

Executive summary

The Kangaroo Pet Food Trial (KPFT) has highlighted some key risks associated with introducing a financial incentive into the Authority to Control Wildlife (ATCW) system. Numbers of kangaroos approved for control have risen sharply in trial areas, particularly in the last two years of the trial. While there may be several contributing factors, a comparison of the increase in trial and non-trial areas shows that the trial is likely to be the primary cause of the increase.

It appears that the behaviour of some KPFT shooters, who have an interest in maximising numbers controlled, is having some influence on the number of kangaroos landholders are requesting to control. As a result, numbers approved for control have increased under the trial. This may not only compromise the aim of reducing waste, but could also threaten the sustainability of kangaroo populations in future years if an expectation of a steady supply of carcasses was created. Given that kangaroo populations vary, a program to process carcasses within the ATCW system cannot guarantee the steady supply that is preferable to shooters and processors.

The trial demonstrated that there is an interest among landholders, processors and shooters in participating in a program that allows the use of carcasses from ATCWs to be taken for processing for pet food. There is also support from the broader community for a program like this, although some key wildlife and animal welfare stakeholder groups remain opposed. While much of the opposition from these groups is to the ATCW system overall, they also have some specific concerns around the perceived commercialisation of kangaroo control.

The trial increased the use of carcasses for pet food and landholders experienced real benefits from the removal of kangaroo carcasses from their properties. Landholders also experienced benefits from having someone else undertake the kangaroo control for them. Processors and some shooters experienced commercial and financial benefits from the program.

On balance, design and compliance options available under the current system are insufficient to manage the risks associated with commercialising the control of kangaroos under ATCWs. Should an alternative program that allows the processing of kangaroo carcasses be considered, significant changes are recommended to improve compliance and enforcement arrangements. Given that the costs to government of running the trial have outweighed the calculated benefits over the trial period, careful consideration of cost recovery arrangements should be a part of designing any future program.

Introduction

The KPFT was established in March 2014 to reduce the "waste" of carcasses of kangaroos controlled under the ATCW system. ATCWs are issued for the control of kangaroos where they are damaging pasture, crops or other property or impacting on biodiversity values.

The purpose of the trial was to assess whether a program allowing kangaroo carcasses from ATCWs to be taken for pet food processing would be successful (in terms of uptake and in meeting landholder needs), while being cost-effective for government and without compromising the integrity of the ATCW system. The outcomes of the trial are intended to inform a decision about whether a program of this type should be rolled out on a longer-term, state-wide basis. The trial is scheduled to finish at the end of March 2019.

The KPFT enabled DELWP to gather information about the uptake of commercial use of kangaroo carcasses resulting from the ATCW system, the effectiveness of the commercial use in reducing waste, and the costs of implementing a program of this type. The trial also highlighted some unintended consequences and risks associated with introducing commercial drivers into a wildlife damage mitigation system.

This report considers the findings of the KPFT evaluation in the context of the trial's purpose and objectives.

Reviewing outcomes against the original design principles is an important part of measuring the trial's success, as the design principles were intended to ensure that risks that were foreseen at the conception of the trial were considered and mitigated in its design and implementation. An assessment of the trial's operation against the design principles follows the report against the objectives.

Other relevant findings that are not explicitly articulated through the objectives or design principles are also summarised below.

Objective 1: To test the uptake of the commercial use of carcasses from kangaroos controlled under ATCWs for pet food for domestic consumption

This objective was intended to assess whether a program like the KPFT would attract participants (ATCW holders, pet food processors and shooters). A reasonable uptake of the KPFT and continuing participation in it would indicate that a program allowing kangaroo carcasses from ATCWs to be taken for pet food processing meets landholder needs and is likely to be used if rolled out more broadly and on an ongoing basis.

Landowners/ATCW holders

Uptake of the KPFT by ATCW holders increased each year during the trial. Overall, over the course of the trial 36% of all authorisations granted in the trial LGAs have been KPFT authorisations. In 2018 to date the uptake has been 35%. This is a decrease from the past few years, but that is likely driven by a drop-off in KPFT authorisations prior to the trial's previous end date (slated to be March 2018, before it was extended for a year).

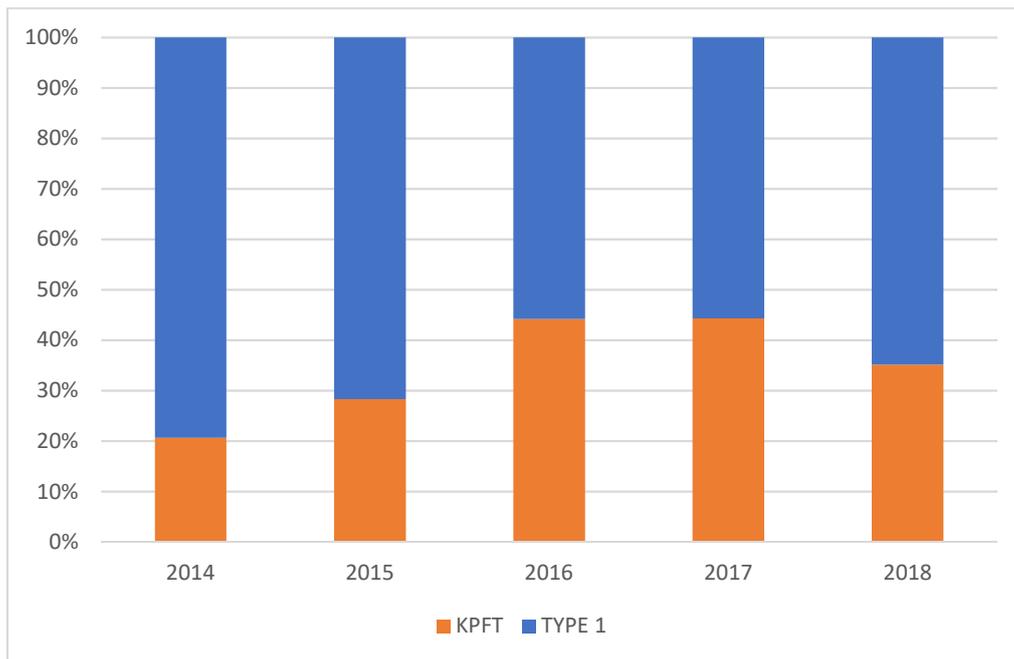


Figure 1. Proportion of KPFT authorisations and Type 1 authorisations issued in trial LGAs for each year of the trial. NB 2014 data is from March.

The most common reasons for choosing to participate included:

- experiencing damage to property;
- experiencing competition with livestock; and
- wanting to ensure kangaroo carcasses did not go to waste.

While overall uptake increased steadily, there was significant variation in uptake at a regional and local scale, with some LGAs having a very high uptake and others very little. The trend towards an overall increase in uptake over the course of the trial is likely to be attributable to:

- growing awareness of the trial among landholders; and
- shooters advertising their services and actively canvassing landholders to participate in the KPFT.

About one in four landholders who responded to the stakeholder survey had stopped participating in the trial. While some landholders stopped participating because they no longer needed to control kangaroos, the most common response was because “it was difficult to secure a shooter”. This supports anecdotal reports received by wildlife officers throughout the trial, of shooters refusing to service properties because they were inconveniently located, logistically difficult to access or held authorisations for too few kangaroos.

Many non-participating landholders who responded to the stakeholder survey indicated an interest in participating in the KPFT, or a similar program, in the future. However, about one-fifth indicated that they were not interested. Reasons for not wishing to participate included not wanting strangers on their land, being uncomfortable about shooting occurring without their knowledge, and concerns around shooters’ insurance arrangements.

Processors

Three processors (across six facilities) participated in the KPFT. Two were responsible for the majority of the kangaroos processed.

Two of the three processors have indicated that should a program like the KPFT continue past the end of the trial period, they would continue to take and process Victorian kangaroos and indeed would be interested in further expanding their operations. At least two pet food processors who are not currently operating in the trial have also indicated they would take up the opportunity to access kangaroo carcasses if kangaroo processing was to continue past the end of the trial, particularly if it was expanded state-wide.

Shooters

More than 80 shooters have been registered as preferred suppliers under the food safety plan of a participating pet food processor. Almost half reported shooting three times a week or more and for a small number the KPFT was their main source of income.

Particularly early in the trial, shooters' activity was largely limited by the location of processors and the food safety requirements, and this affected the ability of some landholders to access the services of KPFT shooters. Approval of the use of field depots after the commencement of the trial allowed shooters to service a wider area and still meet the industry standards for pet food. Overall, shooters have indicated an interest in participating in an ongoing kangaroo processing program. Sixty-eight per cent said they would continue even if future arrangements required them to pay for a licence.

In summary, the trial demonstrated that there was significant uptake of the commercial use of kangaroo carcasses resulting from ATCWs and the majority of stakeholders indicated they would continue to participate if an ongoing program was implemented.

Objective 2: To test the effectiveness of commercial use in reducing the waste of carcasses

This objective was intended to assess whether the trial achieved its key purpose – that of reducing the 'waste' of kangaroo carcasses – by providing a legal, off-property method of carcass utilisation.

Just over half of all kangaroos approved under KPFT authorisations were processed (Table 1). When you consider the total number of kangaroos approved for control in the trial areas (under KPFT and non-trial authorisations, also known as Type 1 authorisations) just over one-quarter were processed. Carcass processing, as a proportion of kangaroos approved for control, increased every year (Figure 2).

Table 1. Proportion of kangaroos authorised for control in the trial areas that have been processed since the commencement of the KPFT.

Year	% processed of KPFT kangaroos authorised	% processed of all (Type 1 & KPFT) kangaroos authorised
2014	23%	7%
2015	50%	23%
2016	44%	26%
2017	71%	41%
2018	48%	23%
<i>Overall</i>	52%	27%

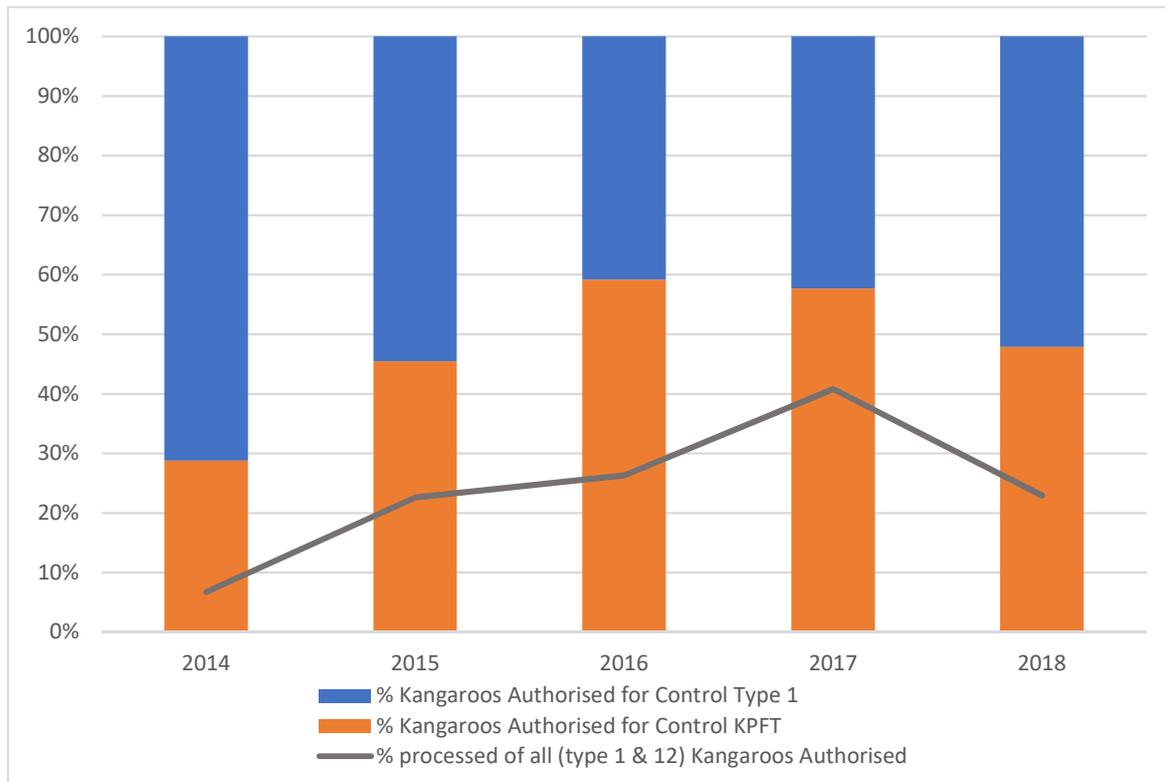


Figure 2. Proportion processed of all kangaroos authorised in trial areas during the KPFT, to November 2018. The figure also shows proportions of kangaroos authorised for control under KPFT and Type 1 authorisations, for reference.

Landholders have indicated that their use of carcasses for personal use is insignificant, with around five carcasses being the maximum that an individual landholder would use. Therefore, the commercial use of carcasses has greatly increased the number of carcasses being used, rather than left or buried on properties.

However, there has been a disproportionate increase in numbers of kangaroos approved for control in trial areas, compared to non-trial areas, since the commencement of the trial (Figure 3). Over the trial period, the average number of kangaroos approved for control in trial areas was more than two-and-a-half times (260%) that of the long-term average. The deviation from the long-term average is much larger in trial areas than in non-trial areas. This is primarily due to KPFT authorisations being issued, on average, for larger numbers of kangaroos than Type 1 ATCWs (Figure 4). Several explanations are available, and it is likely that a combination of some or all contribute to the difference:

- shooters involved in the KPFT may be encouraging landholders to apply to control larger numbers under KPFT authorisations, as it provides a greater financial benefit to the shooter or because they misunderstand the purpose of kangaroo control, believing it to be about population control rather than damage mitigation;
- the KPFT may be more attractive to landholders with more kangaroos to control or on larger properties, as it is more work for them to control the kangaroos themselves and/or results in more carcasses left on their properties;
- landholders with fewer kangaroos to control may be less likely to apply for a KPFT ATCW if they are aware that shooters are less inclined to service properties with smaller numbers.

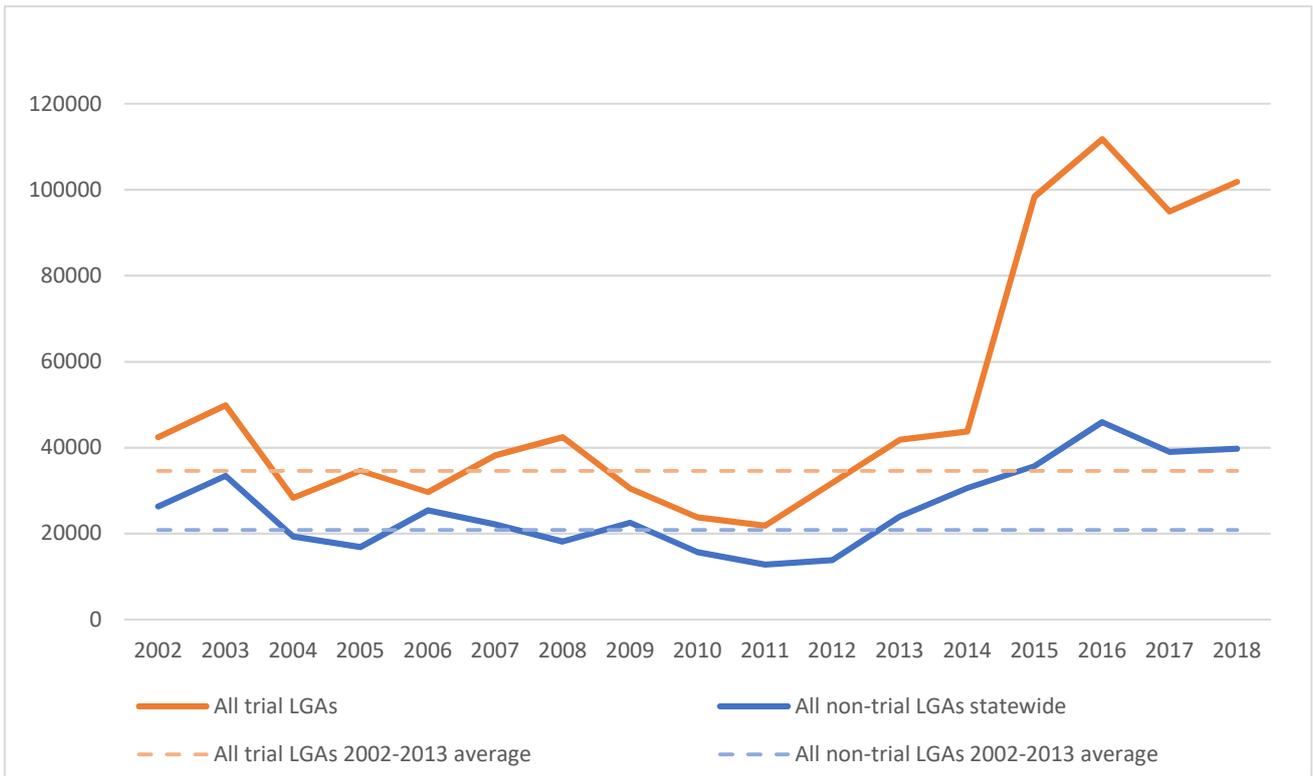


Figure 3. Kangaroo numbers approved for control in trial LGAs and all non-trial LGAs (state-wide), from 2002-2018.

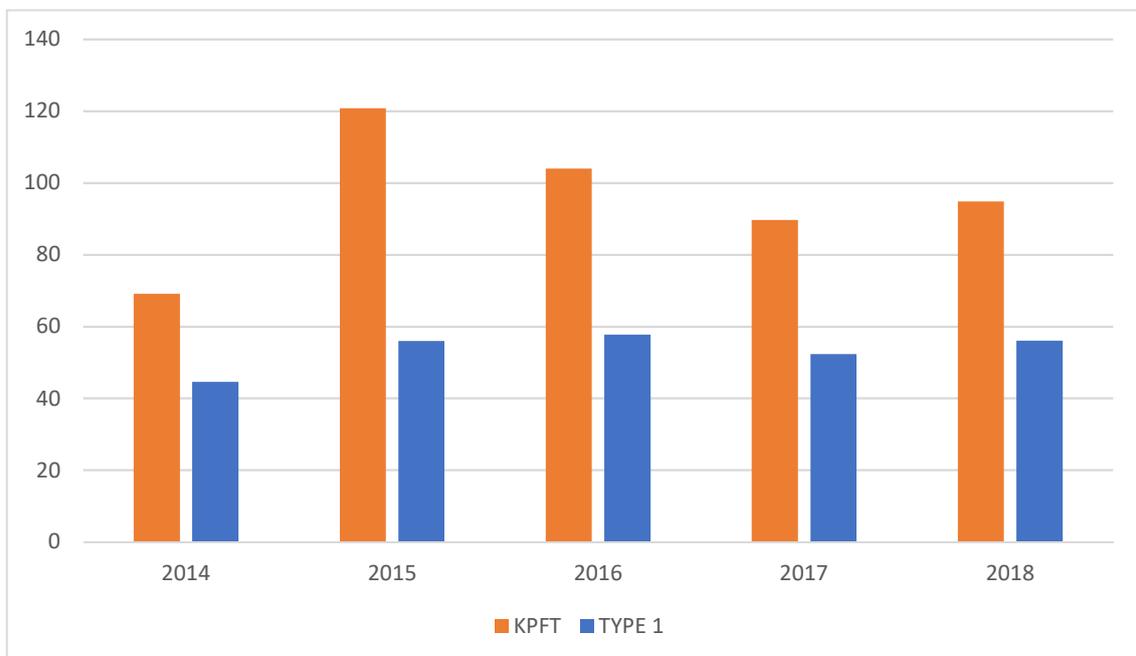


Figure 4. Average number of kangaroos authorised for control per authorisation, under KPFT and Type 1 authorisations, across all trial LGAs during the trial.

While it is difficult from the available data to directly attribute the increase in numbers authorised for control to the KPFT, the trial is likely to be at least partly responsible for the increased numbers. This means that, while carcass use certainly increased because of the trial, it is difficult to say with certainty whether the KPFT actually reduced overall carcass waste – given that higher numbers controlled because of the trial may offset the increased use, resulting in similar or even higher numbers remaining wasted.

However, at an individual farm level, almost all landholders agreed that the trial has reduced the waste of kangaroo carcasses.

Objective 3: to assess the needs and costs regarding compliance with the *Wildlife Act 1975* and the *Meat Industry Act 1993*

This objective was intended to assess:

- whether the KPFT was associated with increased compliance risks and issues, beyond the standard ATCW system;
- what level and type of compliance and enforcement activity was required to provide confidence that all participants in the trial were operating within the legal framework; and
- what the resourcing requirements are of providing this degree and type of compliance and enforcement activity.

A direct comparison could not be made between the level of compliance within the KPFT with the existing ATCW system. The KPFT provided a means of monitoring, through processor record books and shooter sheets, that is not available with the ATCW system.

A number of compliance issues and risks emerged during the KPFT, ranging from minor administrative issues to major offences under the Wildlife Act. The major offences generally involved shooters maximising the number of kangaroos harvested. This suggests that despite efforts to structure the trial to avoid creating a financial incentive, the introduction of a commercial element can compromise the integrity of the ATCW system.

The key offences that have been detected or suspected in the KPFT are:

- Overshooting the authorised number of kangaroos;
- Shooting kangaroos after the expiry of the authorisation;
- The misallocation of kangaroos against KPFT authorisations;
- Shooters swapping tags from smaller kangaroos to larger animals (to increase their profit); and
- Landholders providing false and misleading information on applications (e.g. claiming damage or higher numbers of kangaroos).

In addition, while not substantiated, it has been reported that some shooters have provided incentives, including money, to landholders for access to kangaroos.

An audit was undertaken on all processor record books for the period from 1 July 2017 to 30 June 2018. In total five record books from two processors were audited, the third processor did not harvest kangaroos during this timeframe.

The audit found:

- 403 minor record keeping infringements (use of white out, not in chronological order etc as required by the conditions of the licence);
- 283 records that were incomplete - missing important information (e.g. authority number, name, etc);
- 62 possible offences of illegal take (shot past expiry or over shot).

The audit demonstrated that the current form of manual data recording was prone to errors and could be easily manipulated to hide offences. Even small errors increased the efforts required to investigate to ensure compliance. Another flaw was the time lag between the time of an offence to the time of detection.

A range of measures were taken in response to these issues during the trial, including educating participants to assist them to comply, the rejection of ATCW applications that didn't meet the criteria of demonstrating damage by kangaroos, and the introduction of a tagging system to ensure tracking of the kangaroo carcass from the property to the processor.

Action also occurred in response to reported or suspected illegal activity, ranging from conducting investigations, the issuing of verbal warnings and penalty infringement notices, referral of reports to PrimeSafe where relevant, and one case where a shooter was successfully prosecuted for shooting kangaroos without a valid authority. Currently there are 37 cases being investigated for overshooting and/or shooting past the expiry date.

It is clear that there are a range of issues associated with the current design of the KPFT that have compromised the level and effectiveness of monitoring and enforcement by DELWP and PrimeSafe. These include:

- the control of kangaroos is undertaken at night, and because of this wildlife officers have a limited ability to undertake field audits of shooters or properties when control is being undertaken;
- the location of shooting and the identity of shooters working on any given night is unknown because they are not directly regulated by DELWP or PrimeSafe;
- DELWP's current policies and procedures classify this work as high risk as firearms are involved, and it therefore requires support from Victoria Police, increasing logistical and resourcing constraints; and
- reporting from processors and landholders is delayed and therefore does not provide real-time information that can be acted upon if breaches are detected.

Analysis of the KPFT against the design principles

Principle: Lethal control would continue to be used as a last resort option and would continue to occur at the minimum level necessary to achieve control objectives.

The design of the KPFT attempted to address this concern by maintaining the same standard in ATCW requirements and approval processes. However, the trial has clearly changed the behaviour of some participants, with some landholders electing to apply for KPFT ATCWs (for lethal control) when it is not required or without considering other options. This is evident in the fact that many KPFT authorisation holders are new to the ATCW system, and in the reports of shooters encouraging landholders to apply for KPFT authorisations, providing incentives and even completing applications for them.

In terms of lethal control occurring at the 'minimum level necessary', the fact that KPFT authorisations are, on average, larger than Type 1 ATCWs indicates that lethal control under the KPFT is not necessarily occurring at the 'minimum level necessary'. This appears to be one of the key drivers for the increasing number of kangaroos being controlled in trial areas since the trial commenced.

It appears that some shooters and landholders may be exaggerating the scale of the kangaroo problem to landholders or suggesting landholders apply for higher numbers than necessary. Because of the way that ATCW applications tend to be assessed and issued the increase in applications or applications to control larger numbers may be resulting in more authorisations being issued and authorisations being issued for larger numbers. Very few applications for an ATCW are refused unless there is obvious evidence that the damage/impact is not present or is being caused by something other than kangaroos (e.g. fence damage due to trees falling over). In addition, they are often issued for a set proportion of the numbers reported as causing damage.

To some extent this is an artefact of the ATCW system in general (i.e. a result of the assessment and approval process). However, in developing any future arrangements, it will be important to consider whether additional rigour around the assessment and issuing of KPFT authorisations could address this issue to some degree.

Principle: Any measures to enable increased use of carcasses should avoid creating an assumed entitlement for property owners to destroy and take protected wildlife on an ongoing basis.

Evidence of frequent applications for repeat authorisations implies that, to some extent, landholders take for granted that they will always be permitted to destroy kangaroos when they apply to. This suggests there is some assumption of an 'entitlement' for landholders to destroy kangaroos on their property. However, this is probably not unique to the KPFT – evidence from stakeholder surveys shows that the pattern of repeat authorisations is similar for both participating and non-participating landholders.

However, while landowners were initially considered the main risk in terms of this sense of assumed continuing access to kangaroos, a greater concern may be the apparent assumption by shooters and processors that they should be able to access a consistent (or increasing) number of kangaroos, and in a way that maximises their profits. Examples include:

- Shooters controlling large numbers of kangaroos on a nightly basis to maximise profits, contrary to recommended best practice of controlling small numbers over a longer time period to scare remaining kangaroos from the area.
- Shooters preferentially taking male kangaroos over female kangaroos, as their larger size means a higher profit; while the impacts of this are not clearly understood, there is a risk it may affect kangaroo population dynamics.
- Shooters leaving "unsuitable" carcasses – including smaller female carcasses or incorrectly-shot carcasses – on properties and taking another kangaroo (i.e. overshooting) to make it 'worth their while'.
- Shooters complaining about DELWP not issuing authorisations for "enough numbers".
- Processors indicating frustration with not knowing when or how many carcasses might be coming in for processing. This was the case particularly in Phase 2, when the government tagging system was introduced, which took some oversight of available ATCWs and shooter operations away from processors.

Principle: Any measures should minimise the risk of creating incentives for landholders to apply for ATCWs for financial benefit.

Unsubstantiated rumours that some shooters are buying tags from landholders or offering them other incentives to use their tags or access their properties is evidence that this anticipated risk could be realised. Credible reports of shooters encouraging landholders who otherwise wouldn't seek an ATCW to apply for one and/or to apply to control larger numbers of kangaroos are likely to, in some cases at least, involve incentives to landholders.

Principle: Any commercial outcomes would be incidental to the primary purpose of reducing waste.

While acknowledging that the trial would not be successful if it was not commercially viable, commercial considerations have not been a key factor in decisions about the trial's design and implementation. However, commercial considerations clearly affect how and when processors and shooters participate. This affects the potential of some landholders to realise the benefits of the KPFT, of having shooters undertake the kangaroo control and remove carcasses from their properties.

There is poor understanding by shooters and processors of the purpose and nature of the ATCW system, particularly of the fact that by its nature, numbers of kangaroos controlled might be low or inconsistent. They are (understandably, from their perspective) more interested in ensuring that they can continue to make a sufficient profit to justify continuing participation.

There is evidence to suggest that commercial gain, rather than damage mitigation, has driven at least some of the kangaroo control during the trial. This was particularly apparent just before the trial was extended in early 2018, when the number of kangaroos being processed (and by extension, the number being controlled) increased substantially in what was to be the last month of the trial (Figure 5). More than 5,500 carcasses were processed in March 2018; the next highest monthly total was 4,282 and the average monthly number processed over the previous two years was just under 2,900. The increase in control/processing occurred at the same time as the number of KPFT ATCWs being issued fell, giving a clear indication that the shooting was being driven by the possibility that the trial was to finish soon.

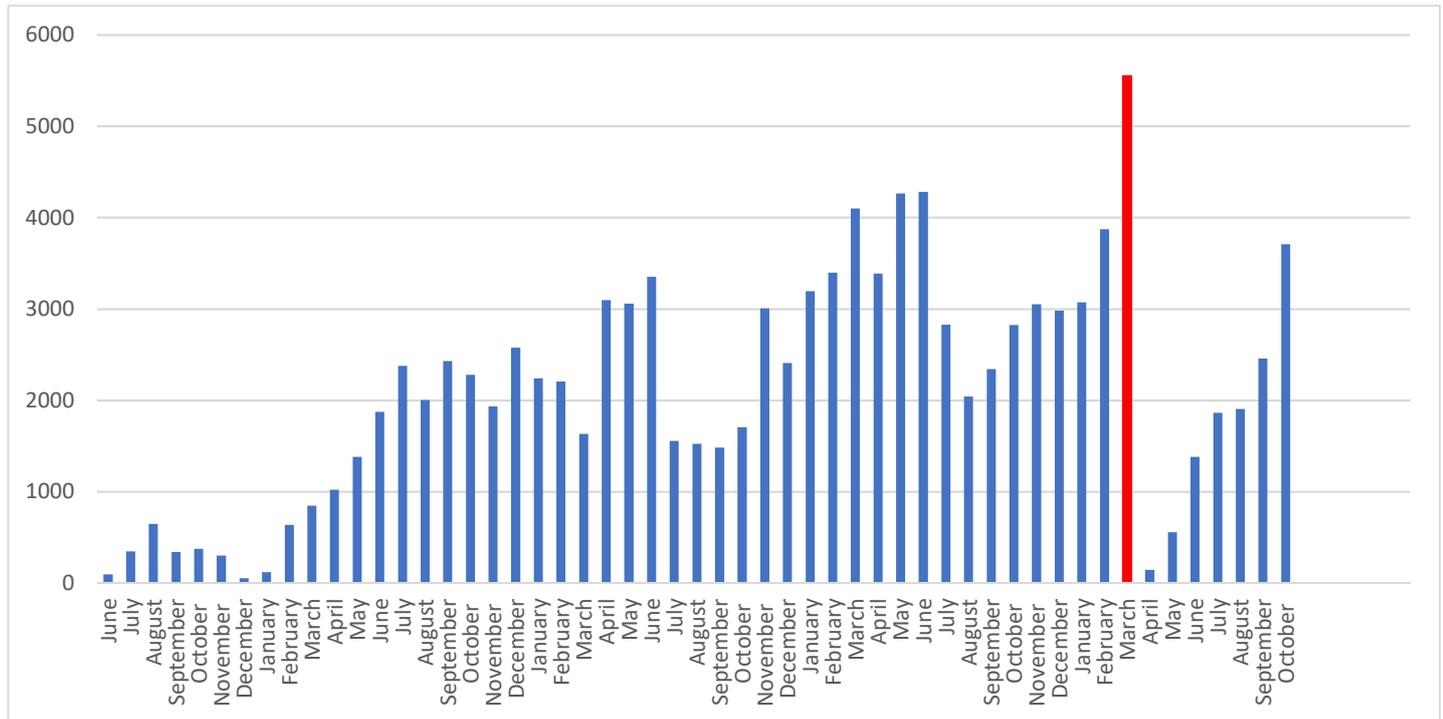


Figure 5. Number of kangaroo carcasses processed during each month of the trial.

Principle: Any increased costs associated with introducing the measures to enable increased use of carcasses and ensuring compliance with wildlife management requirements should be recovered, particularly for the commercial uses.

The KPFT created additional costs to the department through the employment of new field and administrative staff and a substantial time commitment from non-KPFT specific staff. Other costs include tags and postage for Phase 2. However, cost recovery was not implemented for the trial, primarily because the complexity of implementing it was not justified for a short-term trial. It should be explored for any ongoing program.

Principle: Parties would continue to require licensing and authorisation under existing legislation and regulations (e.g. for wildlife control, wildlife utilisation including processing, and in accordance with the requirements for harvesting and processing pet food).

The KPFT was designed and implemented within the existing ATCW framework and, while functional, requires significant improvements. Many of these improvements would likely involve the creation of new regulations e.g. licensing requirements for shooters, vehicles and field depots (chillers).

Principle: DELWP's compliance activities would need to match the level of risk associated with measures to increase use of kangaroo carcasses.

In particular, compliance actions around the activity of shooters, to enable better monitoring of property-to-processor movement of the carcasses, was not sufficient to match the level of risk associated with shooters overshooting and misallocating kangaroos to KPFT authorisations.

Other findings

Costs and benefits

While commercial profits were not an explicit objective of the trial, a commercial driver is necessary to achieve the primary objective of reducing waste. However, it is important to understand whether the cost to government of facilitating the KPFT was justified by the benefits to landholders, processors, and rural and regional communities.

DELWP costs for the trial (to November 2018) totalled at least \$2.5 million. The majority of DELWP costs were associated with staff; more than half of DELWP's staff costs were for positions funded specifically for the KPFT, but also included time from other wildlife officers and administrative staff. While new resourcing provided for the KPFT was intended to enable increased compliance and enforcement efforts during the trial, the efforts of wildlife officers have almost entirely been dedicated to the application stage and reactive investigations of reports of illegal activity.

PrimeSafe incurred estimated costs of about \$37,000 through additional audits and inspections of processing and field facilities that were required for the trial.

Benefits during the trial are estimated at around \$1.6 million (to November 2018). Benefits accrued to:

- Processors (around \$1 million): the KPFT has provided processors with access to a potentially lower-cost source of kangaroo meat and to an additional revenue stream via sale of skins. The commercial benefit due to the trial is the increase in profit from pet meat production, plus any additional revenue derived from selling skins.
- Landholders (around \$600,000): some kangaroo control previously undertaken at a resource cost to landholders (either their own time and efforts, or sometimes through paying a shooter to do it for them) is now undertaken free, which is a real resource saving for landholders.

Overall, the costs of the trial outweighed the benefits with each dollar of taxpayer spending providing benefits to processors and landholders worth around 62 cents. An analysis undertaken in late 2017 found that it would have required an increase in kangaroos processed of more than 50% - approximately 40,000 more over the trial period to that date – for sufficient commercial benefits to have been generated to offset the trial costs.

While the generation of employment is not traditionally considered in a cost-benefit analysis, there have been some positive employment and income impacts of the trial. Estimates suggest that somewhere in the range of 15-30 FTE jobs for shooters and in processing plants have been directly supported by the trial.

Stakeholders

Support

Overall, there is support for the trial amongst landowners, shooters and processors. This was mostly because of stakeholder beliefs that:

- the trial was a way of being sustainable by utilising the carcass,
- the trial reduced secondary damage to property, and
- the trial had the ability to contribute to regional jobs.

Animal welfare groups were critical of and do not support the trial, stating that by providing a financial incentive there is a high likelihood of overkilling. Media interest in the trial has largely been from regional media and generally supportive of the trial, although it frequently displayed a misunderstanding of the trial's purpose.

Understanding

There was some confusion in relation to the purpose of the trial among other stakeholders as well. The trial was seen by landholders and shooters to be a way of utilising the waste of kangaroo meat. Many, however, along with the majority of the regional community surveyed, believed it was primarily implemented to increase kangaroo control. There was also a belief that the trial is a means of testing the feasibility of a commercial industry.

Impact

The trial has reduced the effort of participating landowners in controlling kangaroos on their property and the financial loss from kangaroo damage.

Recommendations

In summary, this evaluation has demonstrated that the risks introduced by commercial processing of ATCW carcasses cannot be effectively managed within the current design and existing operating arrangements. Key policy concerns are:

- The ATCW system is a damage mitigation system and is not an appropriate tool to facilitate the commercial processing of kangaroos into pet food,
- the trial has resulted in an incentivised increase in kangaroo control under ATCW due to a commercial driver,
- the challenges in mitigating compliance risks, and
- unacceptable risk to the sustainability of kangaroo populations.

On that basis, continuing under current arrangements is not recommended.

Should a program allowing the processing of carcasses continue past the end of the trial, a range of improvements would be required to provide confidence that illegal behaviour and unintended consequences (i.e. an increase in the number of kangaroos controlled, directly as a result of allowing processing) can be effectively managed. Suggested improvements include:

- Separating the harvesting and processing of kangaroos for commercial purposes from that of damage mitigation (i.e. the ATCW system).
- Shooters should be licensed and regulated appropriately. This will enable mandatory minimum standards of behaviour and practice to be applied and monitored.
- It should be mandatory for shooters to report intended activity. As well as enabling targeted compliance monitoring, this would increase the perception of the risk of being caught by shooters and encourage better voluntary compliance.
- Conditions should be included in the shooters licence to avoid unintended consequences from undesirable behaviour. Examples might include: limiting the number of carcasses that can be taken in one night; and managing the proportional take of male and female kangaroos.
- A centralised Tag Management System should be implemented, to enable better and more efficient tracking of tags and carcasses from property to processor.
- A live reporting system should be implemented to enable better and more efficient tracking of tags and carcasses from property to processor and facilitate more efficient audits.

In addition to the above recommended changes, any future kangaroo processing program will also require the approval of a Wildlife Trade Management Plan (WTMP) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Commonwealth) will be required if export of skins overseas is to continue. This will inform the maximum number of kangaroos that can be taken sustainably.

Additional resourcing will be required to accommodate the increased time and staff the new arrangements would require. Cost recovery measures should be applied to any future program to partially offset the costs of administering the program.