



Natural
Resources
Commission

Overview of evaluation framework Supplementary pest control trial

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1 NSW Supplementary Pest Control Trial

1.1 Vertebrate pests in NSW

Pest animals represent one of the major threats to biodiversity in Australia. They cause significant damage to national parks across NSW by degrading native habitats, and by preying on and outcompeting native species. It is estimated that around 40 percent of threatened species are being impacted by pest animals in NSW (Coutts-Smith et al., 2007). Pest animals also degrade areas of cultural significance, such as Aboriginal rock art sites, and cause significant financial losses to agriculture and other industries.

The estimated impact of invasive pest animals in Australia is around \$743 million annually, based on agricultural losses and expenditure on management, administration and research (Gong et al., 2009). Foxes have been reported to cause the greatest financial impact in Australia each year (\$227.5 million), however feral cats, rabbits and feral pigs are also a major financial burden with an estimated annual impact of over \$100 million each (McLeod, 2004).

1.1.1 Role of National Parks and Wildlife Services in controlling vertebrate pests

The National Parks and Wildlife Service is responsible for controlling pests across the NSW parks system in order to protect native plants, animals, natural ecosystems and cultural heritage sites (NSW National Parks and Wildlife Service, 2014a). In NSW, pest control activities include baiting, aerial shooting, mustering, fencing, trapping and ground shooting (NSW National Parks and Wildlife Service, 2014c).

Pest animal management is most effective when it forms a strategic, integrated program that employs a range of techniques in combination, as individual animals may not be susceptible to one technique (Norris & Low, 2005). The National Parks and Wildlife Service prioritises pest control efforts according to where they believe the effort will be of greatest benefit. In NSW, priorities for the conservation of biodiversity are focused on threatened species. Regional Pest Management Strategies describe the priorities for each of the 14 National Parks and Wildlife Service regions across the state (NSW National Parks and Wildlife Service, 2014a).

1.2 What is the Supplementary Pest Control trial?

In 2013, the Minister for the Environment announced a three year scientific trial of supplementary pest control in NSW (NSW National Parks and Wildlife Service, 2014b; Robyn Parker MP, 2013a, 2013b). National Parks and Wildlife Service is partnering with experienced and skilled volunteer shooters to help reduce pests in 12 national parks and reserves, covering an area of about 485,000 hectares. See **Attachment 1** for a map of the reserves included in the supplementary pest control trial.

The supplementary pest control trial is designed to test ground shooting using volunteers as an additional pest control technique in national parks and reserves in NSW. It aims to assess whether volunteer ground shooting could be added to the existing suite of pest control techniques already used by National Parks and Wildlife Service to form part of an integrated pest management strategy.

Supplementary pest control ground shooting activities will be scheduled to contribute to existing programs already being undertaken through the NSW regional pest management strategies. The trial will not be conducted in wilderness areas or world heritage environments and will target feral goats, pigs, deer, foxes and rabbits.

Appropriately qualified volunteers (18 years and over) will be working under the direct supervision of National Parks and Wildlife Service staff on the trial ground shooting activities. Volunteers will be permitted to use firearms that are currently approved for use by National Parks and Wildlife Service staff, and no bows, muskets or other non-approved weapons are permitted.

The NSW Government has allocated a budget of \$11 million for the three year trial.

1.3 Objectives of the Supplementary Pest Control trial

The trial has four overarching goals:

1. pest animals controlled in trial reserves in a way that enhances existing National Parks and Wildlife Service pest control programs
2. the trial is implemented safely
3. respectful relationships between National Parks and Wildlife Service, volunteer shooters and associated organisations, who find their participation rewarding
4. appropriately informed and engaged community.

The NRC has developed a robust program logic for the supplementary pest control trial see **Attachment 2**, in collaboration with:

- National Parks and Wildlife Service
- Office of Environment and Heritage science and economic representatives and representatives from the Department of Primary Industries vertebrate pest research unit
- Independent technical expert reviewers.

2 Evaluation of the NSW Supplementary Pest Control Trial

The Premier and the Minister for the Environment requested that the Natural Resources Commission (NRC) evaluate the supplementary pest control trial program to assist the NSW Government in deciding whether, and how, to proceed with the proposed supplementary pest control program beyond the three year trial period.

2.1 Scope of the evaluation

The NRC will independently evaluate the trial based on an evidence-based exploration of the key issues, outputs and outcomes achieved during the trial period. In developing its advice, the NRC will consider:

- the effectiveness of the trial in contributing to the aims and objectives of existing National Parks and Wildlife Service pest control programs
- the efficiency of the trial, including costs and benefits of the trial, and comparison with alternative uses of the available resources
- the social impacts of the trial, including an analysis of safety and animal welfare outcomes, stakeholder perceptions of the program, and levels of engagement with park neighbours, Aboriginal groups and other local stakeholders.

The scope of the evaluation does not include evaluation of other National Parks and Wildlife Service pest control programs. It also does not include evaluation of ground shooting as a stand-alone pest control technique.

The NRC will consult with relevant stakeholders and technical experts, and will work closely with the NSW Office of Environment and Heritage in designing and conducting the evaluation. The evaluation will encompass ongoing data collection and analysis to inform the evaluation of the supplementary pest control trial.

2.2 Consistency with the NSW Government Evaluation Framework

In designing the supplementary pest control trial evaluation framework, the NRC has ensured consistency with the guidelines established in the NSW Government Evaluation Framework August 2013 (NSW Department of Premier and Cabinet, 2013).

The NSW Government Evaluation Framework requirements will be met in the supplementary pest control trial evaluation, including:

- independent evaluation of the trial program by the NRC
- collaboration with key stakeholders, including collaborating with the NSW Office of Environment and Heritage and other stakeholders in the development of the NRC evaluation plan, and review of key evaluation documents by the National Parks and Wildlife Service program sponsor
- development of governance arrangements documents agreed to by the NRC with both the NSW Office of Environment and Heritage and Sporting Shooters Association Australia NSW (currently the sporting shooters organisation partnering in the trial)
- establishment of a NSW Office of Environment and Heritage project steering committee (a NSW Office of Environment and Heritage responsibility for the supplementary pest control trial) with NRC representation
- quarantining of the trial evaluation budget
- review of the evaluation design and implementation by relevant peers and technical experts, and
- delivery of preliminary, interim and final evaluation reports.

2.3 Objectives of the evaluation

As established in the Terms of Reference, the supplementary pest control trial evaluation seeks to provide:

- recommendation on improvements that can be used throughout the duration of the supplementary pest control trial (formative evaluation),
- findings on the overall effectiveness, efficiency and social impacts of the trial (summative evaluation), and
- recommendations on whether, and how, to proceed with the proposed supplementary pest control program beyond the three-year trial period (appropriateness evaluation).

2.4 How the evaluation will be conducted

The NRC will ensure that the supplementary pest control trial evaluation is:

- Rigorous and evidenced-based
 - including inter-jurisdictional research on best practices
 - including primary and secondary data collection, field work and direct observation as sources of evidence

- Transparent with no surprises for stakeholders
 - open and upfront communication
 - collaborative approach to working with project partners (National Parks and Wildlife Service, volunteers and associated organisations)
 - identify issues early
 - interim reporting
- Appropriate
 - information collected and analysed should enable the NRC to recommend whether, and how, supplementary pest control should continue beyond the three-year trial period
- Efficient
 - work collaboratively with National Parks and Wildlife Service, volunteers and the sporting shooters organisations that National Parks and Wildlife Service is partnering with, to ensure efficient collection of data and evidence across multiple lines of evaluation
 - continuous and meaningful engagement with National Parks and Wildlife Service and the sporting shooters organisations that National Parks and Wildlife Service is partnering with, to ensure early identification of constraints or issues and development of pragmatic solutions.

2.5 Evaluation deliverables

The NRC will produce the deliverables outlined in **Figure 2**.



Figure 2: Schedule of evaluation deliverables

Evaluation deliverables will be made publicly available on the NRC website.

2.6 Key evaluation questions

The NRC has developed key questions that will be addressed by the evaluation. Four key evaluation questions and fifteen sub-questions will drive the evaluation work (see **Table 1**). The evaluation questions and sub-questions have been designed to fulfil the Terms of Reference, be complete and robust, reflect best practice in evaluation, and be implemented efficiently.

Table 1: Key evaluation questions and sub-questions

K1: Should supplementary pest control proceed beyond the trial period, and if so, how?
KS1: To what extent could supplementary pest control improve outcomes and/or reduce the cost of existing NPWS pest programs?
KS2: Under what circumstances is supplementary pest control (as a technique) most useful?
KS3: What improvements could be made so that supplementary pest control works better and costs less in the future?
K2: How effective was the supplementary pest control trial?
KS4: To what extent has the supplementary pest control trial contributed to existing NPWS pest programs (incl. consideration of alignment and integration)?
KS5: To what extent have negative impacts of pest animals on neighbours been reduced?
KS6: To what extent have relevant native species populations been additionally protected?
KS7: To what extent was the supplementary pest control trial implemented in compliance with relevant legislation and Government priorities?
KS8: To what extent were human safety risks appropriately managed?
KS9: To what extent were animal welfare risks appropriately managed?
K3: How efficient was the supplementary pest control trial?
KS10: What were the costs and benefits of the supplementary pest control trial to Government?
KS11: How does the supplementary pest control trial compare to alternative uses of the available NPWS resources that may achieve similar outcomes?
KS12: Has the efficiency of the supplementary pest control trial improved over the period of the trial?
K4: What were the social impacts (intended or unintended) of the supplementary pest control trial?
KS13: What were the impacts on volunteers and associated organisations?
KS14: What were the impacts on park neighbours and Aboriginal communities involved in joint management?
KS15: What were the impacts on regional communities including park users, local Aboriginal communities etc.?

2.7 Constraints of the evaluation

There are a number of constraints on the evaluation of the supplementary pest control trial. As such, the NRC evaluation framework has been designed to accommodate these constraints whilst delivering on the Terms of Reference. The main constraints are described in **Table 2**.

Table 2: Addressing the evaluation constraints

Constraint	Evaluation approach
Reserve selection, and variability between reserves, may mean that results of the NRC's evaluation will only be able to be extrapolated to other reserves in NSW with sufficiently similar characteristics.	<p>NRC, through key evaluation question 'K2 – How effective was the trial?', will describe the characteristics of circumstances in which engaging volunteer shooters as a supplementary pest control measure would be most useful/successful.</p> <p>The NRC will also make recommendations that accommodate regional variability in pest and threatened species management.</p>
The three-year time period of the trial is not likely to be long enough for the ecological impacts of pest control activities to be seen in the pest or threatened species populations.	<p>NRC will consider:</p> <ul style="list-style-type: none"> ▪ how supplementary pest control contributes to the goals and objectives of existing pest management strategies and plans within the trial reserves ▪ how implementation of supplementary pest control could be adapted to improve efficiency if the program continues ▪ how supplementary pest control can be used to improve effectiveness of existing National Parks and Wildlife Services pest control programs.
It may be difficult to quantify the <i>additional</i> impact of supplementary pest control on pests and threatened species given the complex interactions between pests, pests issues, assets and other environmental influences such as climate.	<p>NRC will consider whether supplementary pest control has made a contribution to ecological outcomes by considering any overall increase in benefits from all National Parks and Wildlife Services pest control activities in trial reserves over the three years.</p> <p>For example, are better pest control outcomes achieved by adding supplementary pest control to the suite of existing pest control methods than from 'doing more of' an existing pest control method.</p>

2.8 Adaptive management of the evaluation

Adaptive management involves the continuous improvement of policy and program delivery by monitoring, evaluating and learning throughout the implementation period (Duncan & Wintle, 2008; Allan & Curtis, 2005). By actively learning from and updating a natural resource management program, the overall efficiency of the program can be improved throughout the course of its implementation (Duncan & Wintle, 2008).

To accommodate adaptation of the trial program the NRC will seek to monitor, learn and update the supplementary pest control trial evaluation framework throughout the duration of the trial. This is consistent with the principals of adaptive management and is important due to:

- the duration of the supplementary pest control trial program, which will run over three years

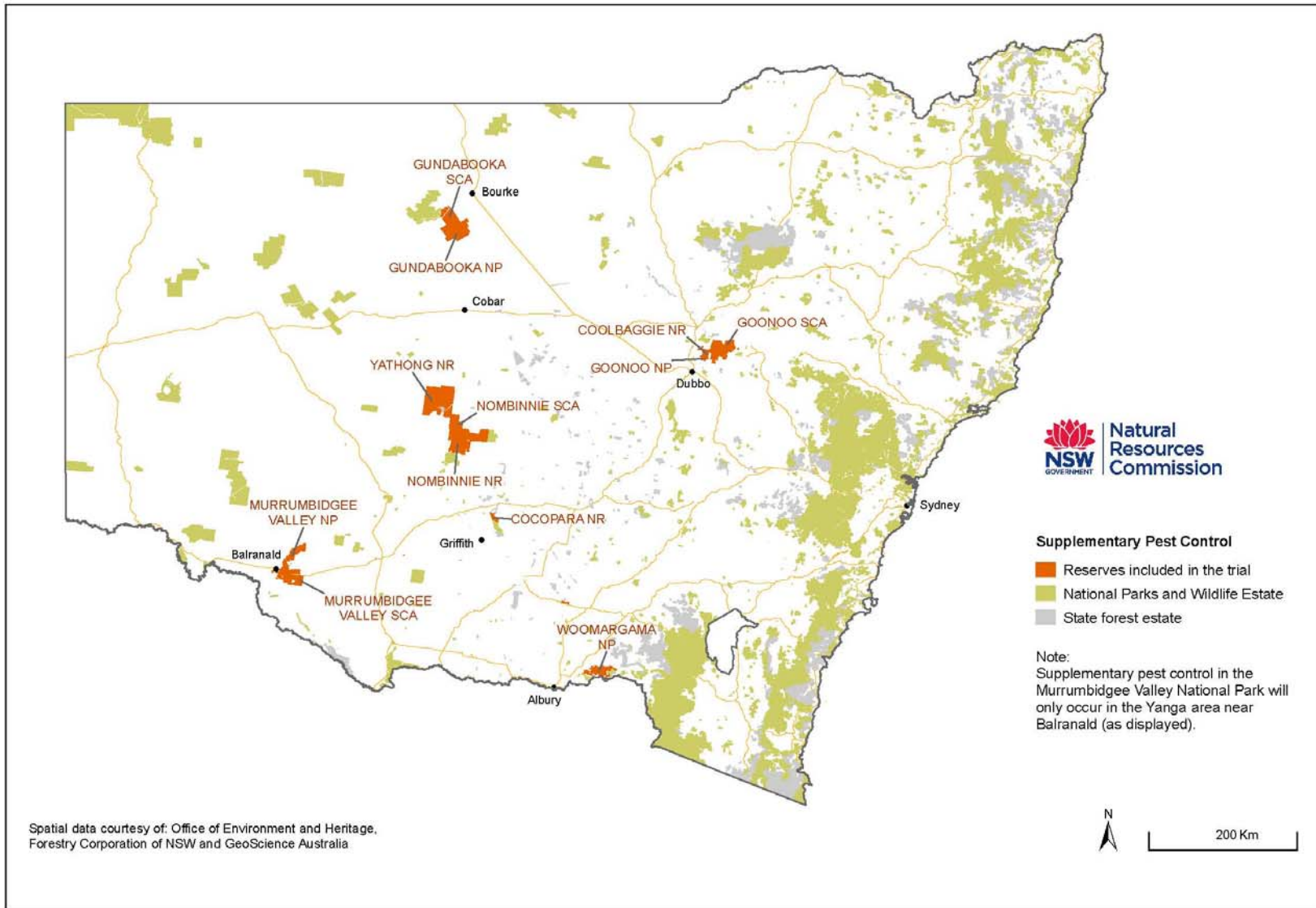
- the uncertainty around measuring the ecological outcomes of the supplementary pest control trial within this three year period
- the other evaluation constraints listed in section 2.6.

The NRC will also review and assesses evaluation data and information to identify opportunities for reducing the costs of delivering the supplementary pest control trial, improving the cost-effectiveness of the program in the future.

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Attachment 1 - Map of NSW showing the supplementary pest control trial reserves



Attachment 2 – Supplementary pest control trial program logic

