**EXECUTIVE SUMMARY** JUNE 2016

# Review of the Victorian Wild Dog Management Program and Recommendations for Future Approaches

Report prepared for DEDJTR

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# Executive Summary

## Background and context

Wild dogs are a significant threat to Victoria's livestock industry, at an estimated cost of $13–18 million per year. Wild dogs attack livestock, causing death, injury, lost production and social impacts. The damage caused by wild dogs is confronting for land managers and the social impacts associated with wild dog attacks significantly affects the health of land owners and rural communities. The management of wild dogs has been, and continues to be a contentious issue in Victoria. The Victorian Government is committed to working with affected land owners to reduce the economic, social and environmental impacts of wild dogs in Victoria and to meet its responsibilities as a land owner under the *Catchment and Land Protection Act 1994.*

In 2015 the Department of Economic Development, Jobs, Transport and Resources (DEDJTR), in collaboration with the Department of Environment, Land, Water and Planning (DEWLP), asked for an evaluation of the Wild Dog Management Program (the Program), to ensure Victoria's wild dog management approach remained strategic, effective and appropriate to meet the ever-changing needs of land managers, community members and the environment.

DEDJTR commissioned Marsden Jacob Associates to undertake the evaluation, which aimed to ensure that Victoria continued to use the right mix of tools, strategies and technologies for the future health of the Program.

The Wild Dog Evaluation was conducted in two parts. These consisted of a review of the:

1. Wild Dog Control Advisory Committee (WDCAC) and the governance of the implementation of the Action Plan for Managing Wild Dogs in Victoria 2014–2019 (Action Plan)
2. Victorian Wild Dog Management Program and options for future approaches.

The scope for Part 2 of the evaluation - a Review of the Victorian Wild Dog Management Program and Recommendations for Future Approaches - was framed by several key tasks. The findings and options for future improvements are summarised below.

## Summary of findings

***Document approaches, tools and technologies currently available for the management of wild dogs in Victoria, elsewhere in Australia and elsewhere internationally, alongside local operating conditions including but not limited to topography and legislation.***

There is a wide diversity of approaches to wild dog management across affected jurisdictions. A key point of separation with other states is that Victoria has the most centrally organised and public control operated program, and is the only jurisdiction that has developed a service offer to undertake public control activities in response to wild dog attacks on private land. This service offer is not a requirement under legislation but is an implicit interpretation by government of their duty of care and service expectations. Other jurisdictions deliver control primarily through private sector provision.

*On this public delivery model, Victoria has been able to construct a detailed system and methodology to describe, plan, execute and report on control activities on public and private land.*

At the control level, the Program comprises mainly ground baiting and trapping, sometimes complemented by aerial baiting and shooting.

Trapping is the primary **reactive** control activity in terms of expenditure and labour force effort. However, in terms of the total nights during a year for which a ground bait or trap is operational, baiting remains the core **proactive** tool and the major control measure undertaken by the Program.

The two major reasons that baiting has assumed dominance over trapping is ground baits are quicker to deploy and longer time lapses between checks reduce the need for manual input.

*As a result of this position, the desired outcomes for wild dog control, determined either by baiting or trapping, should be ultimately clarified as a matter of policy development. Additionally there is a benefit in DEDJTR clarifying the obligations of government in undertaking reasonable wild dog control measures in the context of the current service offer, or interpretation by government of their duty of care and service expectations.*

*The level of control reasonably required by legislation should be clarified as a matter of policy development as should the subsequent service definition of operational responses to landholder reporting. These clarifications should inform the strategic direction of the Wild Dog Management Program.*

***Assess whether the tools, techniques and strategies are being used efficiently and effectively in Victoria to protect livestock and to build the capacity of the private sector to plan, lead and deliver local approaches to wild dog management on private land.***

Consistent with the Victorian Action Plan for Managing Wild Dogs 2014-2019, effectively reducing the impacts of wild dogs requires a strategic, proactive and cost effective approach whereby private and public land managers work together and utilise all available management practices including baiting, trapping, shooting, exclusion fencing and good on-farm husbandry practices.

Our evaluation has primarily focused on lethal measures, such as baiting and trapping, as it has not been possible to examine the uptake and effectiveness of non-lethal measures and other lethal measures such as shooting due to a lack of data.

*There has been a substantial increase in baiting as a control activity due to a shift in program focus over the last three years from reactive public service provision toward more proactive public service provision and improved community engagement.*

The effectiveness of ground baiting and trapping in producing outcomes (i.e. reduced livestock losses) has improved over the last three years. There has been a decrease in the number of confirmed livestock deaths per bait/trap night between 2013/14 and 2014/15. However, this improvement should be interpreted cautiously due to the short time period we have analysed and seasonality issues.

There is also a substantial variation in program performance across management zones. In some areas there is evidence of reductions in the levels of dog attacks and in the level of dog attack per bait and trap night. In other areas this is not the case. The time period of data used in this review was short and there are substantial outliers that affect confidence in concluding there has been a sustained, across the board, decline.

> *Over time, there has been improvement in the relative effectiveness of baiting but no observable improvement in the relative effectiveness of trapping. In general, ground baiting is the most effective and cost efficient means of proactive wild dog control.*

Baiting, while having a lower level of take per bait night compared to trapping, has a higher level of labour productivity than trapping — with a substantially higher number of baits that can be laid per hour and dogs taken per hour of labour than trapping. Moreover, as a control measure, baiting is essential to strategies of pre-attack reduction of wild dogs within the buffer zone and creating control lines within the buffer zone.

A drawback of baiting, which is partially managed by bait laying practices, is the likelihood of a higher level of non-target species take compared to other control technologies – noting that there is limited understanding of non-target take by baiting, which is a critical weakness in comparing across control measures.

Additionally, while baiting has advantages as a proactive control measure, it is also not well suited to reactive control in part because problem dogs are less likely to take baits and there are restrictions on the laying of baits near the boundaries of affected properties.

Trapping, by comparison, is significantly more labour intensive and therefore less cost effective than baiting. Trapping costs are estimated to be almost 30 times higher than baiting costs per night. Substantially fewer trap nights are achieved per unit of control labour, however, the level of dog take per trap night is much higher than that of per bait night.

> *Trapping is less cost effective in terms of overall dog take and is better used in a post-attack management strategy to limit the capacity of repeat attack by individual dogs and also capture other dogs that have not been taken by proactive baiting as they move towards livestock.*

While trapping is more targeted than baiting, trapping still has significant levels of non-target species impact. Trapping is used to better target known problem dogs and can achieve capture in instances where a dog may choose not to take bait.

It is difficult within the available data to fully verify efficacy of trapping as a means of targeted take. There is some evidence that the level of trapping efficiency varies between regions, which could depend on a range of factors including geography, weather and skill level of wild dog controllers.

A likely link exists between changes of wild dog controllers in some areas with improvements in trapping take. On the whole, there is no evidence trapping efficiency has improved across the board.

> *The challenge in devising an optimal public control response is weighing the merits of baiting as a pre-emptive tool to reduce the likelihood of attack and trapping as a post-*

*attack tool to limit the likelihood of re-attacks by problem dogs or those not taken by proactive baiting as they move towards livestock.*

*The choice of control should therefore be viewed as a sophisticated mix of tools depending on the circumstances. In principle, it is beneficial to manage the population of wild dogs within the buffer zone to reduce the likelihood of problem dogs. It is also sensible to strategically target individual problem dogs.*

***Identify risks, critical gaps, strengths and opportunities to improve the delivery of the Program by considering how Victoria records, analyses and value adds to data collected in the Program.***

The collection, analysis and communication of compulsorily reported data and public Wild Dog Management Program data have substantially improved since 2012. Dedicated reporting apps allow real-time point-of-activity reporting by wild dog controllers. This real-time spatial reporting of activity on public land into the central database (Dogbytes) only exists in Victoria.

*The recording of data has enabled the Departments to demonstrate at local and regional levels the scale and scope of wild dog control activities by Government. This has been beneficial on many fronts, including improving the transparency of management activities and improving landholder perceptions of the Program, planning of control activities and performance evaluation.*

However, a number of current performance measures are not appropriate to be used as a basis for assessing the performance and efficacy of the Program. For example, the number of traps set appears to bear little resemblance to trapping effort since trap sets are only recorded if the location of the trap is changed.

There are also gaps in the data collection process that require rectifying. For example, quarterly reporting should shift to seasonal analysis and management zones data should be aggregated and reported to meaningful areas of management and impact overlay.

- There are also substantial gaps in knowledge on the take of baits by target and non-target species and the trapping of targeted wild dogs.
- There are a number of data gaps associated with Dogbytes. Data prior to 2012 were manually recorded and are not consistent or easily comparable with data recorded from 2012 using electronic media.
- There are also gaps in the way the data are accessed and used.

The gaps present in the current arrangements for program data pose a number of risks, including inefficiencies in running multiple data systems and processes to generate reporting, as is currently the case. These gaps and risks, however, offer a number of opportunities to improve the collection and use of program data.

*An important first step would be to improve data gathering on private and group control activities. The current aggregation of individual and community baiting into long time periods and the lack of analysis of control outcomes limits the effectiveness of measuring and analysing private control activities. It is therefore difficult to*

*understand the interaction between public and private control activities and their relative efficacy.*

*There is also an urgent need to identify levels of target and non-target species take for the baiting program and to gather sound empirical evidence that targeted trapping achieves its intended objectives.*

There are several other opportunities to improve the use of the database as an intelligence tool to improve the efficacy of the Program, but these opportunities need to be weighed against the costs of making changes to the database and program and how they fit with the objective of the Program.

***Analyse how other government policies e.g. conservation of biodiversity (particularly dingoes), animal welfare, chemical use and work place health and safety pertains to the delivery of the Wild Dog Management Program, in the context of the government's commitment to reducing the negative impacts of wild dogs on livestock while minimising the impact of wild dog control on Victoria's biodiversity, including threatened species.***

Wild dog control is delivered in the context of the Victorian Government's commitment across a range of regulatory requirements, including those that relate to threatened species and biodiversity protection, animal welfare, occupational health and safety and chemical use. The need to balance these objectives is necessarily reflected in the design of the Wild Dog Management Program.

The Victorian government has management and regulatory requirements around the protection of threatened species, and the need to minimise the impact of wild dog control on Victoria's biodiversity. In particular, dingoes are a threatened species listed under the *Flora and Fauna Guarantee Act 1988* and protected under the *Wildlife Act 1975*. A key challenge is that dingoes are visually indistinguishable from wild dogs thereby making it impossible to ensure that they are not inadvertently destroyed via wild dog control programs.

To address this issue, in 2010, an Order in Council was made under the *Wildlife Act 1975* (and extended in 2013 for five years) which declared that dingoes are unprotected wildlife on all private land in Victoria and on public land within 3 kilometres of any private land boundary across two regions of Victoria (livestock protection zone). These two regions relate to the eastern part of the state and a section of the north west of the state.

*The livestock protection zone provides a line of defence between public and private land and enables wild dog control to occur where it is needed to best protect livestock. A benefit of the livestock protection zone is that it allows a targeted and focused approach to wild dog management: government and private landholders are able to co-operate to undertake wild dog management on both private land and public land as described in the Wild Dog Management Zone Work Plans.*

*Wild Dog Zone Management Plans allow government and community to work together to identify areas of strategic importance for wild dog control on public land, noting that authorisation requires wild dog control outside of the 3km zone to be targeted, specific and justified for livestock protection.*

Government also balances animal welfare objectives with wild dog control objectives. The current animal welfare exemptions enable 72 hour trap checking and if these inspection times were to be reduced to improve animal welfare they would, other things being equal, reduce the capacity of the Program to undertake trapping and baiting control.

Additionally, there has been a range of reforms to chemical use arrangements in recent years that have improved the access of private landholders to 1080 poison. However, chemical use arrangements have limited the flexibility of the Program to incorporate CPEs and reduce non-target species take.

Finally, there are opportunities that could be explored to encourage and enable farmers to undertake wild dog control, as part of community led programs, on both public and private land.

***Analyse current efforts to capitalise on operational efficiencies between private and public sector programs, initiatives and organisations, to assess whether mutually beneficial outcomes are being realised, to inform whether there are opportunities to build on this approach.***

> *If one of the intermediate outcomes of the Program is to reduce wild dog attacks by increasing dog take, under a limited budget, it is likely to be beneficial to shift further effort towards baiting. At a minimum encouraging and facilitating greater community participation in seasonal baiting should leverage this.*

There are binding constraints, however, at present in shifting public control effort toward increased seasonal baiting. Under current roster regimes and trap inspection assumptions, lowering the trapping effort could dedicate extra time within any given week to more baiting, but this would mean the extra baiting effort is spread across the year and not shifted to support seasonal baiting periods.

Greater roster flexibility would enable further individual labour effort to be transferred to align with seasonal baiting activities such as those already directed toward supporting the Baiting Coordinator Project and to assess opportunities to maximise operational synergies between the Wild Dog Management Program and other predator control programs, noting that such operational synergies need to be considered in the context of statewide priorities for each program.

Private sector investment in seasonal baiting needs to increase to capitalise on past gains. There may be a case to redirect some public control budget towards enabling and leveraging more private sector seasonal baiting through contractors and landholders.

> *Expanding the use of CPEs as an additional form of control is likely to increase the effectiveness of the Program. Based on NSW Parks and Wildlife Service experiences, CPEs will enable more assured dog take, reduce the incidence of caching baits and significantly reduce the risk of non-target take. Current impediments to the wide spread adoption of CPEs in the public program should be addressed immediately.*

***Recommend the optimal mix of approaches, tools and technologies, current or otherwise, to be used in Victoria, considering the efficacy, cost effectiveness, return on investment, animal welfare issues and impact on off target species.***

- There is a need to clarify the relative importance of the current strategic objectives of the Program and to sharpen the understanding of the extent to which the Program is one of restricting dogs from getting onto private land or reducing the population of wild dogs in areas nearby to private land, including the relative priority of reactive and proactive effort.
- It is not feasible or practical to shift all of the control activities to either solely trapping or baiting.
- While baiting requires fewer resources, it is not clear what precisely the optimal ratio level of baiting to trapping might be for a given control budget.

- If one of the intermediate objectives of the Program is to increase dog take in order to reduce livestock losses, under a limited budget, it is likely the optimal level of trapping is below current levels and the optimal level of baiting is above current levels.
- There are likely cost efficiencies to be gained in terms of the level of dog take if the balance of program activities was shifted from its current mix. However, it is unclear what the likely net impact might be of these changes on the protection of livestock – particularly repeat attacks by problem dogs. A sustained and substantial increase in the level of baiting within the 3-kilometre buffer zone would be required to partially offset impact of reducing trapping on the level of attack by problem dogs.
- The broad approach of increasing the level of private seasonal baiting on private and public land is sound and aligns with known pressure points to increased dog attack, and further effort could be made to increase the capacity of private landholders to undertake coordinated control activities on public land. Additionally, further research and data collection is required to be able to properly assess the uptake and cost effectiveness of non-lethal measures and the contribution of on-farm practices to increased farm productivity / livestock protection.
- If future requirements are placed on the Program to reduce the length of time between trap inspections, then it is likely to be necessary within given budgets to put more program effort into baiting to ensure current levels of dog take are maintained and, therefore, also ensuring there is not an overall increase in dog attacks.

## Options for future approaches

### Strategy development

The Program could sharpen the focus of control efforts and aid the determination of the Program budget and the mix of control measures to guide operations across the State. There is a benefit in DEDJTR clarifying the obligations of government to undertake reasonable wild dog control measures. Escalating the importance of these actions within the Action Plan for Managing Wild Dogs in Victoria provides the means to achieve this.

### Program assessment and reporting

Victoria has developed a detailed system to describe, plan, execute and report on wild dog control activities on public land and is leading the way in the collection, analysis and communication of reported and public Program data. Opportunities to further improve processes to analyse information that is being collected to inform program delivery include establishing new indicators and moving towards improved seasonal reporting.

### Enhancing operational flexibility

Effectively reducing the negative impacts of wild dogs can only be achieved if all land managers (public and private) work together as part of an integrated program using all available control techniques that are safe, effective, humane and environmentally sustainable.

The Program is encouraged to introduce Canid Pest Ejectors (CPE) and enable appropriately trained individual private landholders (who are impacted by wild dogs) to undertake and assist with baiting and trapping on neighbouring public land.

It is also suggested that, if it is decided to reduce the time a government agent may leave an animal alive in a trap used for wild dog control from a maximum of 72 hours to either 48 or 24 hours, the Program considers increasing the use of casuals to maintain service delivery commitments.

Revising the service delivery commitment protocol, that outlines that reactive control activities should continue for up to 30 days after the last livestock attack, could enable the redirection of resources into proactive control measures and improve the flexibility of responses to attacks by wild dogs. The extent to which this would be possible would subject to budget constraints.

### Continuous improvement through research

There are opportunities to address gaps in knowledge with respect to: a) non-targets impacted by baiting and trapping, b) the impact of varying baiting regimes and the efficacy of using CPEs to control wild dogs on public land, c) the potential to use surveillance technologies to reduce the level of physical inspections of traps and d) the uptake and cost effectiveness of non-lethal measures.

# Future design considerations

There are several key design considerations that could be pursued to improve the operation of the Program. These are discussed below.

## Strategies and objectives

The Program could sharpen the focus of control efforts and aid the determination of the Program budget and the mix of control measures to guide operations across the State. In particular, there is an opportunity to clarify the preferred mix of reactive and proactive control measures.

Moreover, one of the key strategic issues to consider is the relative importance of reducing the overall dog population in the 3 kilometre buffer zone as against stopping dogs from travelling onto private properties. Additionally, there is a benefit in DEDJTR clarifying the obligations of government in undertaking reasonable wild dog control measures . Escalating the importance of these actions within the Action Plan for Managing Wild Dogs in Victoria provides the means to achieve this.

## Program assessment and reporting

Opportunities to further improve processes to analyse information that is being collected to inform program delivery include:

- moving towards greater seasonal reporting, and
- incorporating into reporting processes a number of performance indicators developed in this report including: bait nights; trap nights or trap checks; and a range of input to output to outcome effectiveness indicators and regionally grouped indicators.

## Enhancing operational flexibility

Greater operational flexibility and performance be created by pursuing a range of reforms, including:

- enabling those not setting traps to inspect traps. This may involve reviewing legislative arrangements of related legislation such as Prevention of Cruelty to Animals Act 1986 (POCTA);
- reviewing workplace arrangements with a view to increasing the capacity of the Program to more fully utilise casual labour in control activities, noting that this is limited to some extent by budget constraints. This may become particularly relevant if the trap inspection time is reduced from 72 to 48 or 24 hours;
- revising the Program's service offer to private land owners, where consistent with the requirement to determine the government's obligations. This has the potential to enable the redirection of resources into proactive control or other measures and reduce the requirement to respond to attacks by providing reactive trapping activities;
- rapidly addressing impediments to the deployment of CPEs by the public program; and
- enabling appropriately trained individual private landholders who are impacted to undertake baiting and trapping on neighbouring public land.

Additionally, there is benefit in reviewing current control measure settings in 12 months' time to assess if observable trends emerge in relation to the level of control and wild dog attack.

## Research

There are opportunities to address gaps in knowledge. Research could be undertaken to enable improved optimisation of alternative control measures and balancing of other policy objectives. Research could include:

- identifying the levels of target and non-target species take of baiting programs;
- examining the efficiency and effectiveness of targeting problem dogs with traps;
- undertaking localised pilots to assess the impact of more intensive baiting regimes and the efficacy of CPEs;
- exploring remote surveillance technologies to reduce the level of on-site inspections; and
- undertaking further research and data collection to properly assess the uptake and cost effectiveness of non-lethal measures.