. Appendix A describes each performance indicator and the progress made during 2013.

The following information is presented:

- actual harvest, by zone and species, compared with the approved quotas
- details of any Special Quota used (see page 5 for an explanation of Special Quotas)
- harvest sex bias for each species in each zone
- average carcase weights for each species in each zone
- non-commercial culling statistics within the commercial harvest zones
- 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/enforcement activities completed
- any unusual situations that arose (e.g. flood/disease outbreaks; market factors)
- any experiments or research undertaken by OEH or sponsored by OEH.

Details of population survey methods, the results of aerial surveys and the setting of quotas are given in a separate report, namely the 2014 NSW Kangaroo Quota Report, available from the KMP's web page at

[www.environment.nsw.gov.au/wildlifemanagement/KangarooManagementProgram.htm](http://www.environment.nsw.gov.au/wildlifemanagement/KangarooManagementProgram.htm).

## Actual harvest in 2013, by zone and species

Table 1 summarises the 2013 harvest for each management zone, across all species combined. ‘%q’ is the commercial take as a percentage of the approved quota. ‘%p’ is the commercial take as a percentage of the population estimate, and ‘Ave. wt’ is the average carcase weight in kilograms of harvested females (F) and males (M).

**Table 1. Harvest in 2013, by zone for all species combined**

<i>All species</i>									
Management zone	No.	Population	Quota	Harvest	%q	%p	% Male	Ave. wt (F)	Ave. wt (M)
Tibooburra	1	1,011,525	170,481	24,303	14.3	2.4	95.0	18.6	30.8
Broken Hill	2	1,360,430	220,269	66,571	30	4.9	89.0	18.3	28.4
Lower Darling	4	527,367	85,009	24,365	28.6	4.6	88.9	18.1	28.3
Cobar	6	564,272	89,696	7,625	8.5	1.4	99.9	25.3	28.8
Bourke	7	875,909	139,966	20,102	14.4	2.3	99.6	17.1	28.3
Narrabri	8	1,617,932	249,628	58,960	23.6	3.6	90.8	18.2	27.1
Armidale	9	248,035	37,205	11,012	29.6	4.4	73.0	17.7	28.1
Coonabarabran	10	1,814,637	279,341	52,706	18.9	2.9	97.5	18.1	27.1
Griffith	11	1,066,991	167,380	38,177	22.8	3.6	81.5	18.3	29.6
Glen Innes	13	301,690	45,254	9,416	20.8	3.1	87.6	17.8	26.8
Upper Hunter	14	182,485	26,624	6,205	23.3	3.4	96.2	18.3	30.5
SE NSW	16	858,900	128,835	7,351	5.7	0.86	99.9	21.4	33.1
C/T North	48	612,590	91,889	10,176	11.0	1.7	91.2	18.5	30.0
C/T South	49	347,830	52,175	9,677	18.6	2.8	93.3	18.1	31.0
<b>Totals</b>		<b>11,390,593</b>	<b>1,783,752</b>	<b>346,646</b>	<b>19.3</b>	<b>3.0</b>	<b>91.1</b>	<b>18.8</b>	<b>29.2</b>

Table 2 lists the details of the 2013 harvest by zone and species. '%q' is the commercial take as a percentage of the approved quota. '%p' is the commercial take as a percentage of the population estimate, and 'Ave. wt' is the average carcase weight in kilograms of harvested females (F) and males (M).

**Table 2. Harvest in 2013, by zone and species**

<i><b>Eastern grey kangaroo</b></i>									
<b>Management zone</b>	<b>No.</b>	<b>Population</b>	<b>Quota</b>	<b>Harvest</b>	<b>%q</b>	<b>%p</b>	<b>% Male</b>	<b>Ave. wt (F)</b>	<b>Ave. wt (M)</b>
Tibooburra	1	56,419	8,463	658	7.8	1.2	88.4	17.3	32.0
Broken Hill	2	90,428	13,564	2,385	17.6	2.6	87.4	18.4	29.0
Lower Darling	4	88,260	13,239	4,275	32.3	4.8	75.1	17.9	30.2
Cobar	6	117,098	17,565	1,774	11.0	1.5	100	0	27.4
Bourke	7	322,710	48,407	4,923	10.2	1.5	99.4	18.1	27.4
Narrabri	8	1,243,425	186,514	45,589	24.4	3.7	90.1	17.7	26.5
Armidale	9	206,780	31,017	9,523	30.7	4.6	69.3	17.5	28.5
Coonabarabran	10	1,336,065	200,410	38,235	19.1	2.9	96.8	18.0	26.4
Griffith	11	580,450	87,068	21,288	24.5	3.7	81.8	18.5	29.7
Glen Innes	13	269,500	40,425	7,982	19.8	3.0	85.5	17.6	28.0
Upper Hunter	14	167,500	25,125	4,774	19.0	2.9	95.1	18.3	31.2
SE NSW	16	858,900	128,835	7,351	5.7	0.86	99.9	21.4	33.1
C/T North	48	612,590	91,889	10,176	11.1	1.7	91.2	18.5	30.0
C/T South	49	347,830	52,175	9,677	18.6	2.8	93.3	18.2	31.0
<b>Totals</b>		<b>6,297,955</b>	<b>944,693</b>	<b>168,610</b>	<b>18.0</b>	<b>2.8</b>	<b>90.1</b>	<b>18.3</b>	<b>29.3</b>
<i><b>Red kangaroo</b></i>									
<b>Management zone</b>	<b>No.</b>	<b>Population</b>	<b>Quota</b>	<b>Harvest</b>	<b>%q</b>	<b>%p</b>	<b>% Male</b>	<b>Ave. wt (F)</b>	<b>Ave. wt (M)</b>
Tibooburra	1	937,643	159,399	23,340	14.6	2.5	95.4	18.7	30.7
Broken Hill	2	1,138,627	193,567	55,803	28.8	4.9	89.5	18.3	28.5
Lower Darling	4	295,180	50,181	13,387	26.7	4.5	91.0	18.1	28.2
Cobar	6	252,750	42,968	3,549	8.3	1.4	100	0	28.8
Bourke	7	429,000	72,930	14,248	19.5	3.3	99.7	16.2	28.6
Narrabri	8	371,257	63,114	13,371	21.2	3.6	93.0	19.6	29.1
Coonabarabran	10	357,256	60,734	14,036	23.1	3.9	99.5	20.6	29.0
Griffith	11	366,603	62,323	13,913	22.3	3.8	80.0	17.9	29.7
<b>Totals</b>		<b>4,148,316</b>	<b>705,214</b>	<b>151,647</b>	<b>20.6</b>	<b>3.5</b>	<b>92.1</b>	<b>18.5</b>	<b>29.3</b>

**Table 2 continued. Harvest in 2013, by zone and species**

<b>Walleroo</b>									
<b>Management zone</b>	<b>No.</b>	<b>Population</b>	<b>Quota</b>	<b>Harvest</b>	<b>%q</b>	<b>%p</b>	<b>% Male</b>	<b>Ave. wt (F)</b>	<b>Ave. wt (M)</b>
Armidale	9	41,255	6,188	1,489	24.1	3.6	96.8	19.3	26.5
Glen Innes	13	32,190	4,829	1,434	29.7	4.5	99.0	22.1	26.4
Upper Hunter	14	14,985	1,499	1,431	95.5	9.6	100	0	28.2
<b>Totals</b>		<b>88,430</b>	<b>12,516</b>	<b>4,354</b>	<b>50</b>	<b>5.9</b>	<b>98.6</b>	<b>20.7</b>	<b>27</b>
<b>Western grey kangaroo*</b>									
<b>Management zone</b>	<b>No.</b>	<b>Population</b>	<b>Quota</b>	<b>Harvest</b>	<b>%q</b>	<b>%p</b>	<b>% Male</b>	<b>Ave. wt (F)</b>	<b>Ave. wt (M)</b>
Tibooburra	1	17,463	2,619	305	11.7	1.8	78.0	18.4	30.2
Broken Hill	2	131,375	13,138	8,383	63.8	6.4	87.0	17.8	27.5
Lower Darling	4	143,927	21,589	6,703	31	4.7	88.9	18.2	27.3
Cobar	6	194,424	29,164	2,302	7.9	1.2	99.6	25.3	27.0
Bourke	7	124,199	18,630	931	5.0	0.75	99.7	19.7	26.5
Coonabarabran	10	121,316	18,197	435	2.4	0.36	100	0	26.9
Griffith	11	119,939	17,991	2,976	16.5	2.5	86.8	18.2	29.1
<b>Totals</b>		<b>855,892*</b>	<b>121,328</b>	<b>22,035</b>	<b>19.8</b>	<b>2.5</b>	<b>89.5</b>	<b>19.6</b>	<b>27.8</b>

\* There is a small population (3,249) of western grey kangaroos in the Narrabri management zone. This is included in the population estimate, but no quota is set for this species in this zone.

## Harvest quota management

To accommodate small holdings a reduction in the number of tags per licence is available for holdings under 100 hectares. This quota management measure is detailed below, as per Table 3.

**Table 3. Limits on number of tags available per occupier's licence for 2013**

<b>Species available by zone</b>	<b>Less than 40</b>	<b>40-99</b>	<b>100-499</b>	<b>500-4,999</b>	<b>5,000 or more</b>
<b>Zone</b>					
Southeast	10	20	50	100	100
Central Tablelands North	10	20	50	100	150
Central Tablelands South	10	20	50	100	150
Armidale	10	20	50	100	150
Glenn Innes	10	20	50	100	150
Upper Hunter	10	20	50	100	100
Narrabri	10	20	50	100	150
Coonabarabran	10	20	50	100	200
Griffith	10	20	50	100	200
Lower Darling	No formal restrictions but applications that appear unreasonable may be queried				
Cobar					
Tibooburra					
Broken Hill					
Bourke					

## Special Quota

A Special Quota endorsed by the Commonwealth Government in 2012 as part of the overall commercial quota and was potentially available to minimise the number of kangaroos shot under non-commercial licences.

The Special Quota is not a pseudo-commercial quota; its sole purpose is to provide for commercial utilisation of kangaroos that would otherwise be shot and left in the field under the normal non-commercial licensing system.

OEH may use the Special Quota only when the commercial quota for a particular kangaroo management zone has been fully issued. As specified in the New South Wales Commercial Kangaroo Harvest Management Plan 2012–2016, the use of a Special Quota will depend on one or more of the following:

- full utilisation of a commercial quota set at the usual proportion for that species in that zone
- consideration of local conditions, including drought declarations and/or Western Lands de-stocking orders
- kangaroo population trends (based on the most recent complete surveys)
- climatic conditions during the quota year.

However, non-commercial culling proceeds regardless of the available commercial quota and is typically less than 10% of the commercial harvest. An authorised OEH officer must assess each application for a non-commercial licence. In areas where commercial harvesting is available, non-commercial licences are generally requested only when:

- it is not economically viable to take kangaroos commercially
- the commercial kangaroo industry is unable to fulfil the landholders' needs
- management zone commercial quotas are fully utilised.

It is not necessarily intended to fully utilise the Special Quota, unless the criteria justify such action.

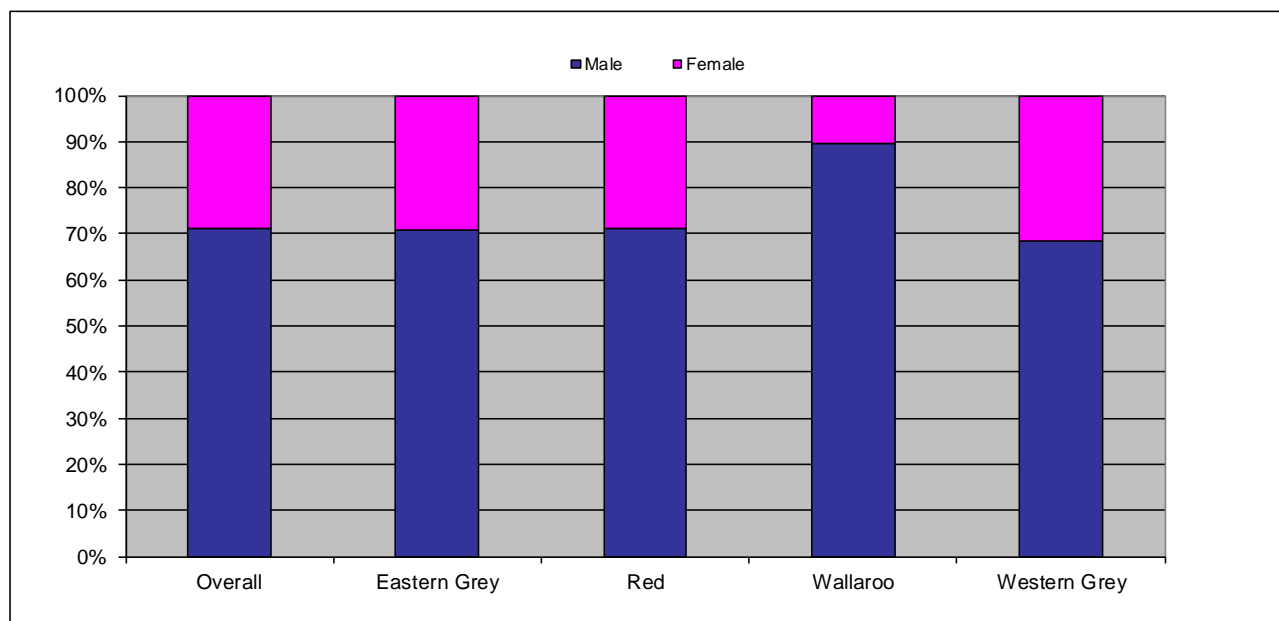
During 2013, no Special Quota was used. Although 95% of the quota was allocated for wallaroos in the Upper Hunter zone, but the circumstances did not warrant the release of a Special Quota. Actual harvest of these species fell just short of the tag allocations.



## Sex bias by species and zone

The commercial harvest is typically biased towards males, as they tend to be larger and heavier than females. For the period 1999 to 2012 inclusive, the total harvest consisted of between 68.3% and 89.6% males (Figure 1). Data gathered from harvester returns throughout 2013 indicate that 91% of the harvest overall was male; this is higher than the long-term average of 70.7%

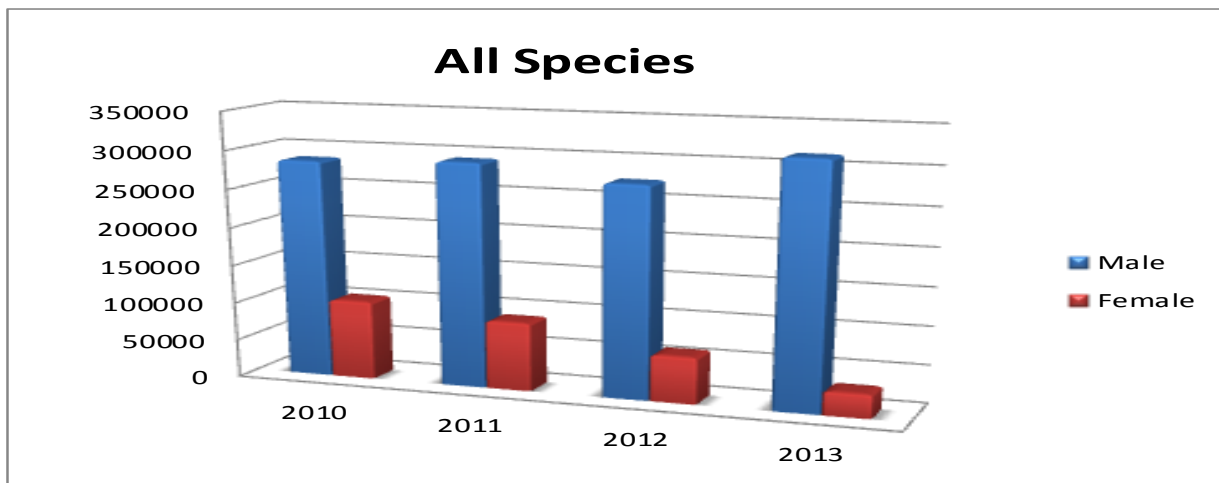
One processing company made the decision to accept only male carcasses from October 2012 onward in response to customer concerns regarding the fate of dependent young orphaned by the harvest. As a result, the proportion of males in the harvest increased during the final quarter of 2012 and has continued to increase through 2013.



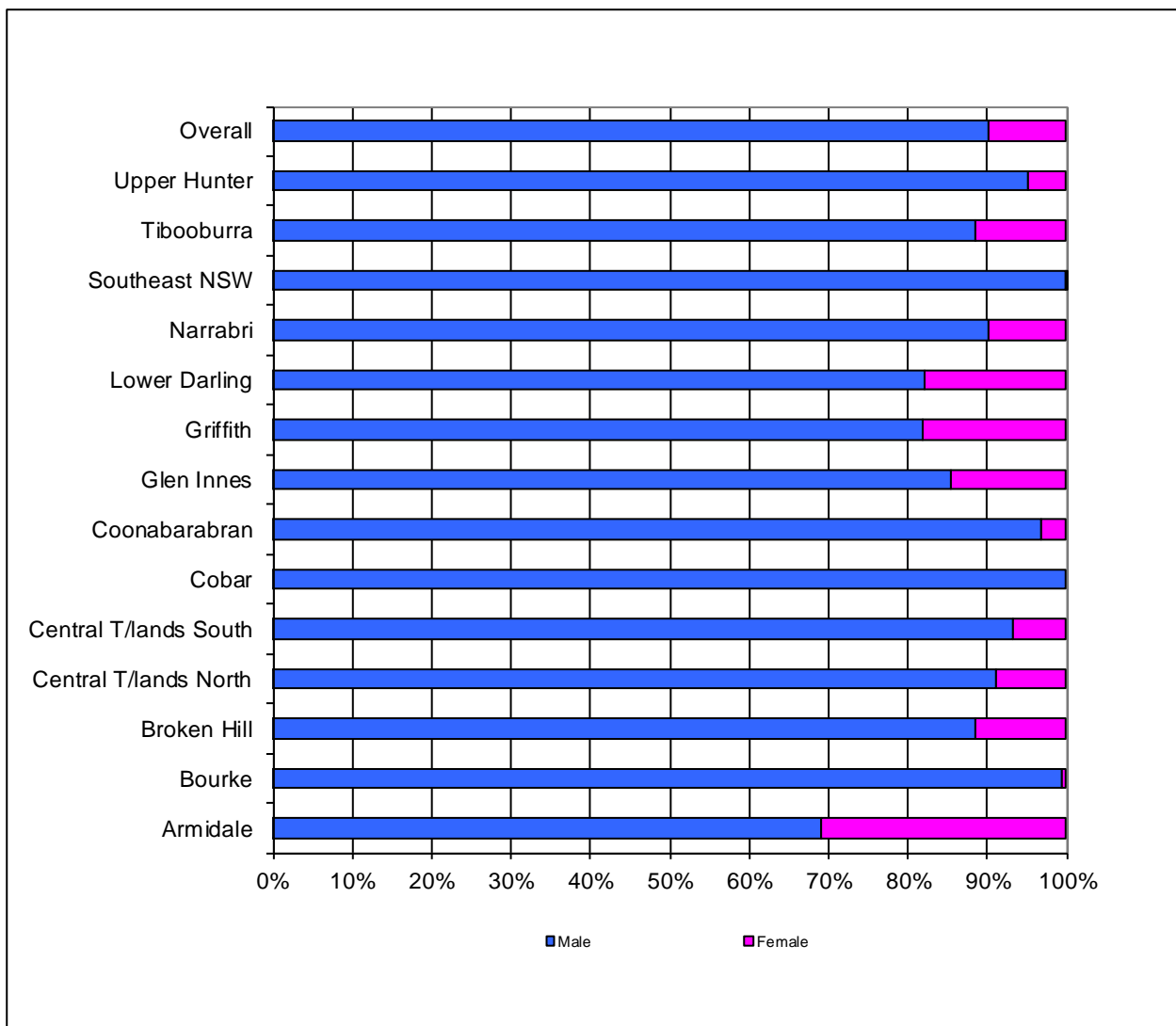
**Figure 1. Average sex bias in the commercial harvest, 1999–2012. Male bias is higher in the wallaroo than in other species because of the more pronounced size difference between males and females. Minimum carcass weights were introduced as licence conditions in September 2003, leading to a slight increase in male bias due to sexual dimorphism in all harvested species.**

More so than with the other harvested species (Figures 3, 4 and 6), for wallaroo (*Macropus robustus*) the commercial take (Figure 5) is very strongly biased towards males, because females rarely reach the minimum size dictated by the conditions attached to harvester and fauna dealer licences. This has particularly been the case since 2008, when minimum carcass weights were increased by 2 kilograms over the previous standards.

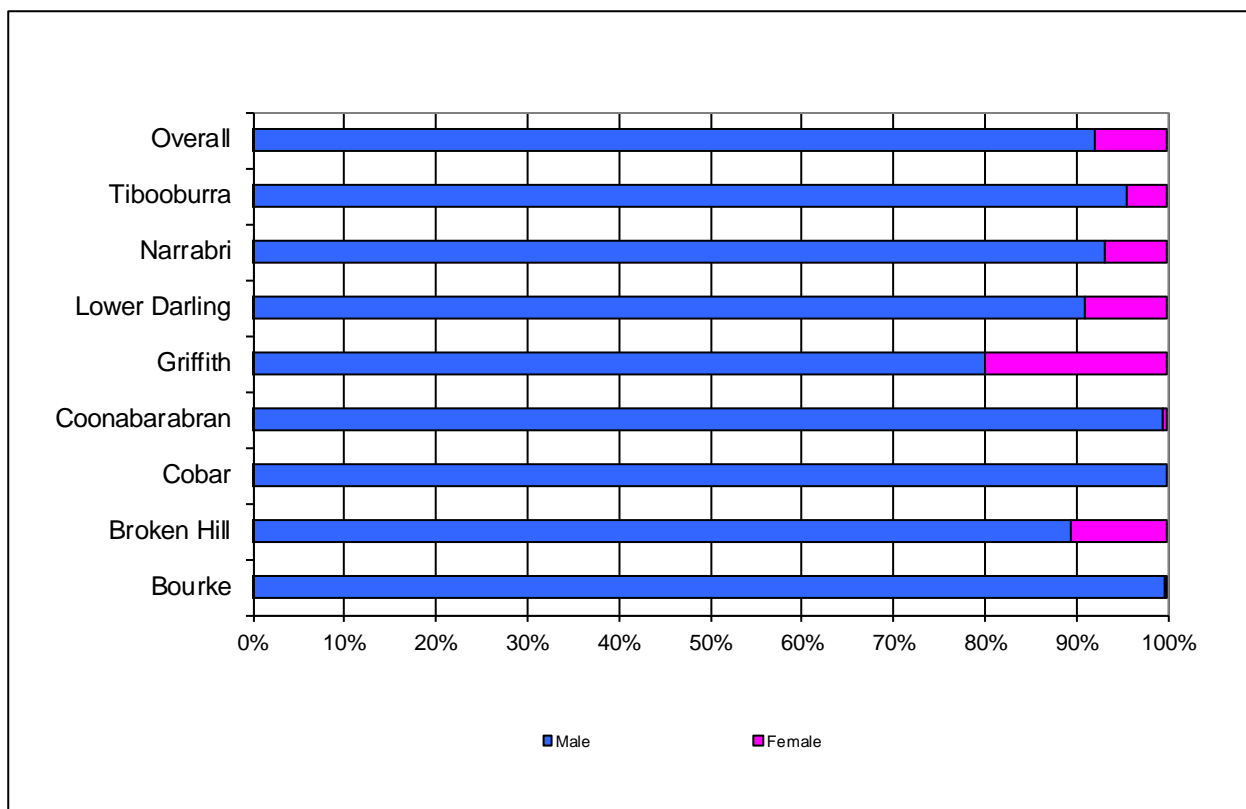
Despite the tendency of males to be larger, commercial harvesters target a range of sizes above the minimum. Figure 2 is included to illustrate how substantial the increase has been in male bias harvest over the past four years.



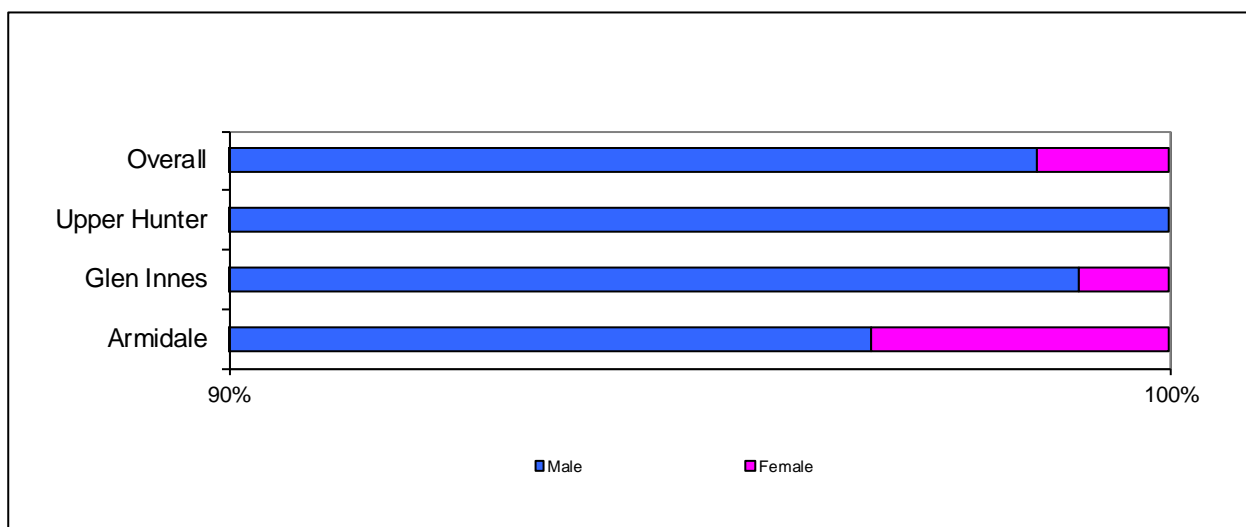
**Figure 2. Average sex bias in the commercial harvest, 2010-2013. This chart illustrates substantial male harvest trends over the past 4 years.**



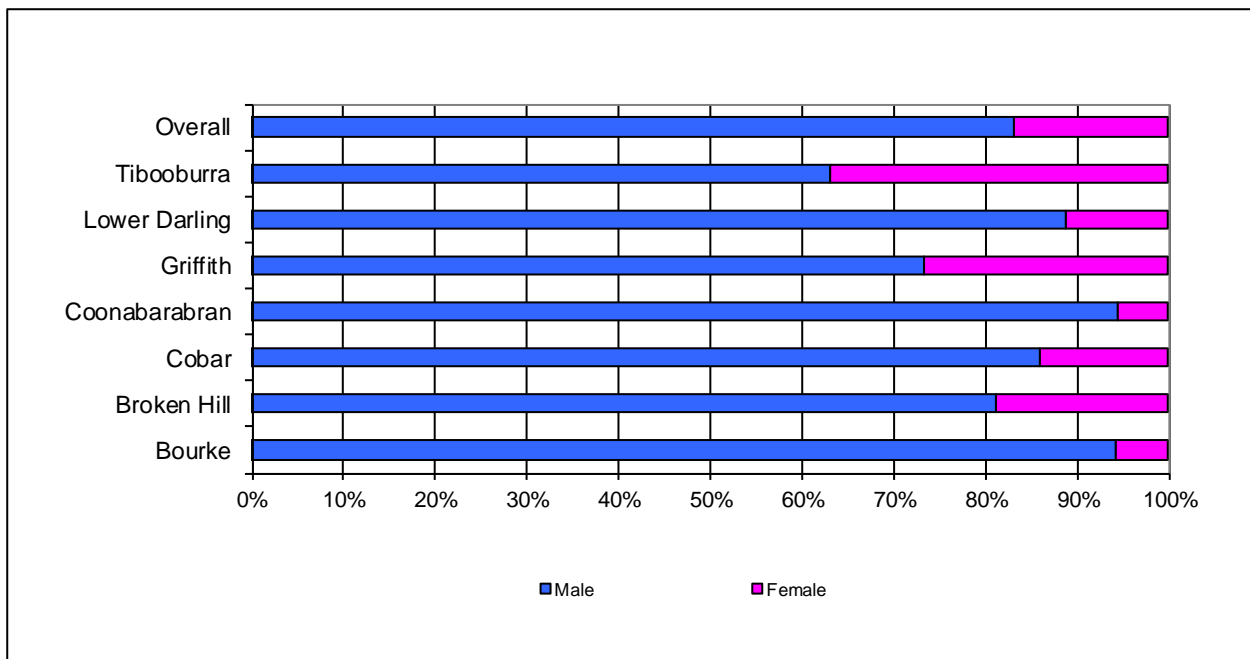
**Figure 3. Eastern grey kangaroo sex bias in the commercial harvest, 2013. No consideration is given in this chart to the total harvest of this species in each zone; for example, the Tibooburra harvest was about 650 animals, compared with over 38,000 for the Coonabarabran zone.**



**Figure 4. Red kangaroo sex bias in the commercial harvest, 2013. No consideration is given in this chart to the total harvest of this species in each zone; for example, the Cobar harvest was around 3,500 animals, compared with over 55,000 for the Broken Hill zone.**



**Figure 5. Wallaroo sex bias in the commercial harvest, 2013. The total harvest of wallaroos was around 4,300 animals—about 1.4% of the total harvest for 2013. Male bias is very strong, because female wallaroos rarely reach the minimum size for commercial harvest.**



**Figure 6. Western grey kangaroo sex bias in the commercial harvest, 2013. No consideration is given in this chart to the total harvest of this species in each zone; for example, the Coonabarabran harvest was about 435 animals, and the total harvest of this species across zones was only about 23,900.**

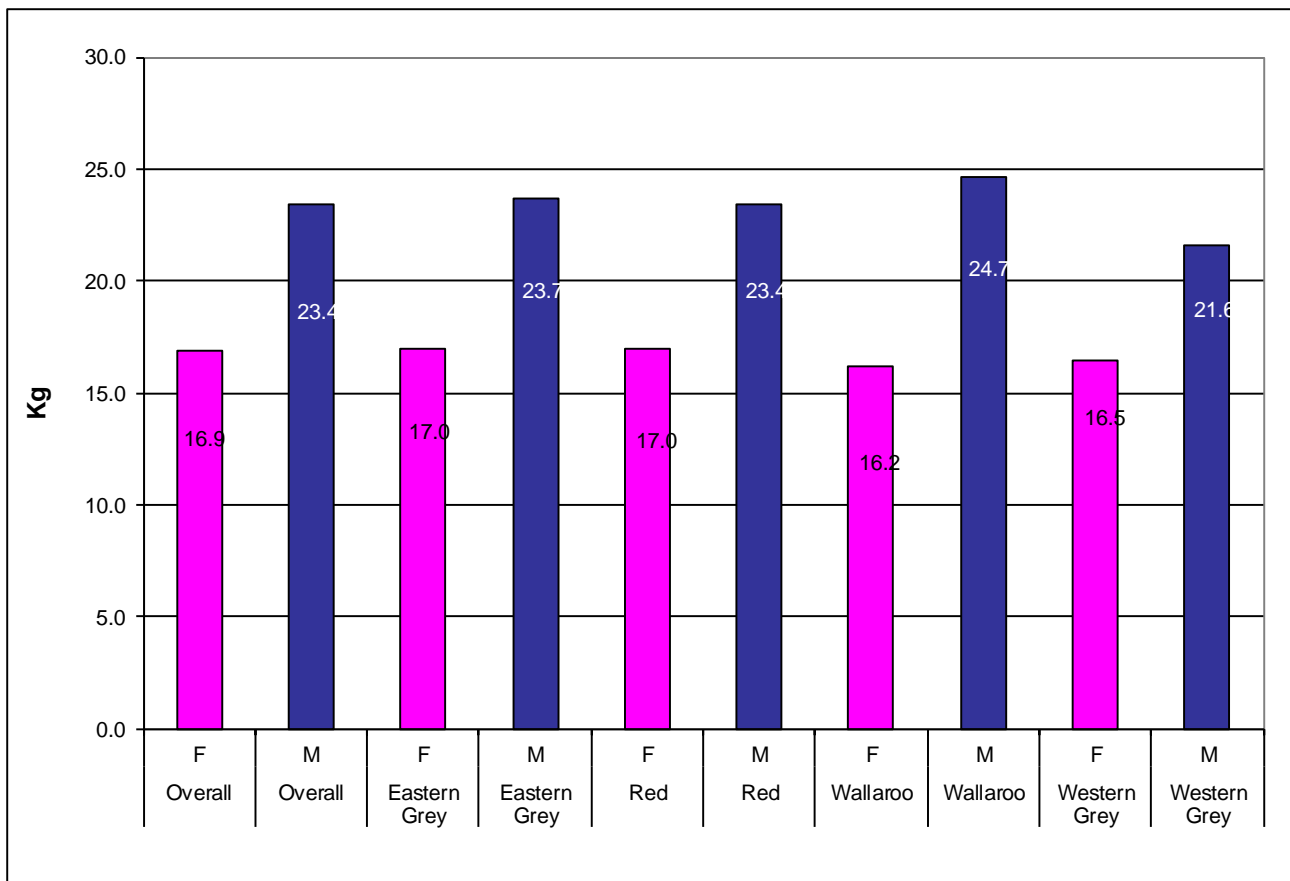
Compliance officers also record the sex bias of the harvest opportunistically, such as when a chiller inspection coincides with the carcasses being loaded onto trucks. Results of these opportunistic inspections during 2013 indicated a strong bias towards males.

## Average weights by species and zone

Conditions attached to commercial harvest licences during 2013 required that kangaroo carcasses delivered to chillers for sale were not to weigh less than 14 or 15 kilograms. (The two different values reflect differences in the way the carcasses are dressed.) Before 1 January 2008, the minimum carcass weights were 12 and 13 kilograms, respectively. Above these minimum weights, a wide range of weights is targeted.

The long-term average carcass weights by sex and species (across all zones) are shown in Figure 6. Data collected from harvester returns during 2013 indicate that average carcass weight across all species was 29.2 kilograms for males and 18.8 kilograms for females; 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.

OEHL does not require licensees to record individual carcass weights. Instead, harvester returns provide total weights for each category of carcasses (e.g. mean weight of female eastern grey kangaroos = total weight of females / number of females). These totals are used to calculate the average weights of carcasses by sex, species and zone (Figures 8–15).



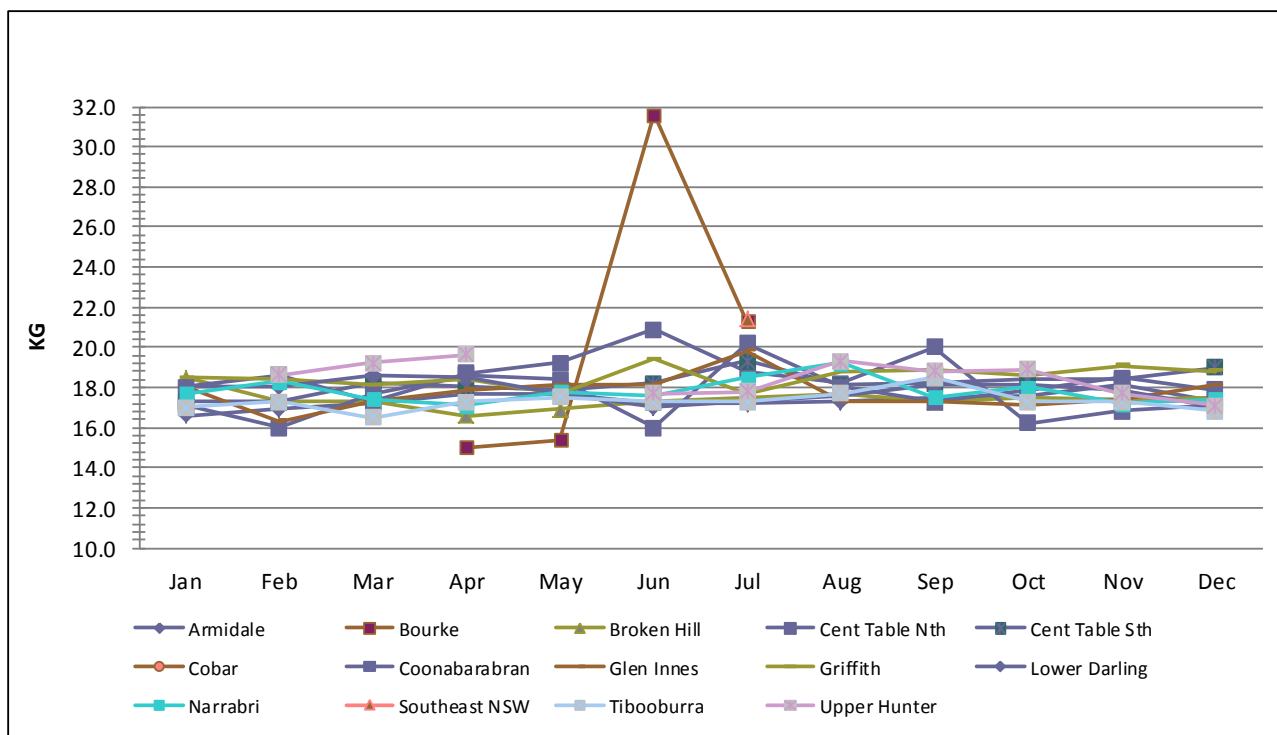
**Figure 7. Average weights of carcasses in the commercial harvest, 1999– 2012. Minimum carcass weights were introduced as licence conditions in September 2003. They increased by 2 kilograms from 1 January 2008, leading to a slight increase in the long-term average.**

Average carcass weights were calculated monthly and compared with the long-term average (1999–2012) for each sex, species and zone, as required by Performance Indicator 13.1 of the plan. None of the 2013 monthly results was more than one standard deviation below the long-term average. Standard deviations ranged from .53 kilograms for eastern grey females in the Griffith zone to 7.57 kilograms for red males in the Narrabri zone, reflecting the degree of variation in the size of animals taken and the relative sample sizes.

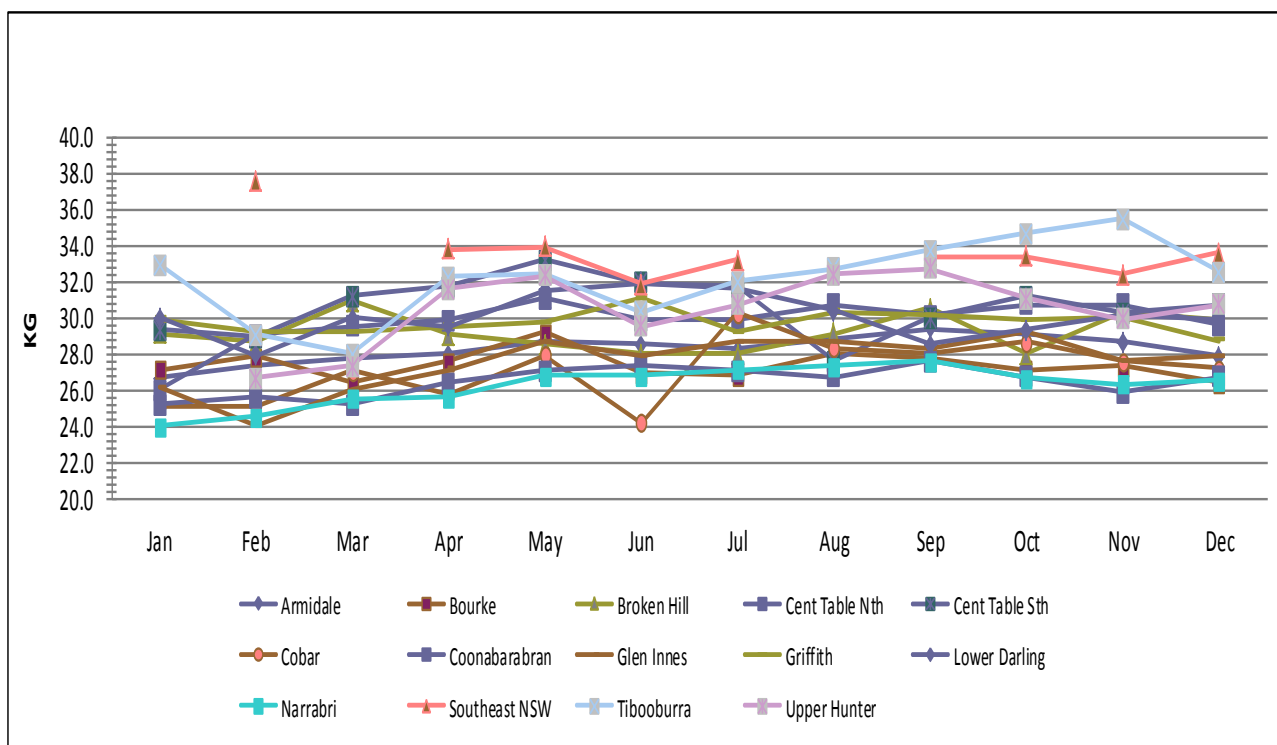
For most combinations of species, sex and zone, average carcass weights were reasonably consistent from month to month. However, in the following charts, no consideration is given to the differences in sample sizes between sexes, species and zones; for example, the total harvest of female wallaroos during 2013 was just 62 individuals, whereas the harvest of male red kangaroos was about 140,000.

Where large fluctuations occur, the sample size is usually very small and statistical reliability is low. This variation is a result of statistical processes and is not a reflection of changes in the kangaroo population. Weights do not vary significantly where larger samples are available (e.g. in the case of male eastern grey kangaroos in the Coonabarabran zone).

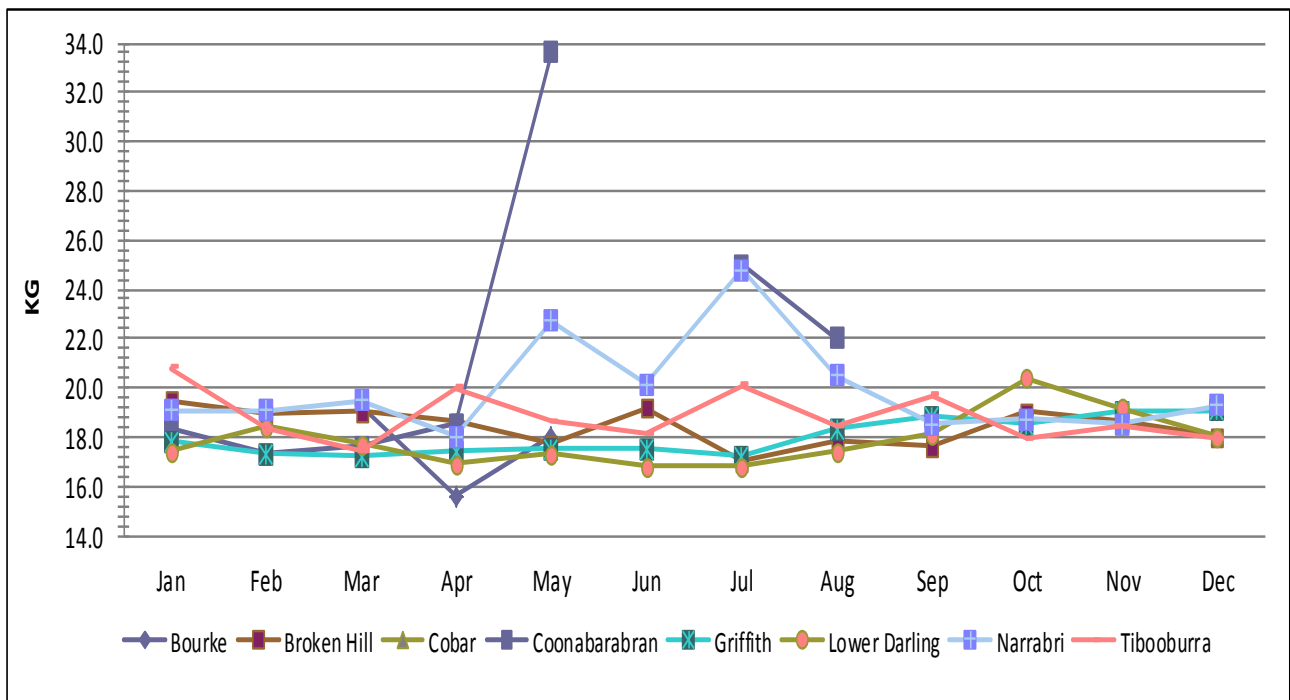
In the charts that follow, there are a number of months in which no animals of a given sex or species were shot in a particular zone; this results in discontinuous lines in the charts. For example, in Figure 7 there were no female eastern grey kangaroos shot in the Upper Hunter zone in January or May.



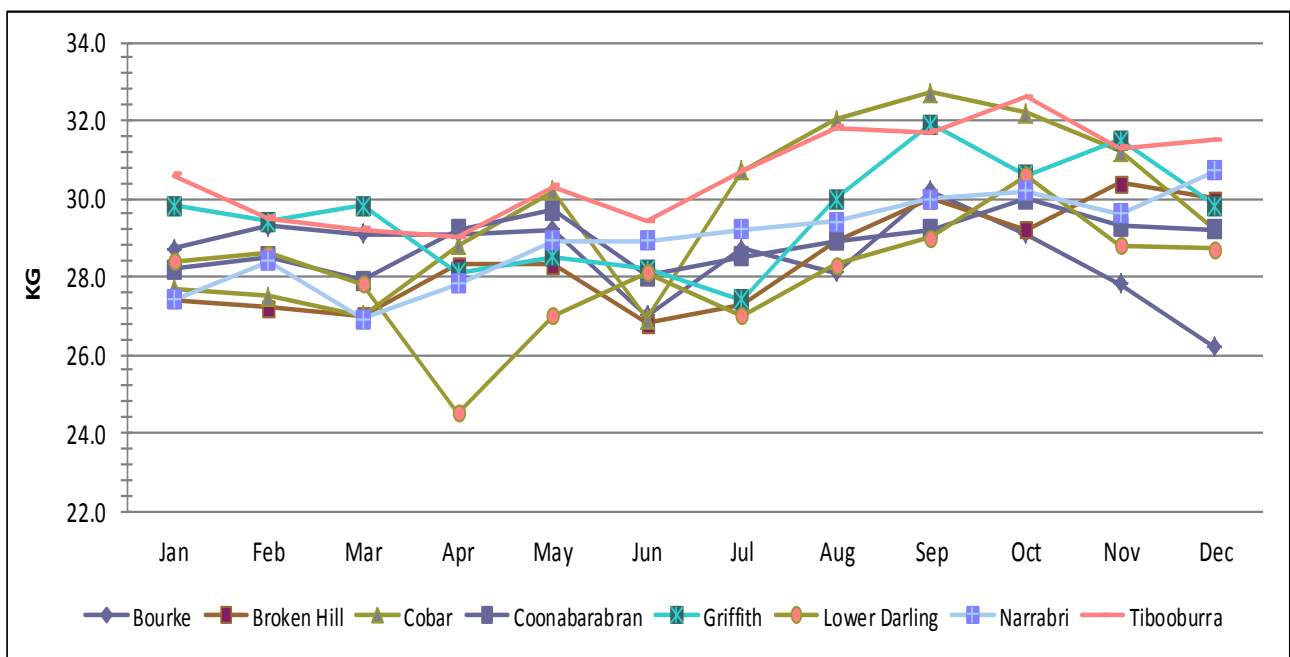
**Figure 8. Eastern grey kangaroo female average carcass weights in the commercial harvest, 2013**  
 Minimum carcass weights were introduced as licence conditions in September 2003 and increased by 2 kilograms from 1 January 2008. Current carcass weights are therefore generally higher than the long-term averages. Large fluctuations are usually associated with small numbers of animals; the high average for Bourke in June relates to just 9 carcasses, and the sharp decline for Central Tablelands North Zone in October relates to just 75 carcasses.



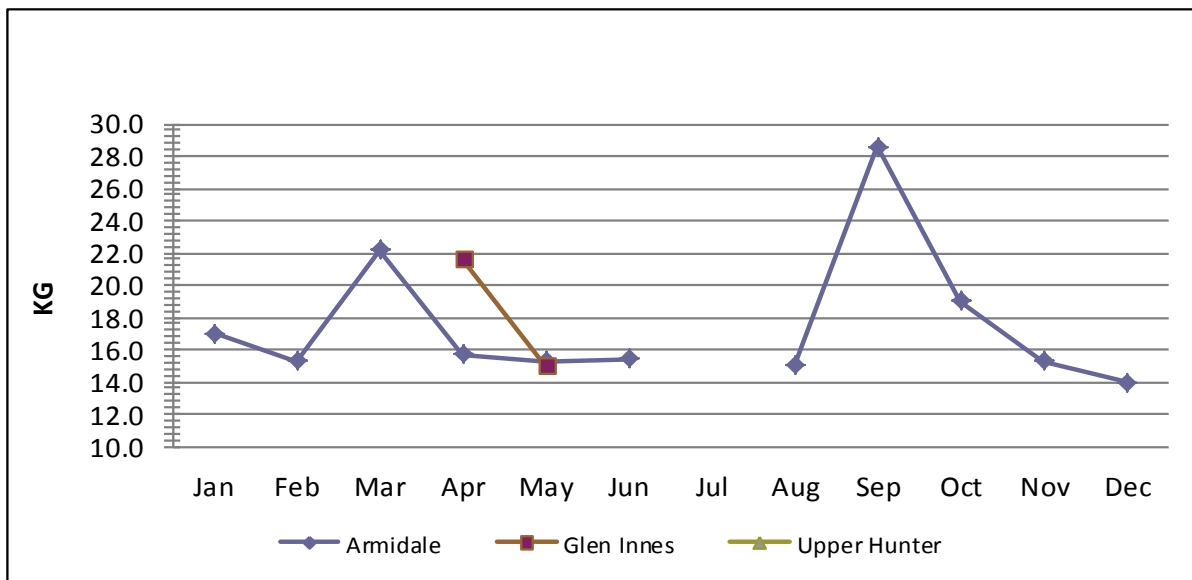
**Figure 9. Eastern grey kangaroo male average carcass weights in the commercial harvest, 2013**  
 Minimum carcass weights were introduced as licence conditions in September 2003 and increased by 2 kilograms from 1 January 2008. Current carcass weights are therefore generally higher than the long-term averages. The sharp decline in average weight in the Cobar Zone for June relates to a harvest of only 99 animals that month.



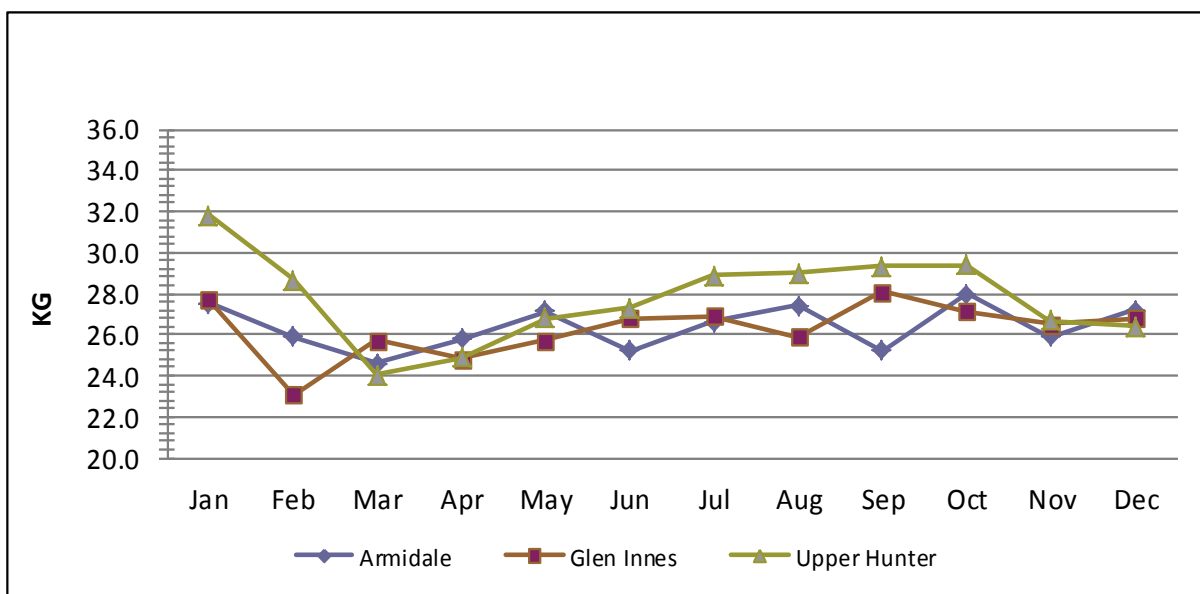
**Figure 10. Red kangaroo female average carcass weights in the commercial harvest, 2013** Minimum carcass weights were introduced as licence conditions in September 2003 and increased by 2 kilograms from 1 January 2008. Current carcass weights are therefore generally higher than the long-term averages. The large variation in carcass weights for red females reflects the relatively small harvest compared with the number of males (about 12,000 compared with over 140,000).



**Figure 11. Red kangaroo male average carcass weights in the commercial harvest, 2013** Minimum carcass weights were introduced as licence conditions in September 2003 and increased by 2 kilograms from 1 January 2008. Current carcass weights are therefore generally higher than the long-term averages.

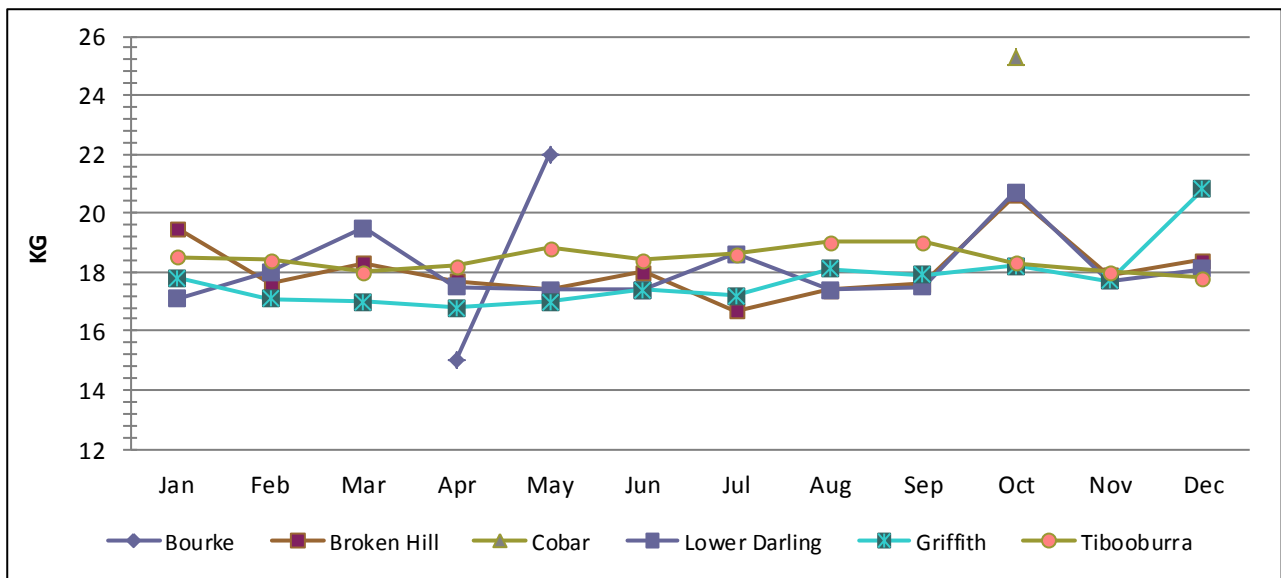


**Figure 12. Wallaroo female average carcass weights in the commercial harvest, 2013** Minimum carcass weights were introduced as licence conditions in September 2003 and increased by 2 kilograms from 1 January 2008. Current carcass weights are therefore generally higher than the long-term averages. The apparent fluctuation is the result of extremely small sample sizes: the total harvest for wallaroo females was 62.

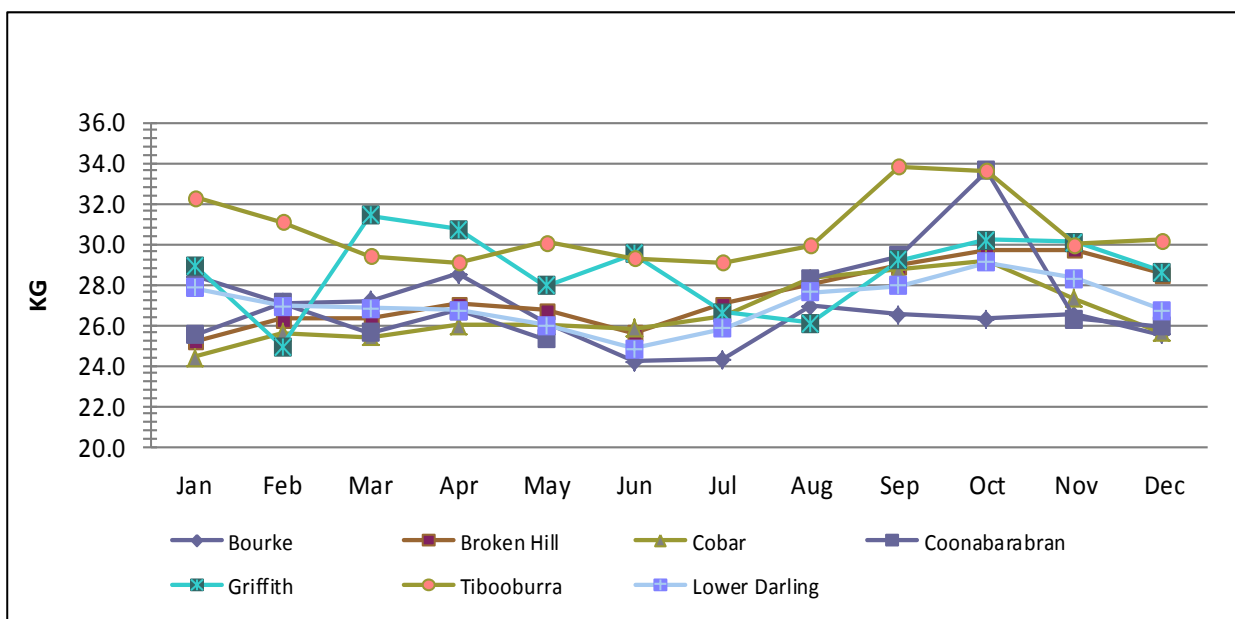


**Figure 13. Wallaroo male average carcass weights in the commercial harvest, 2013** Minimum carcass weights were introduced as licence conditions in September 2003 and increased by 2 kilograms from 1 January 2008. Current carcass weights are therefore generally higher than the long-term averages.





**Figure 14. Western grey kangaroo female average carcass weights in the commercial harvest, 2013** Minimum carcass weights were introduced as licence conditions in September 2003 and increased by 2 kilograms from 1 January 2008. Current carcass weights are therefore generally higher than the long-term averages. The total take of female western grey kangaroos in 2013 was about 2,386 animals.



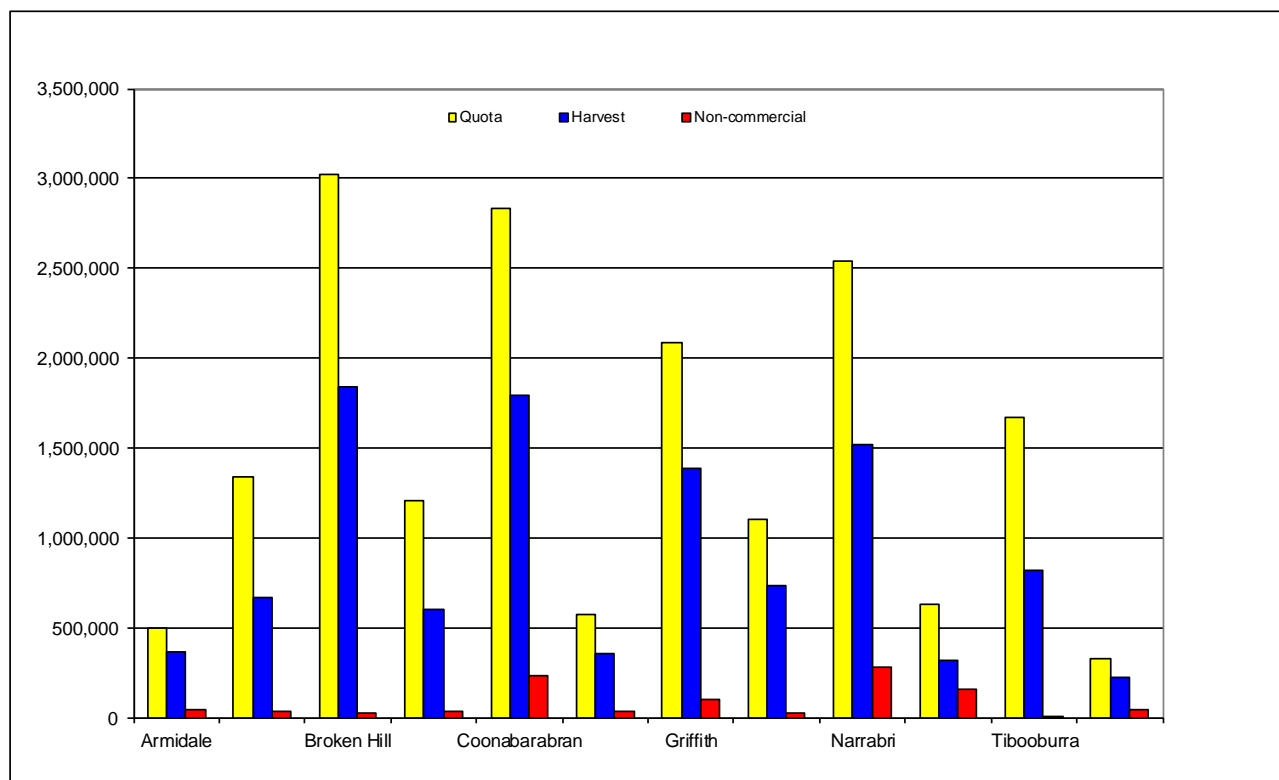
**Figure 15. Western grey kangaroo male average carcass weights in the commercial harvest, 2013** Minimum carcass weights were introduced as licence conditions in September 2003 and increased by 2 kilograms from 1 January 2008. Current carcass weights are therefore generally higher than the long-term averages. The apparent fluctuation in carcass weights for the Coonabarabran Zone is the result of a small sample size, with a total take in 2013 of only about 400 animals.

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

## Non-commercial culling within the commercial harvest zones

Some non-commercial culling always occurs within the commercial zones. Typically, the non-commercial cull represents much less than 10% of the commercial harvest (Figure 16). The Southeast NSW commercial zone has been included in the long-term totals, but the commercial harvest in that zone did not start until 2004. The Central Tablelands North and Central Tablelands South zones have not been included, as these zones did not start operation until 1 June 2009.

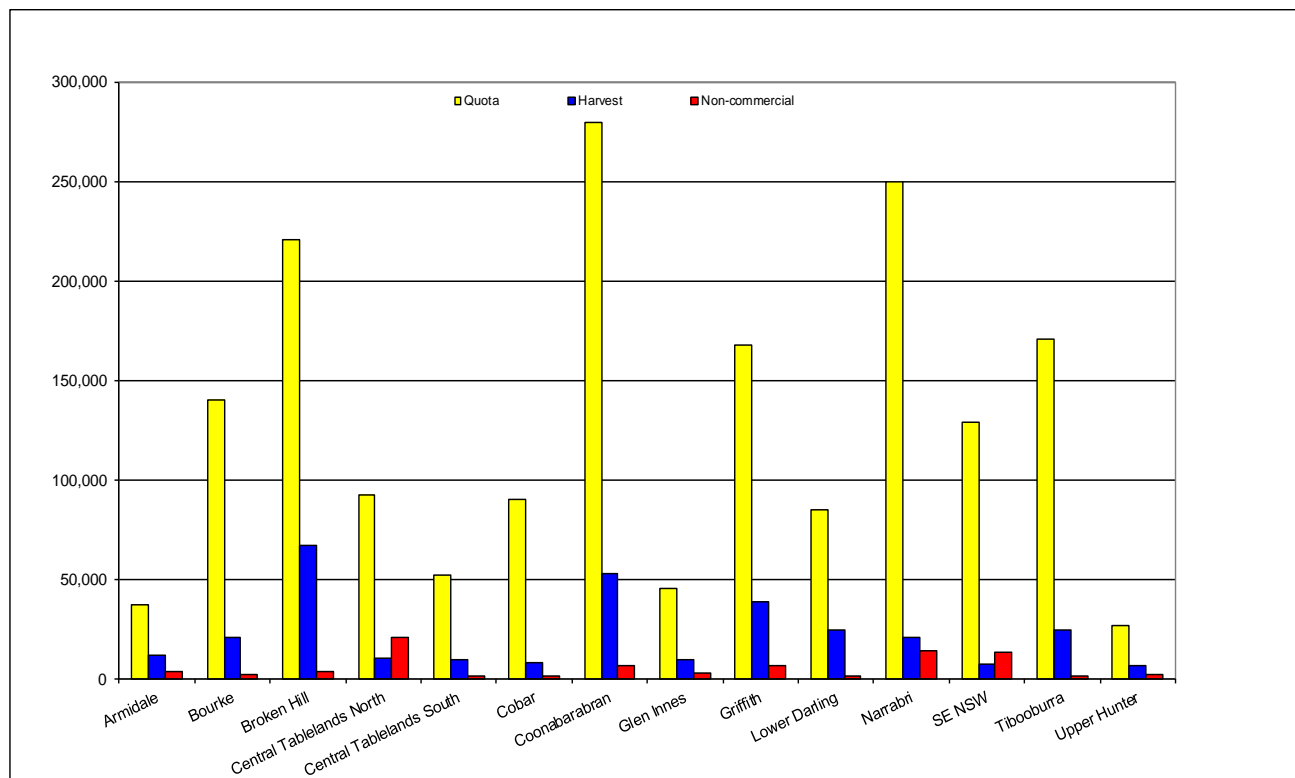
The Coonabarabran and Narrabri zones comprise the majority of winter cropping lands within the commercial harvest areas. As most non-commercial culling is associated with the protection of young winter crops, it is not surprising that these zones also show the highest non-commercial culls relative to the commercial quotas and harvests. In rangelands pastoral areas, non-commercial licences are rarely requested; for example, over the period 1999–2012 the non-commercial licences issued for the Lower Darling Zone were equivalent to 1.0% of the commercial quota available over that period.



**Figure 16. Comparison of commercial quotas, actual commercial harvests and non-commercial culls for the period 1999–2012** Non-commercial licences are available state wide and can be issued for properties where commercial harvesting is also done. However, the non-commercial cull is typically equivalent to less than 10% of the commercial take and is highest in those areas where high-value pastures and winter crops are important. Southeast NSW zone commenced operation in 2004; data shown for this zone are therefore limited to 2004–2012

In 2013 non-commercial licences were issued for the culling of 77,630 kangaroos, equivalent to 22.4% of the commercial harvest, or 4.4% of the commercial quota (Figure 17). The commercial industry continued to operate at a reduced scale during 2013; because kangaroo populations respond to favourable seasonal conditions, landholders in some areas perceived a need for population control that could not be met through the commercial industry. Consequently, OEH saw a slight increase in inquiries regarding non-commercial licences. However the level of non-commercial culling done remains low relative to the commercial harvest, except in the new

Tablelands zones, where commercial harvesting has been available only since 2009. Experience with the Southeast NSW commercial harvest zone, which opened in 2004, indicates that it takes several years for landholders to become fully aware of commercial harvest options and become comfortable participating in the harvest program. During this time there is still substantial reliance on non-commercial culling for kangaroo management.



**Figure 17. Comparison of commercial quotas, actual commercial harvests and non-commercial culls in 2013** Despite the relatively low commercial harvest, there was no substantial increase in non-commercial culling in 2013. Non-commercial culling remains relatively high in the Central Tablelands North which were opened to commercial harvesting in 2009. South East NSW and Narrabri harvest zones also have shown an increase in the non-commercial cull.

## Monitoring compliance in the commercial harvest zones

### Compliance audits

During 2013 there were 338 licensed commercial harvesters nominated on a total of 3,152 commercial occupiers' licences throughout the commercial harvest zone.

Compliance audits of licensees are performed continuously by KMP staff. Checks are 'built in' to the KMS database, and the KMP compliance officers based in Dubbo and Broken Hill conduct field investigations and compliance checks. Licensing staff contributed to compliance activities by scrutinising applications, compiling reports and investigating suspect activities and irregularities. Other OEH staff located in regional areas contribute via *ad hoc* inspection of chiller premises.

In addition to these activities, compliance staff investigate reports of illegal shooting activities to the fullest extent possible. During 2013 numerous reports of illegal shooting 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 in fact licensed.

Surveillance activities were conducted on two occasions; insufficient evidence was available to take punitive action, but these investigations are ongoing. These activities were a joint compliance operation involving Police and OEH Special Investigations Unit.

Reports involving matters related to food safety were referred to the NSW Food Authority in accordance with the Memorandum of Understanding between OEH and the Food Authority.

Activities involving non-commercial shooting were referred to the relevant National Parks and Wildlife office.

Information to help enforce the relevant sections of the NSW *National Parks and Wildlife Act 1974* is shared with NSW Police, the NSW Food Authority, the Australian Quarantine and Inspection Service and interstate fauna protection agencies as required, within the boundaries of NSW privacy legislation.

### **Inspection of premises**

On average, KMP compliance officers and/or NSW Food Authority compliance staff inspect about 130 chillers in kangaroo management zones about four times each year. Chillers are inspected for:

- non-head-shot kangaroos
- valid tags
- correctly affixed tags
- untagged kangaroos
- display of premises registration number and licence number for either pet food or human consumption (NSW Food Authority)
- presence of other animal carcasses.

Harvesters' vehicles are checked opportunistically for:

- appropriate registration through the NSW Food Authority (for either human consumption or pet food)
- correct setup and fitout (in accordance with a NSW Food Authority memorandum of understanding)
- untagged carcasses.

Harvesters are also checked to ensure that they are carrying a Commercial Kangaroo Harvester's Licence licence under s.123 of the *National Parks and Wildlife Act 1974*.

Where possible, chiller inspection trips include early morning visits to coincide with deliveries of kangaroos shot the previous night. On these occasions, vehicles are checked as above.

During 2013, there were 79 chiller premises registered by fauna dealer wholesalers and a further four registered by harvesters for their own use. In total, 234 inspections were conducted. Of these registered premises, all but three were registered for the full year. A large number of chiller premises were not operational for significant periods during the year as a result of market factors; if premises are known to be closed, no inspections are conducted.

However, 25 of 83 chiller premises (about 30%) were inspected four times or more during 2013.

In addition to routine chiller inspections, OEH officers investigated instances of non-head-shot kangaroo carcasses originating in NSW and reported from processing works in South Australia and Queensland. These investigations resulted in two penalty notices being issued (see next section).

### **Penalty infringement notices**

Issuing of verbal cautions, written warnings or infringement notices is at the discretion of the KMP compliance officer, in accordance with the KMP's compliance policy and in consultation with the Manager KMP. Decisions on possible prosecutions involve consultation with the Manager KMP and OEH Legal Services Branch.

During 2013 a total of 42 infringement notices were issued, one for the offence of harming protected fauna and 41 for the offence of contravening conditions of licence, as follows:

- non-head-shot (5)
- fail to return unused tags (3)

- exceed number authorised (1)
- untagged carcasses (3)
- fail to submit returns (harvester) (21)
- tag substitution (1)
- shoot outside licence period (0)
- Harvest incorrect species (1)
- Provide false information (4 )
- Use unregistered chiller (1)

OEH officers did not seize any carcasses as a result of licence conditions being breached. Generally, if carcasses are seized and they meet the commercial licensing requirements are sold by OEH to avoid wastage. Carcasses that do not meet the licence requirements (i.e. that are underweight or body-shot) are not sold.

In addition to the infringement notices, 8 written cautions were issued for various minor breaches of licence conditions. Although these cautions do not attract penalties, any issued to a licensee are recorded and taken into account in any future compliance considerations.

### Licence cancellations

OEH did not cancel any licences or registrations during 2013.

### Prosecutions

OEH completed one prosecution during 2013. There are other investigations that are continuing and prosecution action may result for offences committed in 2013. (Table 4).

**Table 4. Summary of compliance breaches and actions in 2013**

Offence	Action	Result
Contravene conditions of licence (s. 133(4) of the NPW Act)	8 cautions 41 penalty notices	No penalty Penalties at \$300 each
Harm protected fauna (s. 98(2) of the NPW Act)	1 penalty notices	Penalties at \$300 each

NPW Act: *National Parks and Wildlife Act 1974*

### Other factors affecting the commercial harvest in 2013

There was quotas set at 10% of the population estimates of western grey kangaroos in the Broken Hill management zone and for wallaroos in the Upper Hunter management zone.

The Russian Federation has allowed limited import of kangaroo meat throughout 2012 and 2013, limiting the industry's capacity to utilise the full commercial quota. As a result of poor market prospects, many chiller premises were closed down for various periods throughout the year or placed limits on the number of carcasses accepted each week so as to manage supply to processing plants.

In October 2012, one processor made the decision to accept only male carcasses in response to customer concerns about the fate of dependent young orphaned by the harvest. This decision has remained in place throughout 2013 and as result, some harvesters are shooting fewer animals.

The combination of these impacts resulted in only 19% of the available quota being utilised (about 3% of the estimated population).

## **Research involvement in 2013**

The KMP did not initiate any new research proposals in 2013. In 2009, the KMP pledged in-kind support to help in a collaborative project looking at humane methods of euthanizing orphaned pouch young. The project aims to provide scientific knowledge and other information on the animal welfare impact of kangaroo harvesting methods. It aims to determine the most appropriate methods of euthanasing young kangaroos in ways that reduce, as far as possible, unnecessary pain, distress and suffering. The KMP provided administrative help for components of the project throughout 2012 and 2013. The final report is due for release early in 2014.

## Appendix A: Progress against performance indicators in 2013

Action	Performance indicator	Progress in 2013
1.0 All relevant activities are licensed in accordance with the applicable NSW legislation and OEH policy	PI 1.1 – All licences across NSW are assessed, processed and issued in accordance with NSW legislation and OEH policy.	Done. Centralising licensing has resulted in consistent adherence to policy requirements.
2.0 Licence conditions are effective and reflect current NSW legislation, OEH policy and the goal and aims of the plan.	PI 2.1 – Licence conditions are reviewed at least annually and where necessary amended.	Licence conditions have been reviewed; no amendments were necessary.
	PI 2.2 – Licensees are advised in writing of changes to licence conditions within one month of such changes being approved by the Manager, KMP.	Not required.
3.0 OEH will work with the NSW Firearms Safety and Training Council Ltd to ensure that all trappers are competent to achieve the standards set out in the National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes.	PI 3.1 – All successful applicants for harvesters' licences have completed the approved accreditation and their accreditation is current.	Validation processes built into the licensing database prevent a harvester's licence being created and saved unless a valid accreditation number is entered. Applicants must provide a certified photocopy of their accreditation card with their application for a harvester's licence.
	PI 3.2 – During the life of this plan, the content of the accreditation course will be reviewed and revised if necessary.	Not yet commenced.
4.0 OEH staff will monitor compliance with the National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Commercial Purposes by commercial kangaroo industry operators.	PI 4.1 – All licensees who are found to have breached licence conditions relating to animal welfare are issued with Penalty Infringement Notices or are prosecuted as appropriate.	Five penalty notices were issued for breach of licence conditions relating to animal welfare. Several other reports of non-head-shot carcasses were investigated, but there was insufficient evidence to take penalty action.
	PI 4.2 – During the life of this plan, a selection of harvesters will be audited to determine the level of compliance with the Code of Practice in the field.	Two audits were completed in January 2013. Both harvesters complied with the Code of Practice in the field.
5.0 OEH will facilitate research into improving animal welfare outcomes associated with the commercial harvest of kangaroos.	PI 5.1 – Issues associated with the animal welfare aspects of the commercial harvest are identified and research proposals are sought from universities and other research institutions during the life of this plan.	Research priorities identified. OEH provided in-kind resources to a collaborative research project led by the NSW Department of Primary Industries. Project began in November 2010 and will be finalised early in 2014.

Action	Performance indicator	Progress in 2013
6.0 OEH staff will undertake both regular and opportunistic monitoring of compliance by commercial kangaroo industry operators.	PI 6.1 – On receipt of harvesters' licence applications, the authorised OEH officer assessing the applications will ensure that applicants have both a valid and current NSW Firearms accreditation and a valid Firearms Licence.	Done. Validation rules built into licensing database prevent the issuing of a harvester's licence without this information.
	PI 6.2 – All chiller premises are inspected on average every three months during the life of this plan by OEH staff and/or staff of the NSW Food Authority to ensure compliance with NSW legislation and licence conditions. Where a chiller premises has not been registered for the full calendar year, inspections will be required on a pro rata basis. Chiller premises that are registered but known to be non-operational may not require regular inspection.	Done. Some chillers were not inspected four times because they were not being used. The Broken Hill compliance officer position was removed November 2013 and resulted in less chillers being inspected. Others were inspected more frequently than required. Also See 'Inspection of premises' on page 20 of this report.
	PI 6.3 – All kangaroo-processing works in NSW are inspected every three months on average during the life of this plan by OEH staff and/or staff of the NSW Food Authority to ensure compliance with NSW legislation and licence conditions.	Done in conjunction with chiller inspections. Skin premises located in Sydney were inspected separately.
	PI 6.4 – During the life of this plan, harvesters' vehicles loaded with kangaroo carcasses are inspected opportunistically to ensure compliance with NSW legislation and licence conditions, and the results of these inspections are documented.	Vehicles inspected during routine chiller inspections and joint compliance operations. See 'Inspection of premises' on page 16 of this report.
7.0 Activities not in accordance with the plan and the NSW legislation will be investigated and, where an offence has been committed and it is appropriate, prosecuted.	PI 7.1 – Reports of unlicensed activities and activities in breach of licence conditions are investigated to the fullest extent possible, and where sufficient evidence is available offenders are issued with Penalty Infringement Notices or prosecuted as appropriate.	Allegations and investigations register maintained and updated. All information was investigated to the fullest extent possible. See 'Compliance audits' on page 15 of this report.
8.0 The accuracy of industry returns will be continually monitored during the life of this plan.	PI 8.1 – During the life of this plan, all incoming industry returns are scrutinised and discrepancies are investigated and resolved.	Ongoing. Validation rules built into licensing database help in detecting errors. Administrative staff contact licensees to resolve discrepancies. See 'Penalty infringement notices' and 'Licence cancellations' on page 17 of this report.



Action	Performance indicator	Progress in 2013
9.0 A compliance database will be maintained to support investigations, inspections and audits.	PI 9.1 – A compliance database is maintained.	Ongoing. Enforcement actions are recorded in a database and also noted in the licensing database.
10.0 Population surveys will be conducted annually for the Western Plains and three-yearly for tableland zones and other areas that require helicopter surveys.	PI 10.1 – Kangaroo population estimates are obtained by using standard survey methodology throughout the life of this plan.	Done. Aerial surveys of Western Plains were conducted in June–July–August and population estimates were made available on the KMP web page in September. Helicopter survey of Northern Tablelands management zones completed in September.
	PI 10.2 – Ground surveys are conducted as required to verify the ratio of eastern grey kangaroos to western grey kangaroos in areas where both species occur.	Not required in 2013.
11.0 Commercial kangaroo harvest quotas will be set in accordance with the provisions of the plan.	PI 11.1 – All commercial kangaroo harvest quotas are set in accordance with the provisions of the plan.	Done. Quotas for 2013 were calculated from 2012 population estimates at 15% for eastern and western grey kangaroos and wallaroos and 17% for red kangaroos, except where low population thresholds were reached.
	PI 11.2 – The Commonwealth Government is advised of commercial harvest quotas for the following calendar year by 30 November.	Done; 2014 Quota report submitted before 30 November.
	PI 11.3 – If Commonwealth approval is required for quotas set above the rates specified in the plan as part of an adaptive management experiment, such approval is obtained before the additional quota is implemented.	Not required in 2013.
	PI 11.4 – The Quota Report is made available to the public via the KMP web page.	Done.
12.0 If kangaroo populations decline to specific trigger points, the commercial harvest of particular species in particular zones will be reduced or suspended.	PI 12.1 – Commercial harvest quotas are reduced if population estimates fall below 1.5 standard deviations from the long-term average density, or suspended if population estimates fall below two standard deviations from the long-term average.	Done; For 2013 quotas were set at 10% of the population estimate western grey kangaroos in Broken Hill management zone and for wallaroos in the Upper Hunter management zone.
13.0 Special kangaroo harvest quotas will be set in accordance with the provisions of the plan.	PI 13.1 – Special kangaroo harvest quotas are set and utilised in accordance with the provisions of the plan.	Done. Special quotas were calculated at 1.5% of the population estimate as per the Commonwealth's approval of the plan.

Action	Performance indicator	Progress in 2013
14.0 Kangaroo populations will continually be monitored indirectly throughout the life of this plan.	PI 14.1 – Sudden, sustained or acute changes in the average weights of harvested kangaroos, as ascertained from licence returns, are investigated to determine where practicable the cause of the change.	Done monthly as per the amended plan. No significant changes detected.
	PI 14.2 – Average carcase weights for each species will be analysed each month; if the average falls below the long-term average by more than one standard deviation for three successive months, OEH will investigate (and may reduce or suspend) the commercial harvest for that species in that zone.	Done monthly as per the plan. No significant changes were detected.
15.0 Historical data relating to the commercial kangaroo harvest in NSW will be analysed during the life of this plan to identify trends; this analysis will be considered in future kangaroo management programs.	PI 15.1 – Analysis of historical kangaroo harvest and management data is undertaken during the life of this plan.	Ongoing. Paper in preparation.
	PI 15.2 – The results of analysis and research using historical kangaroo harvest and management data are published in an appropriate forum.	Not applicable in 2013.
16.0 Where practicable, experiments will be performed to test deliberate management interventions during the life of this plan.	PI 16.1 – All proposals to undertake active adaptive management experiments are reviewed and assessed by OEH in accordance with the criteria outlined in this plan.	None in 2013.
	PI 16.2 – All necessary approvals (including animal care and ethics) are obtained before experiments testing deliberate management interventions commence.	No approvals necessary.
	PI 16.3 – All adaptive management experiments are continuously monitored and conducted according to approval conditions.	Not applicable in 2013.
	PI 16.4 – Results of all experiments testing deliberate management interventions are published in an appropriate forum.	Not applicable in 2013.

Action	Performance indicator	Progress in 2013
17.0 OEH will facilitate research into the ecology and harvest management of kangaroos.	PI 17.1 – Issues associated with the ecology of harvested species and the management of the commercial harvest are identified and research proposals are sought from universities and other research institutions during the life of this plan.	None in 2013.
18.0 An annual report on the plan will be prepared and submitted to the Commonwealth.	PI 18.1 – An annual report on the operation of the plan for the previous calendar year is submitted to the Commonwealth by the end of March of the following year.	Annual Report for 2012 submitted and accepted.
	PI 18.2 – All annual reports prepared during the life of this plan are posted on the KMP web page.	Done.
19.0 The review of the plan will commence no later than twelve months prior to the expiry of this plan.	PI 19.1 – The schedule of OEH plan review activities initiated no later than 12 months prior to the expiry of this plan will include, but is not limited to: <ul style="list-style-type: none"> <li>• strategic planning prior to a full review of the program</li> <li>• compilation of reports including reviews of relevant literature</li> <li>• public meetings/forums including the KMAP [Kangaroo Management Action Panel] and invited scientists</li> <li>• public exhibition of new draft program</li> <li>• KMAP review of public submissions.</li> </ul>	Not applicable in 2013.
	PI 19.2 – The success of the current plan in achieving its goal is assessed by measuring performance indicators.	Not applicable in 2013.
	PI 19.3 – The results of the plan review are presented to the Commonwealth and are placed on the KMP web page.	No applicable in 2013.

Action	Performance indicator	Progress in 2013
20.0 Members of the KMAP will be provided with relevant information and afforded the opportunity to advise OEH on key kangaroo management issues throughout the life of this plan.	PI 20.1 – KMAP is provided with monthly updates on commercial harvest and tag issue throughout the life of this plan.	Done.
	PI 20.2 – KMAP is provided with other relevant information as required or as necessary throughout the life of this plan.	Done. During 2013 the information provided included results of aerial surveys, carcase weight analyses, harvest statistics and copies of information sent to licensees.
	PI 20.3 – KMAP meets at least twice a year to review the progress of the plan in relation to the goal and aims of the plan.	KMAP met 14 <sup>th</sup> March to review the draft Annual Report and met on 17 <sup>th</sup> October to review the draft Quota Report.
21.0 Relevant public documents will be made available on the KMP web page.	PI 21.1 – Throughout the life of this plan the KMP web page contains the following information as a minimum standard: <ul style="list-style-type: none"> <li>• current and previous management plans</li> <li>• monthly tag issue and commercial harvest statistics</li> <li>• historical harvest statistics</li> <li>• population survey reports</li> <li>• current population estimates</li> <li>• current commercial quotas</li> <li>• ratified minutes of recent KMAP meetings</li> <li>• contact information for the Kangaroo Management Section</li> <li>• current forms for commercial kangaroo licences.</li> </ul>	Done. All of this information is currently available and is updated as necessary.
22.0 Publicly available information will be provided to interested parties on request.	PI 22.1 – Publicly available kangaroo management information is distributed in an appropriate format to interested parties as soon as practicable after such a request.	Done. Examples include provision of previous Annual and Quota Reports, contracted aerial survey design and analysis reports and aerial survey data.
23.0 Where appropriate, relevant OEH staff will participate in media interviews and prepare media releases.	PI 23.1 – OEH staff participate in interviews with the media where appropriate.	Done.
	PI 23.2 – Media releases are prepared when appropriate for issues of interest to the community, such as population surveys and the release of quotas for the next calendar year.	Done.

Action	Performance indicator	Progress in 2013
24.0 Relevant information regarding licensing arrangements will be developed as required and distributed to all licensees.	PI 24.1 – A copy of the current <i>Handbook for Kangaroo Trappers</i> is issued with every trapper's licence throughout the life of this plan to ensure that licensees are apprised of relevant licensing requirements and responsibilities.	Done. Copies are also provided to potential applicants by the NSW Firearms Safety and Training Council upon registration to complete the Kangaroo Harvester Accreditation Course. Handbook is also available online.
	PI 24.2 – A copy of the current <i>Handbook for Kangaroo Chiller Managers</i> is issued with every new chiller registration or change in nominated manager to ensure that operators are aware of relevant licensing requirements and responsibilities.	Handbook provided to all new chiller managers.