

A national approach towards humane vertebrate pest control

Discussion paper

Arising from the proceedings of an
RSPCA Australia/AWC/VPC joint workshop,
August 4-5, 2003, Melbourne



Workshop organisers



RSPCA Australia



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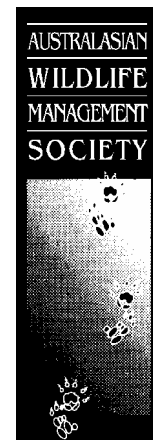
Vertebrate Pests
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Explanatory note

This discussion paper has been developed by a working group of stakeholder representatives, drawn from the participants in the 2003 joint workshop, *A national approach to humane vertebrate pest control*. While the working group included representatives of a wide variety of government and non-government organisations, the views in this document are a synthesis of the outcomes of the workshop process and do not necessarily reflect the views of the authors or the organisations they represent.

Membership of the working group and a list of all participants in the workshop are provided in Appendix 1 and 2 respectively.

A report on the workshop process was prepared and circulated to all participants in September 2003. At the same time, a communiqué outlining the workshop's aims and outcomes was circulated to a wide audience. The preparation of this discussion paper has now enabled these outcomes to be communicated to stakeholders in a detailed form, with the aim of provoking discussion and further development of a national approach to humane vertebrate pest control. This discussion paper will be formally submitted to all workshop participants, relevant government agencies and State, Territory and Federal Ministers.

Feedback is welcomed and will form part of an ongoing review of the strategy outlined in the document. Comments should be forwarded by 31 March 2005 to:

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Further copies of the discussion paper are available via the RSPCA Australia website www.rspca.org.au

Executive summary

This discussion paper is based on a facilitated workshop, held in August 2003, to pursue a recommendation for the urgent development of a national strategy to improve the humaneness of vertebrate pest management. The need for such a strategy arose from discussions at an RSPCA Australia seminar on the issue of humane vertebrate pest control, held earlier in 2003. There were 43 attendees at the workshop from a diverse range of stakeholders representing all relevant State and Federal organisations. The aims of the workshop were threefold:

- to develop a national and common approach towards humane vertebrate pest control
- to identify the required research, development and education and legislative/regulatory actions required to overcome present deficiencies, and
- to identify a mechanism to deliver this approach.

The workshop considered that a national approach towards humane vertebrate pest control would provide uniformity across jurisdictions, opportunities for collaboration and coordination of control efforts, and lead to the development of nationally acceptable pest animal control practices. A key goal of this approach would be to optimise research, development and education resources and identify national priorities for increasing the humaneness of vertebrate pest control. It would reflect and connect with existing strategies such as the Australian Animal Welfare Strategy (AAWS), which promotes the development and use of humane and effective control methods for pest animal control.

The workshop identified the key benefits of a national approach as:

- increased on-ground recognition of the need for humane control practices
- the development of more humane control methods
- the achievement of an appropriate balance between welfare considerations and other national objectives served by vertebrate pest control; and ultimately
- the avoidance or minimisation of animal suffering during vertebrate pest control operations.

As a basis for this approach, this discussion paper sets out key principles that form a working philosophy for humane vertebrate pest control (HVPC). It defines HVPC as 'the development and selection of feasible control programs and techniques that avoid or minimise pain, suffering and distress to target and non-target animals'. Three *research and design* principles outline how to maximise the humaneness of control programs and eight *implementation* principles guide the design and execution of such programs. The incorporation of these principles into control programs would be a significant step towards improving humaneness.

The workshop identified a series of components, or focal points for future action, that together form the basis of a national approach. These components were: (A) to address technical issues relating to humaneness that can be overcome in the short term; (B) to develop national research, development and education priorities; (C) to develop a consistent national framework for the application of control programs; (D) to determine public attitudes and increase awareness of vertebrate pest control issues; and (E) to integrate animal welfare considerations into on-ground control programs. Specific recommendations for action were developed under each of these components and are shown in Box 1.

There was overwhelming support from the workshop for the consideration of welfare issues to be fully integrated into vertebrate pest management practices. Clearly this requires a national coordinating body with the ability to effectively implement and coordinate such a national approach. While some participants felt that a restructured and adequately resourced national Vertebrate Pests Committee (VPC) was the appropriate body to carry this concept forwards, others felt that implementation could

not rely solely on existing mechanisms as these had so far failed to address the problem and the current VPC would be unable to effectively implement a national strategy.

A recent review of the structure of the VPC has not served to increase the committee's authority, resources or stakeholder input and it is increasingly clear that a more creative approach involving new structures and processes is warranted. One solution may be to link in with the implementation of the AAWS as the two approaches share several themes and outcomes. The Federal Government has taken a prominent leadership role in the development and delivery of the AAWS and could play a similar role in promoting and implementing a national approach on humane vertebrate pest control.

Many of the actions proposed in this discussion paper will require new resources or the reallocation of existing resources. Their progression will require close stakeholder cooperation and a fresh look at the funding and coordination of vertebrate pest control activities. However, the required change in philosophy and focus is both achievable and beneficial, with the benefits contributing to the alleviation of the impacts of pest animals as well as promoting a humane approach to their control.

Box 1 Specific actions for a national approach

Component A: addressing immediate technical issues

- Develop a ranking system to determine the relative humaneness of existing control methods.
- Improve the standard and consistency of control through national codes of practice and standard operating procedures.
- Identify areas where the humaneness and effectiveness of existing control techniques could be improved in the immediate to short term.

Component B: development of national research, development and education priorities

- Develop a mechanism for the national coordination, resourcing and development of collaborative research, development and education (RDE) and adoption/implementation of outcomes.
- Develop agreed welfare assessment methodologies.
- Rank humaneness against efficacy of all current vertebrate pest control techniques.
- Involve animal welfare groups in the development of RDE priorities and the development of novel approaches to vertebrate pests.
- Establish effective linkages between major research providers.
- Document plans for RDE programs that include strategies for final adoption of outcomes.

Component C: development of a consistent national framework

- Engage the APVMA to establish a procedure to take welfare considerations into account when considering new products.
- Determine the current level of expenditure on pest control policy development, management and RDE and the cost-effectiveness of this expenditure in terms of achieving sustainable outcomes.
- Determine the national cost, if any, of a shift in strategy to encompass humane vertebrate pest control.
- Establish an appropriate national group to lead change and become a reference point for all stakeholders.
- Develop mechanisms to consider the welfare issues associated with new and existing control equipment and procedures and to address the issue of humane pest management in a holistic manner.
- Establish cooperative mechanisms with funding agencies for making recommendations on RDE priorities.
- Determine issues of public concern and ensure any implementation strategy addresses such concerns.

Component D: public attitudes and awareness

- Conduct research into national community attitudes, knowledge and behaviour relating to vertebrate pest control.
- Disseminate acquired information on community attitudes to policy makers and practitioners.
- Identify any gaps in knowledge and/or discontinuity in community attitudes towards vertebrate pest control.
- Implement a public education program to address gaps in community knowledge.

Component E: integrating animal welfare into control programs

- Coordinate pest animal control activities at a district/regional level and upwards, with inclusive stakeholder involvement.
- Develop consistent training programs for frontline control staff from all relevant agencies.
- Accredite training courses by government agencies with the aim of increasing knowledge and use of best practice techniques on the ground.
- Disseminate RDE and other information and improve networking/sharing of resources.

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1 Introduction

Vertebrate pest management in Australia has obvious and significant implications for wildlife conservation and agricultural production, but also raises serious animal welfare concerns that are not widely appreciated in the general community. In fact, few animal welfare issues are comparable in both their scope and magnitude, given the number of animals affected each year and the potential suffering inflicted.

As a first step in considering how to address this challenge, RSPCA Australia held a national seminar in February 2003 entitled *Solutions to achieving humane vertebrate pest control*. The seminar was attended by over 130 people, with about half of these representing government agencies involved in pest animal control including State departments of agriculture and the environment, regional land protection agencies and the National Parks and Wildlife Service.

It was clear from the seminar presentations and discussions that, while animal welfare is regarded as an extremely important issue in vertebrate pest management, much more remains to be done. Animal welfare considerations should become a driving force in the development of more humane alternatives to current control techniques that are inhumane. The overwhelming recommendation arising from the seminar was for the urgent development of a national strategy to improve the humaneness of vertebrate pest management.

In August 2003 a joint workshop was held in Melbourne to begin the process of developing such a strategy. The workshop was jointly organised by RSPCA Australia, the Animal Welfare Centre and the national Vertebrate Pests Committee, and sponsored by the Victorian Department of Primary Industries, Victorian Department of Sustainability and Environment, the Australasian Wildlife Management Society and the Pest Animal Control Cooperative Research Centre.

The aims of this workshop were threefold:

- to develop a national and common approach towards humane vertebrate pest control
- to identify the required research, development and education and legislative/regulatory actions required to overcome present deficiencies, and
- to identify a mechanism to deliver this approach.

The workshop was attended by representatives of thirteen State, Territory and Federal government agencies with responsibilities in the area of vertebrate pest control, as well as relevant industry groups, non-government organisations, and key researchers in this field (see Appendix 1 for a full list of participants). The agenda included discussion of key principles underpinning humane vertebrate pest control, priority issues and, crucially, the coordination and implementation of a national approach to humane vertebrate pest control. This discussion paper is based on the proceedings and outcomes of the workshop.

1.1 Aims of this discussion paper

The development of a national approach towards humane vertebrate pest control is an important but challenging undertaking and relies on the commitment of stakeholders and policy makers to improving the way we manage and control vertebrate pest animals. This discussion paper is intended to provide a framework for the development of a national approach to humane vertebrate pest control to aid all those involved in achieving the three aims outlined above.

Feedback on this document is welcomed (see Explanatory note) and will form part of an ongoing review of the proposed strategy.

1.2 The need for a national approach

The magnitude of both the environmental impact of vertebrate pests and the animal welfare implications of control requires the development of an ethical position regarding the humaneness of control. An ethical position does not have to instantly set a 'gold standard': instead it is perhaps defined by a sincere willingness, attempt and capacity to move towards humane control – even in small steps. The first of these steps should be to establish the starting point for such a position.

The discussion and feedback from the 2003 RSPCA Australia Scientific Seminar suggested that there is a high level of concordance that the impacts of vertebrate pests are acknowledged. In addition, there appears to be a remarkable level of agreement on the need to control the various impacts of these animals. The issue appears to be predominantly how we do it, what we do it with and where we are headed in the future.

There are many different stakeholders involved in the management of vertebrate pests. Each stakeholder may hold a different perspective on the same issue: one position does not extinguish the validity of another. There is a multiplicity of legislation at the Federal, State and local government levels, and control programs involve a range of different agencies in each State and Territory. There are numerous non-government organisations with an interest in the methods or effects of control, representing environmental, animal welfare and industry concerns, as well as many individual landholders. Vertebrate pest control is an issue that exists within a framework of great complexity.

The question is, how do we bring about better practices, effectively coordinate disjointed resources, identify common needs and address priority vertebrate pest control issues within this complex framework? The stakeholder responses to background questions circulated prior to the workshop indicated that there is a wish to optimise, prioritise and coordinate. It is clear that we wish to avoid duplication, fragmentation and a lack of coordination. However, there are still some concerns that a national approach to humane control might put at risk existing management techniques, such as the use of 1080. One stakeholder comment was that '*The retention of effective vertebrate pest management techniques, especially the use of 1080, [is needed] until more humane alternatives are developed*'. But in the absence of a motivating force, the development of humane alternatives has progressed far too slowly. The workshop provided an opportunity to discuss how to improve research and development into humane control methods, including how to address market failure, how to coordinate and pool resources and how to manage the process towards better outcomes.

1.2.1 Key elements

The outcome of the workshop was that a national approach to humane vertebrate pest control should include the following key elements:

- uniformity of approach across jurisdictions
- coordination and collaboration of control efforts
- the development of nationally acceptable pest animal control practices
- the optimisation of research, development and education resources in pest animal control
- the identification of national priorities for increasing the humaneness of vertebrate pest control
- a national coordinating body with the ability to effectively implement and coordinate such a national approach.

At the core of this approach is the understanding that animal welfare issues must be integrated into a wider framework of environmental management. A national approach to humane vertebrate pest control recognises that the state of an ecosystem directly affects the diversity of populations, the likely survival of animal species and the welfare of individual animals within it. Improvements in the humaneness of control methods should be viewed in terms of this wider ecological context, if the full benefits of control are to be realised.

Many of our vertebrate pests derive from species introduced into Australia in relatively recent times, both deliberately and inadvertently, which subsequently flourished in the absence of competition, predation and disease together with an ability to exploit new and disrupted ecosystems. Some native species have also come to be regarded as pests as agriculture has replaced natural habitat.

The focus of this paper is on the improving humaneness in the control of established vertebrate pests. However, management practices that minimise population build-up and crop predation and thus reduce the subsequent need to invoke more stringent (and less humane) control measures should be considered as a first step wherever applicable and in line with best practice methodology overall.

1.2.2 Key components

The workshop identified six key components of a national approach which form the basis of this discussion paper and are expanded on in Sections 3 and 4. These are to:

- review current control techniques, codes of practice and identify best practice
- identify the research, development and education priorities required
- develop a consistent State/national framework for humane vertebrate pest control
- improve our understanding of public attitudes and awareness and their implication for humane vertebrate pest control
- integrate animal welfare into the planning, implementation and evaluation of control programs
- identify a mechanism to coordinate and implement these components.

1.2.3 Key benefits

The workshop considered that the benefits of adopting a national approach will be:

- increased on-ground recognition of the need for humane control practices
- the development of more humane control methods
- the achievement of an appropriate balance between welfare considerations and other national objectives served by vertebrate pest control; and ultimately
- the avoidance or minimisation of animal suffering during vertebrate pest control operations.

1.3 Definition and key principles

What do we mean by ‘humane vertebrate pest control’? A draft definition and list of principles for humane vertebrate pest control were circulated to all participants prior to the workshop. These were largely adapted from Littin et al (2004). After some feedback and discussion, the following definition and key principles were agreed as a basis for a ‘working philosophy’ for humane vertebrate pest control.

1.3.1 Working definition of humane vertebrate pest control

Humane vertebrate pest control (HVPC) is the development and selection of feasible control programs and techniques that avoid or minimise pain, suffering and distress to target and non-target animals.

In order to achieve acceptable HVPC a number of key principles for pest animal management need to be considered. These key principles are set out in Section 1.3.2 below.

This working definition applies to both lethal and non-lethal control techniques. A totally humane control method is one where the animal experiences no pain, suffering or distress. In the case of lethal control, humane killing is defined as an immediate and irreversible loss of consciousness followed by cardiac or respiratory arrest and the ultimate loss of brain function. This is difficult to achieve even in very controlled circumstances. Consequently it is often appropriate to use humaneness as a *relative* term: when we talk of relative humaneness we mean causing more or less pain, suffering or distress.

The concept of relative humaneness is important because of the impact it has in practice: every step towards minimising pain, suffering and distress is a step towards a more acceptable and humane practice. The assessment of the humaneness of a particular control technique or practice requires detailed research and consideration of the associated risks and benefits. Different techniques may be more or less humane depending on the target species and the way in which they are applied.

1.3.2 Key principles

Two sets of principles are outlined: three *research and design principles* which set out how to maximise the humaneness of vertebrate pest control programs; and eight *implementation principles* to guide the design and execution of such programs.

Research and design principles

- 1 The relative humaneness of all current methods must be assessed in the practical circumstance of their use and the most humane methods that are useable in any given situation must be employed. *This step, conscientiously taken, should lead to an immediate reduction in animal suffering.*
- 2 Active attempts must be made to improve the humaneness of all current methods, not excluded by step 1, that cause significant suffering. *This step should lead to welfare benefits in the medium term.*
- 3 An active research program to develop new more humane methods must be implemented. *This step should achieve improvements in the long term.*

Implementation principles

- 1 *The aims or benefits and the harms of each control program must be clear. Control should only be undertaken if the benefits outweigh the harms.* Control must definitely be necessary, and the benefits must be clearly identified so that they can be maximised and any anticipated harms minimised. This requires a sound understanding of the impacts of the pest in each case. It must be decided whether the aim is to reduce or avoid impacts or eradicate the pests, as the control method may be different or conflicting in each case.
- 2 *Control should only be undertaken if there is a likelihood that the aims can be achieved.* If the proposed benefits are not achievable the control program cannot be justified. The probability of benefit needs to be assessed and even if the harms are low, control should not be undertaken if the likelihood of benefit is low.

- 3 *The most humane methods that will achieve the control program's aims must be used.* (See research and design principles).
- 4 *The methods that most effectively and feasibly achieve the aims of the control program must be used.* The method must have the most effective impact on target pests with the least harm to non-target animals, people and the environment. This means that the methods must be appropriate for the species and the situation. The choice will therefore depend on knowledge of which methods can best achieve the aims with the target-species in their particular locations.
- 5 *The methods must be applied in the best possible way.* This is achieved by good quality control applied to, for example, the manufacture, selection, operation, placement, maintenance and effective use of devices, poisons and other components of each control method.
- 6 *Whether or not each control program actually achieved its aim must be assessed.* In reality, control programs do not always achieve their aims. Whether or not this is the case must be determined, so that if necessary, methods can be changed to those that are more likely to achieve the desired aims. The real measure of success is whether a pest control program reduces the negative impacts of pests, not merely whether the number of pests is reduced following control.
- 7 *Once the desired aims or benefits have been achieved, steps must be taken to maintain the beneficial state.* If that were not done, the control program and any suffering it causes would be purposeless.
- 8 *Where there is a choice of methods, there needs to be a balance between humaneness, community perception, feasibility, emergency needs and efficacy.*

2 Current status of animal welfare in vertebrate pest control

2.1 Stakeholder policies on animal welfare

Prior to the workshop, participants were asked to complete a questionnaire to obtain an overview of the policy positions their organisations had which directly or indirectly made reference to, or were aimed at addressing, animal welfare within a vertebrate pest control context.

Whilst there are very few specific policy statements related to humane vertebrate pest control, nearly all organisations and agencies had overarching statements which acknowledged or promoted the inclusion of animal welfare considerations as part of any vertebrate pest activity. All agencies and organisations described that they, and those they advise, have a basic requirement to comply with relevant animal welfare legislation, although in some cases specific exemptions from this legislation exist for vertebrate pest control.

It is a positive indication that nearly all agencies and organisations at least recognise their legal responsibilities for the humane treatment of vertebrate pests. There seems to be at least an indirect recognition of humaneness within the general policies and procedures of most stakeholders. It is also heartening to learn that the basic premise from which most stakeholders (ie government agencies, professional bodies, animal welfare and primary producer organisations) operate are not too dissimilar.

Animal welfare is generally seen as one of several considerations that need to be assessed when conducting vertebrate pest control. This multi-perspective and multi-issue approach for vertebrate pest control policy aligns with basic policy development theory.

2.2 Current research and other activities

Participants from State and Commonwealth government agencies were also requested to provide an outline of their involvement in animal welfare related activities for vertebrate pest control. Whilst this request was primarily concerned with research, it became obvious that their contributions to the broader issue of humane vertebrate pest control went beyond this. Agencies contributed significantly to extension, education, training, planning and best practice implementation. All of these activities, when combined with research activities, become a package of actions that contribute to humane vertebrate pest control.

Whilst there are only a few research projects dealing specifically with animal welfare as an issue, a large number of projects include improved animal welfare outcomes as one of their ultimate objectives. These improved outcomes range from increased specificity, greater knowledge of species being managed and development of techniques that might be suitable as substitutes or additional methods.

Efforts are made by State and Commonwealth agencies to provide extension, training and planning activities which have welfare components and support more direct welfare activities. By having a better-trained and aware community conducting vertebrate pest control in a more strategic and planned manner, animal welfare outcomes can be achieved in tandem with pest management outcomes.

Without the coverage of all of the activities related to vertebrate pest control, the development of individual components in isolation will not deliver significant results. In order for there to be any real improvements in welfare, research outcomes need to be communicated, people need to be trained in both animal welfare principles and operational procedures and there needs to be better coordination of strategic programs across State boundaries.

2.3 Purpose and desired outcomes of a national approach

Based upon the pre-workshop questionnaire, a number of underlying themes were repeated by most stakeholders. These included agreement, guidance, informed decision making, continuous review and improvement and balance. The need for balance included: balance between the need for control versus welfare; balance between research and action; balance between searching for new things and improving existing things; balance between long-term and short-term activities; and having factual information available in order to make balanced decisions and form balanced opinions. The general sentiment was that without an agreed set of directions there would continue to be possible duplication, inefficiencies, conflicts and a lack of motivation to move forwards.

These themes were carried through amongst the larger group at the workshop. Workshop participants were provided with the list of the responses to the background questions that had been circulated prior to the workshop. These included responses regarding the purpose and desired outcomes of a national approach.

Based on workshop participant responses, it was considered that a national approach needs to incorporate the following elements:

- uniformity of approach across all jurisdictions
- a united approach – to increase the level of united action
- alignment, coordination and collaboration of efforts
- nationally acceptable pest animal control practices/guidelines
- alignment with community, business, government and conservation expectations and needs
- optimal allocation of research, development and education (RDE) resources in pest animal control
- identification of national priorities
- improving humaneness of vertebrate pest control techniques and programs
- internationally defensible standards of pest control for Australia
- raised awareness.

It was also considered that, in order to achieve best practice, the approach of accepting the lowest common denominator must be avoided as a means of obtaining agreement and commitment.

A series of desired outcomes for a national approach were suggested by workshop participants. These included:

- more humane vertebrate pest control
- minimisation of animal suffering during vertebrate pest control operations (for target and non-target animals)
- a balance between welfare considerations and national good
- on-ground recognition/acceptance of the need for humane control practices
- development of more humane lethal methods
- bringing everyone controlling/managing vertebrate pests up to the present best practice and then improving standards
- improved ecological and economic benefits and increased community confidence and awareness that vertebrate pest control is based on good science, reflected in best practice humane technologies and on-ground implementation

- feasible and practical solutions that people agree to
- development of a framework for objective assessment of vertebrate pest control
- coordination of RDE
- convergence of opinion and understanding of vertebrate pest control issues.

As can be seen from the above suggestions, several themes and areas of common concern emerge. Any national approach to vertebrate pest control should aim to incorporate these themes and elements, several of which are equally relevant across pest and natural resource management and not restricted to animal welfare concerns. They include coordination, balance, shared understanding and direction, optimising resources and collaboration. Incorporating these into vertebrate pest management makes 'good business sense'.

3 Components of a national approach

3.1 Introduction

Workshop participants were provided with a table of priority animal welfare issues in vertebrate pest management, compiled from the submissions of a sample of participants. The table provided a brief description of each issue and the desired outcome and were used as a basis for further discussion. Participants discussed whether any further issues should be added and then grouped the issues into five 'components'. Box 3.1 lists each of these components together with the key issues that were discussed.

The development of these key components forms the basis of a national approach to humane vertebrate pest control. The remaining sessions of the workshop were devoted to discussing the scope and detail of each component, under the following headings:

- extent and impact of the issues involved
- desired outcomes
- any gaps in current knowledge or actions
- actions required.

The following sections of this discussion paper draw from the workshop discussions of these key components and set out the actions that need to be taken to progress a national approach. They have been expanded by members of the working group to provide some explanation of each issue and action.

Box 3.1 Components and priority animal welfare issues

Component A: addressing immediate technical issues

- 1 Codes of practice – need for uniform codes of practice for techniques used in vertebrate pest control.
- 2 Acceptance and adoption of principles for humane vertebrate pest control.
- 3 Develop a ranking system for the least to the most acceptable (humane) methods of control (ranking system to include both *process* and *criteria*) – phase out the least acceptable.
- 4 Review of specific control techniques; phosphorous, chloropicrin, leg-hold traps, glue-boards, etc.
- 5 Identify and reduce the impact of control techniques on non-target species/populations and ecosystems.
- 6 Set up an independent body and objective process to review methods of vertebrate pest control.

Component B: development of national research, development and education priorities

- 1 Development of national RDE priorities to ensure continuous improvement in humaneness of control techniques and programs.
- 2 Development of additional toxicants, baiting strategies and control techniques to improve humaneness.
- 3 Development and consensus on objective science-based criteria for humaneness.
- 4 Increase ecological/habitat research as corollary for most humane technique development.

Component C: development of a consistent national framework

- 1 Clarification of the State/Territory legislative basis relating to the humane treatment of vertebrate pest animals.
- 2 Adopt regulatory incentives to develop more humane toxicants through consideration of animal welfare by APVMA.
- 3 Address the current reluctance to develop new options, or replace existing methods, where humane practical alternatives are available.
- 4 Consideration of market competition and incentives.

Component D: public attitudes and awareness

- 1 Lack of knowledge or a common understanding of animal welfare principles and vertebrate pest control issues.
- 2 Research on the origin and distribution of community attitudes to vertebrate pest control.
- 3 Need for open and accountable decision making over issues where conflicts arise.

Component E: integrating animal welfare into control programs

- 1 Need for a strategy to ensure that RDE outcomes that improve humaneness are rapidly adopted and implemented.
- 2 Need for a reassessment of the rationale for control.
- 3 Need for recent improvements in adoption of ‘best practice’ to be maintained to assist animal welfare objectives.
- 4 Capacity building.

3.2 Component A: addressing immediate technical issues

3.2.1 Background

The issues under this component were discussed at length by all workshop participants. For many participants, the workshop provided the opportunity to highlight and address a number of areas of vertebrate pest control that were considered to be unacceptable by the majority of stakeholders. This component was recognised as having the potential to generate tangible outcomes from the workshop with immediate and broad impacts.

Early on in the workshop discussions, it became clear that one of the first steps in the development of a national approach was to establish some basic principles that could be applied to all control programs. The development of the definition of humane vertebrate pest control and the key principles set out in Section 1 of this discussion paper goes some way towards this. Whilst there may be some variation in the application of these principles across stakeholders, their level of acceptance by workshop participants as the starting point for humane control was extremely high.

Once basic principles had been established, a number of further steps were identified to improve existing control and identify areas in need of further research. These are outlined below.

3.2.2 Ranking the humaneness of control techniques

This was considered one of the main priorities for future work: to develop a ranking system for the least to the most acceptable methods of control, in terms of their relative humaneness. A number of criteria were identified for such a ranking system:

- The definition and key principles of humane vertebrate pest control would apply.
- Existing techniques should be tabulated on the basis of both the process involved and the criteria determining when a particular method be used. The same method may be more humane in some circumstances and with some species than with others.
- Humaneness should not be considered in isolation from other factors, but it would form the basis for the ranking system.
- Where gaps in knowledge are identified, research and development priorities should be set.

It was clear that there would need to be general agreement amongst stakeholders over the ranking process, and that widespread dissemination of the results of the ranking process would be necessary. It was also clear that in the short term, such a system would only provide relative, and not absolute, measures of humaneness. The need for additional research to help quantify animal welfare outcomes of control techniques is discussed further in Section 3.2.

The following model was proposed by the workshop as a means of developing and progressing a ranking process for humaneness.

Proposed model

The assessment of the relative humaneness of control techniques should be carried out by an independent technical group. Input into the group would come from the various stakeholders with expertise in animal welfare and humane vertebrate pest control. The following organisations were suggested as core members of this group: the VPC, AVA, Animal Welfare Centre, RSPCA Australia, Animals Australia and the State and Territory AWACs.

The independent technical group would list and prioritise the control methods and species that they would include in the process. Input from related studies would be sought, including overseas models, such as the development of standards for traps in New Zealand, or the animal welfare audits for livestock animals developed by the Animal Welfare Centre. The following criteria would apply to the ranking process:

- Ranking would be both species- and context-specific, ie the rank given applies to a given method on a given species in a given situation.
- Where it is clear that one method is more humane than others, this should be highlighted as the preferred control method for that species in that context.
- Where existing knowledge is insufficient to draw conclusions about the humaneness of a technique, further research should be carried out. Qualifiers would be included in the ranking process to identify areas of uncertainty.

The outcomes of the technical group would be disseminated to the wider vertebrate pest control community. Stakeholders might examine the strengths and weaknesses of the preferred methods in terms of social acceptability, environmental impacts, human health and safety and other factors besides humaneness, but the ranking process would provide a firm basis for the assessment of the suitability of a particular method. Preferred methods would be incorporated into codes of practice and standard operating procedures at both the State and Federal level. The level of agreement with, and uptake of, the resultant ranks would provide an indication of the success of the ranking process. Ultimately, methods that had been assessed as not being humane and where a suitable alternative had been identified could be clearly identified as unacceptable and phased out of use.

Ranking humaneness against efficacy

It was generally agreed that the selection of the most appropriate vertebrate pest control technique required consideration of both humaneness and efficacy: decision-making concerning the continued use or specific need for using particular techniques could not be based upon humaneness alone. In the absence of a humane alternative, especially in the face of a valid need to address high priority needs, a technique that is considered to have poor humaneness may be justifiable if it has high efficacy. Conversely, some techniques that are considered humane may have low efficacy and cannot therefore be justified in any circumstances where desired objectives cannot be met. The task of ranking technique humaneness against efficacy was considered to be a high priority and one that was required before further RDE and policy needs could be identified.

3.2.3 Development of standards

The humaneness of an individual control technique is highly dependent on the way in which the technique is applied and on the skill of the operator involved. Attention to details such as bait delivery, lethal dose rates, timing and coordination of control have significant effects on animal welfare and target outcomes of control programs. At present, the way in which control methods are applied varies considerably between locations, operators and species. There is a wide breadth of knowledge across the vertebrate pest control community, but little communication or setting down of best practice in a manner that is accessible on a national level. To address this, alongside the assessment of the humaneness of control techniques, national codes of practice (COPs) and standard operating procedures (SOPs) need to be developed and implemented.

The Federal Department of Environment and Heritage has funded an important project to produce national COPs and SOPs for a range of existing control techniques. To be effective, this project needs to be fully supported by the Vertebrate Pests Committee and carefully considered by State/Territory government agencies in reviewing their own COPs/SOPs. To date, the VPC has not lent its full

support to this project. Instead, the Committee has expressed concern over the promotion of uniform standards and has stated a preference for regionally appropriate best practice methods. The COPs and SOPs must be supported by an awareness campaign and regulatory framework if they are to be anything more than a theoretical exercise. Feedback from the proposed ranking process outlined above would help to identify priorities for the development of future COPs and SOPs.

3.2.4 Improving humaneness in the short term

Addressing some of the obvious technical issues associated with pest animal management provides a very tangible way to improve animal welfare in the short to medium term. This includes development of new control techniques as well as better use of existing techniques. Discussion of the impact of existing techniques is set out below under species headings. Examples of work currently being undertaken to improve animal welfare are outlined as 'actions' under the different technique headings, below. This does not represent a comprehensive list of all available control techniques for all species, but covers only those species and techniques where a specific short-term action has been identified to reduce adverse impacts on animal welfare.

(i) Rabbits

Poison baiting

1080 poisoning is an important component of integrated rabbit control and can reduce the number of rabbits that need to be killed by apparently less humane and environmentally damaging techniques such as warren fumigation (using chloropicrin or phosphine) and ripping (as well as potentially reducing rabbit density below that which can sustain a widespread myxomatosis outbreak). While there is no evidence that 1080 poisoning causes severe or prolonged pain in rabbits, its relative humaneness is not clear. The use of Pindone is one of the few viable control options for rabbits in semi-urban areas, where 1080 poses an unacceptable risk to non-target animals. Pindone is an anticoagulant, and causes pain associated with internal bleeding, particularly where bleeding into joints is involved.

Action: the first priority in improving humaneness is the implementation of standard operating procedures (SOPs) to ensure that baiting with 1080 or Pindone is conducted according to best practice. This should facilitate high kill rates (reducing the need for follow-up control and keeping rabbit densities low), a reduced chance of sub-lethal dosing and a reduced non-target risk. There may also be some opportunity to develop a manufactured/pre-dosed 1080 bait to achieve greater quality control and higher rabbit kill rates with less non-target risk.

Fumigants

Chloropicrin, and to a lesser extent, phosphine, have been used as rabbit warren fumigants in Australia for many decades, although the technique is not widely applied. Both chemicals are known to cause severe suffering: chloropicrin is a strong sensory irritant that causes intense irritation of the respiratory tract. Trials carried out by the Victorian Department of Primary Industries (DPI, Frankston) have confirmed that some rabbits within a warren may take over one hour to die subsequent to chloropicrin exposure from a power fumigator using standard field protocols. The entire period of exposure is associated with intense distress.

Action: There is clearly a need to substitute chloropicrin for a more humane and safer form of pressure fumigation. The development of a replacement fumigant and delivery technique (such as a carbon monoxide fumigator) should be a priority. Work in this area has been undertaken by the Victorian Department of Primary Industries in collaboration with Monash and Melbourne Universities. The work has resulted in a carbon monoxide fumigator that meets the required specifications for effective and humane warren fumigation. While the device shows great promise, financial and policy support is

needed to provide the impetus to achieve registration, manufacture, distribution and adoption along with the phasing out of chloropicrin.

Warren ripping

This is currently regarded as a critical component of rabbit control and the only viable option (apart from biological control) in broad-scale areas such as rangelands. Some rabbits undoubtedly suffer through suffocation, direct mechanical wounding from ripping tines and, in some cases, through being left out in the open with no harbour to return to. This method can also result in significant habitat destruction that affects non-target species.

Action: the humaneness of warren ripping can be improved by the implementation of SOPs to ensure that it is conducted when rabbit numbers are at their lowest (due to seasonal conditions, disease, baiting etc) and soil conditions and equipment are optimal to ensure complete destruction of the warren system.

Biological control

In the case of myxomatosis, the obvious symptoms and the relatively long interval between infection and death indicate considerable suffering. The symptoms of rabbit haemorrhagic disease are less obvious, and, although there has been some debate on the level of suffering involved, it is considered to be a more humane death than from myxomatosis. Currently there are no available biological control techniques for reducing the fertility of rabbits in the field. The promiscuous behaviour, opportunistic breeding, short lifespan and high population turnover rates of rabbits make population management by fertility control a difficult proposition, and there are animal welfare concerns relating to the use of some chemical sterilants. To date, research into developing virally vectored immunocontraceptive vaccines for rabbits, has not yielded any practical products. There are also concerns about the potential for the spread of such viruses to farmed rabbits or indigenous populations overseas.

Action: there is little that can be done to reduce the effects of biological control agents, such as the myxoma virus, that are already widespread in the environment. It is clear, however, that animal welfare must be taken into serious account early on in the development and release of new strains of viruses or other forms of biological control.

(ii) Foxes

Poison baiting

1080 baiting can achieve high levels of fox control if conducted properly; there are no viable alternatives for broad-scale fox control in Australia at present. Whilst foxes exhibit signs of distress (eg retching) during the initial onset of symptoms, the conscious awareness of any pain or anxiety during latter periods of convulsive fitting is the subject of ongoing debate. One component to baiting as humanely as possible (ie ensuring high target species kill rates and avoiding sub-lethal poisoning and non-target impacts) revolves around bait selection, placement and delivery techniques, follow-up inspections, removal and replacement, and the timing and coordination of baiting. These factors are highly variable throughout Australia.

Action: There are a number of specific actions to improve the humaneness of fox control in various stages of progress:

- A detailed review of baiting practices is currently underway (Saunders, in prep.) which will inform State agencies in any reviews of fox baiting policy and practice. Guidance on best practice is also available through the recently developed COPs and SOPs for fox control.
- A bait delivery device, the M-44 ejector, has been proposed as an alternative method of delivering 1080 (possibly combined with an analgesic) in some situations. The advantage of this method is that non-target risk can be reduced as the ejector requires animals to pull the bait in a particular direction and with a specific minimum force to release the toxicant capsule. The other advantage of

the approach is that the 1080 is contained in a capsule, so is not subject to breakdown as occurs when incorporated into baits in moist soil. M-44s may also be used with a cyanide capsule, which would have clear animal welfare benefits if human safety risks can be addressed. However, the M-44 technique is more expensive and labour-intensive than conventional baiting over a large area and is likely to offer an adjunct rather than replacement of traditional 1080 baiting approaches.

- Research by the Victorian Department of Primary Industries (Frankston) has investigated the use of analgesics and anxiolytic drugs for co formulation with 1080. Following previous studies (Marks et al. 2000), recent work has resulted in the identification of analgesic agents that improve the humaneness of 1080 (Marks et al., in review).
- Para-aminopropiophenone (PAPP) has been shown to be an effective fox control agent when used in the M-44 ejector and causes a death that is much faster than 1080 and without symptoms commonly associated with suffering (Marks et al. 2004a).
- A canid-specific toxicant is currently being investigated by the PAC CRC that appears to cause a rapid and humane death in wild dogs. It may allow a more widespread and acceptable use of aerial fox baiting in Australia. If successful, this research would require considerable support to bring to the stage of registration and widespread uptake.

Den fumigation

Fumigation with chloropicrin, and to a lesser extent, phosphine, is widely considered as inhumane. It is not a commonly used technique for fox control due to the difficulty of locating dens in broad-scale situations although it is used in some peri-urban situations where baiting and shooting are not available options.

Action: carbon monoxide cartridges have been relatively recently registered for den fumigation in Australia. The use of chloropicrin or phosphine should be replaced by carbon monoxide due to its humaneness and human health and safety advantages, although the relatively high cost of using these cartridges is a significant drawback.

Steel-jawed and snare traps

These are not considered humane, and are not effective for broad-scale control of foxes in any case.

Action: State/Territory agencies should act to eliminate trapping as a fox control technique. While trapping remains legal, States/Territories should require that steel-jawed traps be rubber-padded and inspected daily. Cage traps and sprung net traps are considered relatively humane, but the scope for their use is limited to some urban situations.

Shooting

The humaneness of shooting varies greatly depending on the skills and attitude of the operator (ie follow-up of injured animals). Shooting is likely to be relatively humane if carried out by a skilled marksman, but it is not considered particularly useful for broad-scale fox control. A Victoria-wide bounty trial, where approximately 200,000 foxes were killed, primarily by shooting, was not considered to cause a useful or lasting reduction in fox numbers. Shooting has not been able to cause a progressive decline in fox numbers on Phillip Island (a small 200 square km land mass) (Fairbridge & Marks 2003).

Action: shooting should be actively discouraged as a general fox control technique (although it may have a role in keeping fox numbers low if used opportunistically in conjunction with a structured baiting program). Bounty schemes should also be discouraged as they require evidence of a kill and thereby promote control techniques such as trapping and shooting.

Biological and fertility control

Bait-delivered fertility control offers potential humaneness and target specificity advantages over 1080 baits, although its utility may be limited to closed 'island' populations of foxes and often as a technique integrated with other control strategies. The PAC CRC has been attempting to develop viral and antigen sterility agents for foxes, but so far without success. Cabergoline, an alternative approach using a chemical anti-fertility agent, is currently being trialled on Phillip Island.

Action: this research is ongoing but it remains to be seen whether the technique can achieve required levels of fox population reduction or contribute to an integrated strategy with other methods of fox control.

(iii) Feral pigs

Poison baiting

This is the most viable and cost-effective form of control for feral pigs where they occur in extensive rangeland areas. There are two toxicants currently registered for pigs: 1080 and yellow phosphorus (CSSP). Pigs are large and less sensitive to 1080 than canids, and consequently baiting requires relatively high toxicant loadings, which represents a serious non-target concern in some situations. 1080 may also cause vomiting in feral pigs, which raises humaneness, sub-lethal poisoning and non-target issues. Poisoning with CSSP raises very serious animal welfare concerns, with pigs typically taking two to four days to die after intoxication, and probably suffering conscious pain for much of this period. CSSP is available as an off-the-shelf toxicant with relatively crude label directions, which increase the likelihood of sub-lethal poisoning and non-target impacts. Warfarin has been used under experimental permit for feral pig control and, when dispensed as a multiple dose chronic anticoagulant bait, would pose significant animal welfare issues due to the relatively long period to death and the internal haemorrhaging mechanism.

Action: the continued use of CSSP cannot be justified due to its inhumanness and the availability of viable alternative control methods including trapping, shooting and the use of 1080 meat baits. The APVMA is currently reviewing the registration of CSSP under its reconsideration of products containing carbon disulphide. The scope of this review needs to be extended to ensure that humaneness is included as a key assessment parameter. Action is needed to ensure that alternative techniques are employed in areas where government-supplied 1080 baits are not readily available. Current investigations through the PAC CRC into a manufactured 1080 bait or a one-shot warfarin bait may overcome this problem and provide an additional operational toxicant to 1080.

(iv) Wild dogs

Poison baiting

Cost-effective prevention of livestock predation by wild dogs in many parts of Australia is heavily dependent on 1080 baiting. Dogs, like foxes, exhibit signs of physical distress following the initial onset of 1080 poisoning symptoms, however the awareness of any pain or anxiety after collapse is still debated. Whilst wild dogs are also highly sensitive to 1080, they are larger than foxes and therefore require a higher 1080 loading which poses a greater non-target risk (although this is generally countered by using larger baits, which make it less likely that a whole bait will be consumed by a non-target).

Action: As with foxes, the efficacy, specificity and humaneness of wild dog baiting is dependent on: bait material, correct toxicant loading (including injection of 1080 into the bait rather than surface coating), placement of baits, and timing, coordination and area of baiting. A toxicant delivery device, the M-44 ejector, has been proposed as an alternative method of delivering 1080 (possibly combined with an analgesic) in some situations (see under (ii) Foxes for details of specific techniques).

Trapping

Leg-hold traps are used as an adjunct to 1080 baiting in many integrated wild dog control strategies. Steel-jawed and snare traps are not considered humane as they can cause serious physical injury and, if left unchecked, animals can die from dehydration, starvation or predation. In some areas where daily inspection is not possible, a mechanism to expedite the death of trapped animals is mandatory. Strychnine-laced cloth wrapped around trap jaws is used in some States. While this does result in a relatively rapid death, which may be considered preferable to sustained distress of trapped animals, strychnine is generally regarded as an inhumane toxicant.

Action: The use of steel-jawed traps should be actively discouraged by State and Territory agencies. Where they remain in use, the humaneness of these traps can be improved by the use of rubber padding, ensuring they are tethered with a spring chain and are inspected daily. The replacement of strychnine with cyanide would result in a more humane death, but human health and safety risks would need to be addressed. Recent research has examined the potential for using tranquilliser trap devices (TTDs): anxiolytic- or sedative-filled tags placed on traps to reduce anxiety/struggling of trapped animals. Diazepam has been found to have some potential and is considered safe, cheap and fast-acting (Marks et al. 2004b). If current investigation of a canid-specific toxicant is successful and a product is registered, this compound may prove suitable for TTDs.

(v) Rodents

Poison baiting

The use of poisons for rodent control is probably the greatest animal welfare issue associated with pest animal management in Australia, in terms of numbers of animals killed and the mechanisms used. Anticoagulants cause a slow and painful death and the method of delivery presents a risk to non-target animals, as do the carcasses of poisoned animals. The use of anticoagulant poisons by the general public is widespread, but this seems to be accepted because the target animal is unpopular and animals generally die out of sight. This lack of public concern has meant that there is little incentive for commercial manufacturers of rodenticides to consider animal welfare issues in bait development. In agricultural settings, the increasing prevalence of minimum tillage cropping practices has resulted in greater food availability for mice, and a higher incidence of mouse plagues. Anticoagulants such as brodifacoum are used in bait stations, but zinc phosphide is the only toxicant registered for broad-scale field distribution during mouse plagues. It is faster acting than anticoagulants and is generally considered to be more humane.

Action: There has been considerable research in recent years into farming practices that can be employed to reduce the food and shelter available to mice, thus potentially reducing the rate of population build-up and hence the need for frequent, broad-scale use of toxicants with associated humaneness and non-target concerns. Similarly, advice to the general public on the effects of anticoagulants and practices that reduce the need for the use of poisons is needed to tackle this issue.

Trapping

A number of trapping methods are employed for small-scale rodent control. These include snap-traps and live traps including glue boards. Snap-traps are considered to be one of the most humane killing methods as they usually cause an instant death (Mason and Littin 2003). Glue traps can result in physical injury if the animal tries to free itself and can cause severe suffering if the animal is left to die from starvation and dehydration. Live box traps must be checked frequently for the same reasons and the captured animal must be humanely killed. Electrocutation traps have been developed for domestic use in the USA and Europe and are considered to provide a humane and rapid death, however their use in Australia would contravene animal welfare legislation in several States.

Action: increased public awareness of the relative humaneness of different methods would help to increase the use of more humane trapping methods and reduce the use of poisons. There are moves in several States to ban the use of glue traps and these should be supported.

(vi) Feral cats

There are few control options for broad-scale feral cat control. Aerial baiting with 1080 is used as a widespread control method in remote WA. Current evidence suggests that 1080 poisoning in cats causes significant suffering over several hours. There is some opportunistic shooting of feral cats and this is likely to be relatively humane if carried out by a skilled marksman, but it is not considered particularly useful for broad-scale control.

Action: a felid-specific toxicant has been developed by the Victorian Department of Primary Industries which has the potential to provide a much more humane alternative to 1080. A delivery technique has also been developed that will substantially reduce the exposure of small mammals when either toxicant is bait delivered (Marks et al., in press). However, the development of a reliable and bait stable coating for the toxicant capsules has yet to be accomplished. For both toxicants, their overall effectiveness is dependent on improving target uptake of baits and reducing non-target impacts.

(vii) Other species and techniques

As indicated earlier, the above list of techniques includes only those where a specific action to reduce animal welfare impacts was identified. There is a wide range of other control techniques and species of pest animals that have not been covered here. These include goats, deer, fish, cane toads, a range of bird species and native animals that are regarded as 'pests' due to excessive numbers or mis-location. Management of each of these species should be examined to identify areas where the humaneness of control techniques could be improved. Concerns over the humaneness, target specificity or effectiveness of other control methods will need to be addressed through the setting of RDE priorities as examined in Component B. In other cases, the humaneness of specific techniques may be improved through the development of COPs and SOPs as outlined in Section 3.2.3.

3.2.5 Specific actions

The need for a uniform basis on which to form a national approach to humane vertebrate pest control was clearly articulated during the workshop. If the general agreement on the key principles outlined in this document can be extended to the wider community, then we have a firm foundation for such an approach. Action is then required to address the range of problems that exist with current control techniques, and the workshop proposed three main means of addressing these problems:

- to develop a ranking system to determine the relative humaneness of existing control methods
- to improve the standard and consistency of control through national codes of practice and standard operating procedures
- to identify areas where the humaneness and effectiveness of existing control techniques could be improved in the immediate to short term.

A number of more specific actions relating to these three different points are outlined above. Some of these relate to the phasing out of existing techniques, while others suggest action to improve the humaneness and target-specificity of existing techniques through their more uniform implementation in accordance with current best practice.

It should also be acknowledged that there is already considerable research under way into improving the efficacy, humaneness and specificity of control techniques. However, there are clearly impediments associated with registration and commercialisation of new techniques pointing to the need for greater collaboration with APVMA and commercial pest control product companies. A major impediment to the adoption of improved control techniques is the small market for such products, which makes research and development into pest animal management (apart from rodent management) an unattractive proposition for private companies. Public support is required in line with the public benefits associated with protecting land resources and the environment from pest animals in a humane manner. The RSPCA and general public have an important role to play in facilitating such support. The issue of future research and development priorities is tackled under the next Component heading.

3.3 Component B: development of national research, development and education priorities

3.3.1 Background

Vertebrate pest research, development and education (RDE) activities within Australia are undertaken by a range of stakeholders and research providers, including State and Federal government institutions and universities. State government funding is often provided by departments responsible for environment, agriculture and natural resources. Within one State, funding and tasks can be split between a number of State government bodies and institutes. Each may fund or undertake separate vertebrate pest RDE activities depended upon their perceived priorities for the State. The Federal government presently allocates RDE funding to states for vertebrate pest research through programs administered by the Federal Department of Environment and Heritage (DEH; formerly Environment Australia) and the Bureau of Rural Sciences. Much of this funding is allocated from revenue received via the Natural Heritage Trust and is allocated according to the mission and business objectives of each of these departments. Funding is usually allocated to State governments or CSIRO for projects that usually receive a substantial allocation of State government/CSIRO funds on a cost-sharing basis.

Projects concerning vertebrate pests are also funded by a variety of rural industries research and development corporations. These funds are allocated on the basis of the business interests of the industry group members and key stakeholders.

There are a number of Federal government co-operative research centres in Australia that have a primary or partial interest in vertebrate pest issues. The Pest Animal Control Cooperative Research Centre (PAC CRC) conducts research that aligns with the interests of its core members and funding groups and is approved by its board. Other CRCs (such as the Forest Products CRC and Marsupial CRC) conduct research activities that address specific impacts of vertebrate pests that are relevant to their goals, often as part of a much wider research agenda.

There is substantial interest in vertebrate pest issues in Australian universities and a number are members of the PAC CRC. However, many universities outside the CRC system conduct research on vertebrate pest issues associated with programs within natural resources, biological science and wildlife management departments. Funding for this research may come from a range of sources, including SPIRT and other Federal government education funding.

3.3.2 Support for a national approach to RDE

The workshop participants agreed that the adoption of a process of continuous improvement was an appropriate strategy to ensure the development of additional humane vertebrate pest control techniques. Importantly, continuous improvement was also believed to be necessary for encouraging a better community perception of humane vertebrate pest control.

There was widespread support for coordination of RDE capacity and better use of available resources. Many State vertebrate pest control issues are similar in nature and parallels exist between States concerning the type of RDE required. This is partly because many of the major pest species (rabbits, foxes, feral cats, feral pigs etc) are endemic in a number of States, often impacting in a similar manner. Accordingly, the approaches used for their control (eg shooting, 1080 baiting, trapping etc) are often very similar and most require registration by a national regulator (APVMA) that attempts to develop a degree of standardisation in approach. Moreover, similar techniques are used for to control pests, whether the objective is to address agricultural, conservation, forestry or other objectives.

One participant suggested that the issue of predator bait impacts upon non-target species had been overstated and that validity of some research needs in this area should be challenged. Others countered that disagreement and the lack of conclusive data to resolve this issue was a major knowledge gap.

3.3.3 Barriers

Participants identified the need for a national body to implement a strategy that should seek to address priority RDE areas in HVPC. There is currently no set of national priorities for any RDE activities related to vertebrate pest control *per se* in Australia, nor is there an active process of coordinating existing resources and RDE providers to facilitate an agreed national approach. Therefore, a RDE strategy specifically for HVPC would have few precedents.

Whilst the Vertebrate Pests Committee (VPC) contains representation from State and Federal government, it does not actively seek to define national priority areas or coordination of RDE activities beyond provision of *ad hoc* advice. There appears to be no mandate or facility for the VPC to direct resources or coordinate RDE providers to collaborate on areas that are seen to be in the national interest. The VPC has no discretionary budget that it can direct towards national priorities. The absence of a national peak body that has the ability to define priority areas and direct resources towards long-term goals is a conspicuous deficiency.

The independence of State government budgets, splitting of business responsibilities within government and between business areas (ie conservation, agriculture, natural resources etc), and the absence of a defined mechanism to coordinate resources inhibits national RDE priorities being developed even though many of the vertebrate pest welfare issues facing each government and business are the same.

There was a belief that strong support and/or involvement by animal welfare groups is required to ensure the development of current and novel approaches to increase humane vertebrate pest control. It was suggested that animal welfare groups should be prepared to actively engage with persons undertaking RDE activities and plan alternative approaches that are practical and cost-effective in addressing the reasons and needs for vertebrate pest control.

A belief that an emphasis upon improved and/or more humane techniques could be an impediment to the use of current control techniques was identified as an attitude that is not consistent with developing a culture of innovation and developing long-term RDE objectives. Similarly, the belief that biodiversity and welfare concerns are mutually exclusive was suggested to be unhelpful.

Research and development into humane vertebrate pest control is unlikely to have a major impact or result in tangible outcomes unless an adoption/implementation strategy is developed to see the movement of research outcomes to the field, in a process that recognises the difficulties that are involved in both registration and commercialisation. Market failure is a barrier to the adoption of some alternative strategies and an adoption strategy for more humane techniques should investigate strategies to overcome market failure to deliver improved control techniques.

3.3.4 Priority issues

Much of the current focus in vertebrate pest research seeks to refine, apply and monitor the efficacy of conventional control techniques (eg shooting, trapping, habitat modification, fumigation and poison baiting) in the immediate to short term. A number of examples of this type of research were described in the previous section. The need for continuous improvement and fostering of appropriate innovation was generally seen as an essential component that should aim to develop an appropriate portfolio of RDE projects. There were three broad areas where priority RDE should be directed.

(i) Assessing welfare

There is currently no unanimously accepted definition of what constitute desirable animal welfare outcomes for vertebrate pest control techniques. The term 'animal welfare' is poorly defined and open to subjective interpretation. While it is common to refer to the 'humaneness' or even 'relative humaneness' of control techniques, these are not currently quantifiable or measurable. As a subset of humaneness, terms such as pain, anxiety, distress, suffering and stress are often used interchangeably or with little understanding of the underlying psychological and physiological processes. Alternatively, relative humaneness may be incorrectly defined by a perceived existence of 'pain' without regard for other psychological and physiological mechanisms that compromise animals' well-being (eg anxiety).

Animal welfare is a highly emotive subject and interpretations of what constitutes 'good animal welfare' are often based upon subjective, casual or uninformed opinion. It is important for science to be able to objectively identify situations that create serious welfare risks, and to provide a means so that the extent of any welfare impacts can be measured. An agreed methodology is required that will enable us to categorise the relative humaneness of various control techniques and to determine desirable welfare outcomes for the future. Ethical judgements should usually be based on good science and thus welfare decisions should be underpinned by science.

There has been relatively little scientific attention given to determining the welfare impacts of pest control or the development of control techniques that improve welfare outcomes for both target and non-target animals. However there is a considerable body of data on the animal welfare methodologies in agricultural species and which could be utilised. This research will probably encompass the traditional fields of animal behaviour and physiology in furthering our understanding of what constitutes humane control. Given the impact of molecular biology and genomics on other areas of animal biology, there is considerable scope to use these tools to determine the fundamentals of stress biology and to develop welfare diagnostic tools, however this is unlikely to occur in the short term.

(ii) Technical development and innovation required

Additional lethal agents to 1080

Presently, the poison 1080 is the predominant toxicant used for the control of wild dogs, foxes, rabbits, feral cats and pigs, although its humaneness is questionable. There are currently no other toxicants in use that are considered acceptable alternatives in terms of humaneness and environmental and human health and safety in most circumstances, although research has identified some potential alternatives (see Section 3.2.4). There was clear agreement that alternative toxicants to 1080 were a high RDE priority, especially since little attention had been placed on this area in the past.

Assess and improve target-specificity of control

Exposure of non-target species to agents or devices intended for vertebrate pest control has a high degree of relevance to welfare impacts. By increasing the target-specificity of control (ie poison bait delivery), the welfare impact of a technique is reduced consistent with reduced exposure of non-target species. Therefore new methods of delivery of toxicants should be investigated for the potential to increase their target-specificity.

Replacement of lethal with non-lethal control where appropriate

The role of non-lethal control in vertebrate pest management (eg fertility control, repellents etc) was discussed as an alternative to lethal control methods. While it was generally agreed that these techniques are unlikely to totally replace lethal control for many pest species in most circumstances, there may be applications where they can replace lethal control with as much efficacy. Alternatively, a combination of lethal/non-lethal control may be appropriate to reduce the frequency and extent of lethal control.

(iii) New knowledge and policies required

Impact of predators on farm stock

Predatory behaviour of wild canids (wild dogs and foxes), especially where it resulted in the wounding of livestock, was proposed as an animal welfare issue in its own right. More attention needs to be focused upon the need for appropriate predator management to assist the landholder to protect the welfare of livestock. Consequently, the issue of predator control and associated policies should not be viewed solely from the perspective of welfare impacts upon target species.

Secondary/indirect impacts of control on non-target species

Pest animal control may have undesirable secondary and indirect ecological consequences. Reductions in rabbit populations for instance may cause foxes to switch to alternative prey species and potentially have negative conservation and welfare impacts upon other species. The implications of control programs need to be better understood in terms of their potential for secondary impacts and inherent animal welfare impacts that may arise.

Prevention of new pest populations and expansion of existing pests

The need for ongoing control and any consequent welfare impact upon target and non-target species arises only after the establishment of an endemic pest species. The prevention of pest populations from becoming established or expanding is rarely understood as an animal welfare issue, yet this was seen as a vital component in minimising future welfare impacts. Policies and strategies that reduce the risk of pest establishment or act to immediately contain new introductions are an essential component to a national approach to HVPC. The example of the release of foxes in Tasmania and *the lack* of an immediate and tangible national response to ensure that foxes did not become established was an example of poor national coordination and preparedness. The establishment of a fox population in Tasmania will initiate ongoing control that is likely to extend potential welfare impacts.

3.3.5 Specific actions

The need for better coordination of research, development and education was seen as a fundamental component of a national approach to humane vertebrate pest control. How this can be achieved is summarised as follows:

- A mechanism for the national coordination, resourcing and development of collaborative RDE and adoption/implementation of outcomes must be developed before significant progress can be made in humane vertebrate pest control.
- The development of agreed scientifically based welfare assessment methodologies will require the involvement of key stakeholders represented at the workshop and particularly animal welfare scientists. The ranking of humaneness against efficacy should be a priority area and one of the first tangible outputs of HVPC research.
- Involvement of animal welfare groups in the development of RDE priorities and the development of novel approaches to vertebrate pest control is required. Although the visible support and involvement of all stakeholders is sought, key animal welfare organisations such as the RSPCA and Animals Australia must be part of the RDE planning process. Participants suggested that a formal statement from these organisations would assist progress and general community support.
- Effective linkages between major research providers and plans for RDE programs, that take account of responsibilities and strategies for final adoption of outcomes, should be established and documented. This process is only achievable after a mechanism for coordinating and resourcing national RDE is identified.

3.4 Component C: developing a consistent national framework

3.4.1 Background

There was a general consensus at the workshop that there would be considerable advantages in developing some consistencies across jurisdictions. However, there was also recognition of the difficulties involved because of individual State/Territory responsibility for animal welfare. Thus, it was considered that any proposed framework should not be reliant on underpinning legislation. While this may be an ultimate requirement, it was considered that sufficient goodwill could be generated within current structures to assist progress in this area.

Indeed, it was recognised that one of the difficulties was the large number of agencies involved, and also that in some States/Territories the responsibilities for animal welfare and pest animal control were in the same agency (eg NSW, Tasmania and ACT) whilst in other States, the responsibilities were in separate agencies (eg Queensland, Victoria, SA and WA). The two issues are generally dealt with separately under legislation and, in some jurisdictions, some aspects of animal welfare legislation may be subservient to pest control legislation. Also, while there was a recognition that State agencies have some powers to enforce animal welfare, this was generally restricted to the need not to cause unnecessary suffering; any application of welfare principles was generally at one end of the spectrum of welfare (ie to improve the humaneness of the least humane techniques) rather than across the spectrum of welfare concerns (ie to mitigate welfare concerns for all control techniques).

There is already some coordination, via a number of committees, across the State/Territory agencies currently involved in vertebrate pest control. These committees are:

- NRMCM – National Resource Management Ministerial Council (State/Federal Environment Ministers)
- NRMSC – National Resource Management Standing Committee (State/Federal agency environment representatives)
- PIMC – Primary Industries Ministerial Council (State/Federal Agriculture Ministers)
- PISC – Primary Industries Standing Committee (State/Federal agency agriculture representatives)
- LWBC – Land, Water and Biodiversity Committee (State/Federal agency Executive Directors)
- VPC – Vertebrate Pests Committee (State/Federal agency representatives)

From the workshop it was also clear that there is another agency, the APVMA (Australian Pesticides and Veterinary Medicines Authority), that is not currently directly involved, but that could potentially have some impact on the issues. The APVMA is an independent statutory authority that consists of a Board of Directors appointed by the Department of Agriculture, Fisheries and Forestry. Although it is an independent authority, it resides within the portfolio of the Minister for Agriculture, Fisheries and Forestry. Thus, the APVMA could include animal welfare criteria, on its own authority and/or via some lobbying of its Board of Directors and the Minister, in its assessment for new products, as well as efficacy and safety.

While detail of expenditure by the States/Territories on vertebrate pest control was not provided at the workshop, it is clear from the numbers of agencies and research projects involved, as well as the routine work on on-ground control that the financial and resource commitment is considerable.

3.4.2 Barriers

A number of potential barriers were identified at the workshop. These were very general and included the following:

- (i) **The lack of a consistent national approach that adds broader animal welfare issues to existing prevention of cruelty to animals' legislation.** Discussion indicated that welfare is more than merely the lack of deliberate cruelty or the prevention of suffering, and that, on this basis, current legislation was insufficient.
- (ii) **The lack of incentives to develop new more humane toxicants when welfare is not considered by the APVMA.** Discussion indicated that the APVMA could be more proactive in this area, and although it could have an impact in the area of new chemical agents, it would have less impact on existing products and no impact on non-chemicals, ie equipment, used in vertebrate pest control.
- (iii) **Failure to consider market competition and incentives.** These issues particularly concern private companies involved in vertebrate pest control and some of the ultimate users and purchasers of products such as farmers. It was recognised that end users should not have to bear the total increased costs of products arising from improvements to the humaneness of control methods. At the same time, if costs for more humane methods are higher than for traditional methods, this could be a clear disincentive to both develop and implement alternatives. In both of these areas there is high level of public good involved and thus governments have an important role and need to agree on their commitment to humane vertebrate pest control. While it is not necessarily a given that more humane methods are likely to result in more expensive products or techniques, it is likely that any commitment may have to be accompanied by incentives to encourage implementation.
- (iv) **Multiplicity of pest control management systems whereby there are a number of agencies involved, presumably with different agendas.** Adopting a principle that welfare should be a major consideration in vertebrate pest control involves a number of unknowns. It can be seen as a threat to the status quo and for some issues may be unachievable. Alternatively it could also be seen as a challenge, with a need to gain cooperation across agencies and jurisdictions, invest in appropriate research and development (R&D) and/or add value to existing R&D and invest more in education of both the general public and the more directly involved stakeholders. Again, this is a role for governments to ensure against future market failure. In Europe there are moves to ban the use of rodenticides on the basis of welfare concerns; while we may or may not want to follow this or similar actions, governments nevertheless have a collective responsibility to develop proactive strategies and encourage innovation in this area.

3.4.3 Towards a consistent national framework

It is clear from the above that government has a major responsibility in this area. Notwithstanding the complexity of the number of agencies involved and the difficulties of dealing consistently with issues across jurisdictions, it was considered that progress could and should be made without the need to resort from the outset to underpinning legislation. There are obviously mechanisms currently available whereby national agreements can be reached and implemented. Nevertheless this can take considerable time and while it may be achievable in the long-term, it was certainly not considered as a preferred option for making progress in the short-term. To achieve any change in the short term will rely on the goodwill of participants directly involved and encouragement from other stakeholders. For example, this discussion paper can show direction and encourage the goodwill that was apparent at the workshop to be utilised and engender a change in attitude.

Two immediate short-term actions that could contribute to a long-term strategy for humane vertebrate pest control were identified at the workshop:

- (i) **For the APVMA to consider animal welfare information as a requirement for new products and when reviewing existing products.** Note: the APVMA has a detailed review mechanism specified in its founding legislation (called reconsideration powers) that gives it special powers over any chemical it declares under formal review.
- (ii) **To establish an appropriate national group to lead change and become a reference point for all stakeholders.** The consensus from the workshop was that the most appropriate group to carry this forward seemed to be the Vertebrate Pest Committee, as it already has representation from all jurisdictions. However this was reliant on the VPC receiving funding and revising its structure and terms of reference. To carry out the task, the committee would need additional expertise, including animal welfare and biodiversity representatives, and would also need to be given the appropriate resources and authority by State/Territory Ministers. However, a recent review of the structure of the VPC has not resulted in any allocation of funding and has reduced the expertise on the Committee. It is clear that a more creative approach involving new structures and processes is needed to lead change in this area.

3.4.4 Issues to be addressed

An essential issue is the structure and resourcing of an appropriate national group to lead change. As long as the VPC lacks the necessary authority, expertise and funding, it will not be able to fulfil this role. While it is not considered necessary that the national body directly fund RDE, mechanisms should be implemented whereby funding agencies pay serious consideration to its recommendations and include a focus on such recommendations when calling for RDE applications and if necessary tender or commission some projects.

Another issue to be addressed and resourced is the ongoing need for education of end-users and the community. The former will need to be convinced that government sees this issue as one with a high potential for public good and will therefore ensure that the strategy on humane vertebrate pest control includes the principle that any additional costs associated with new, more humane methods will be appropriately shared and are not to be met entirely by the end-user. The community will need to be convinced that this is an appropriate use of tax dollars. Both are likely to require ongoing surveys to determine attitudes of the relevant parties and if required, education campaigns to address some important concerns. The high element of public good encompasses a number of issues. These include appropriate mechanisms to ensure that implementation strategies for pest management and humane control procedures should incorporate a good understanding of ecological parameters in developing best practice approaches and the requirement for public accountability and transparency so that any implementation strategy addresses public concerns. In terms of resourcing, it is not known what a shift towards embracing a philosophy of humane vertebrate pest control would cost. However, while it is estimated that current expenditure is likely to be in the tens of millions of dollars, this is also an unknown. A thorough audit of Federal/State/Territory expenditure on vertebrate pest control policy development and implementation and RDE needs to be carried out. At the same time the cost-effectiveness of this expenditure in terms of across-border collaboration and effectiveness of control methods can be determined. Only then can it be determined what a shift in strategy may cost and whether additional funds or merely a change in the direction of expenditure is required.

If the APVMA takes on its suggested role, there will remain a gap regarding welfare considerations for non-chemical items, such as equipment (eg traps) and/or procedures. The development of COPs and SOPs could cover this to some extent, however State and Territory agencies will need to become more active in reviewing and phasing out the use of less humane control techniques as they are identified.

A weakness is that codes of practice (for welfare) are voluntary and are not legally enforceable. Nevertheless, State Government agencies have considerable responsibilities in this area and contract much of the vertebrate pest control work. Thus, for a large part, it should be relatively straightforward to adopt such codes as they are developed and to provide a consistent message that following such a code both protects the user from prosecution and meets community expectations. While, some may argue that codes of practice require underpinning legislation this is usually not considered by governments to be a preferred option and probably should not be considered unless a code was obviously failing in practice. This is consistent with the approach taken for current codes of practice (for animal welfare).

3.4.5 Specific actions

From the discussions above it is possible to identify a number of specific actions that emerged from the workshop. Most of these include some reform of existing processes to allow progress to be made in specific areas. These actions are as follows:

- Engage the APVMA's Board of Directors, and if necessary the Minister for Agriculture, Fisheries and Forestry, to establish a procedure for the APVMA to take welfare considerations into account when considering new products. This should include the review of the welfare considerations for existing products as new replacement products become available.
- Determine the current level of expenditure on pest control policy development, management and RDE and the cost-effectiveness of this expenditure in terms of achieving sustainable outcomes.
- Determine the cost, if any, of a shift in strategy to encompass humane vertebrate pest control.
- Establish an appropriate national group to lead change and become a reference point for all stakeholders.
- Develop mechanisms to consider the welfare issues associated with new and existing control equipment and procedures and to address the issue of pest management and particularly humane control in an holistic manner.
- Establish cooperative mechanisms with funding agencies for making recommendations on RDE priorities. This should include a focus on such recommendations by funding agencies when calling for RDE applications and, if necessary, commissioning individual projects.
- Determine issues of public concern and ensure any implementation strategy addresses such concerns.

3.5 Component D: public attitudes and awareness

3.5.1 Background

The impact of public perceptions on welfare issues is becoming a major force in determining commercial and government controls on the uses of animals. This has already become evident in the intensive animal industries. An understanding of relevant attitudes and their effects on behaviour of the public can provide a basis for government in formulating animal welfare policy in relation to public education (eg targeting negative and unsound attitudes), industry policy (eg changing codes of practice) or science policy (eg directing science research and extension).

At present, we do not have a good understanding about how individual attitudes and priorities regarding vertebrate pest control influence community behaviour, particularly the expression in public of individual opinions, such as the views of opinion leaders, letters to editors, petitions, demonstrations, lobbying, etc. From what we do know, there appears to be considerable variation in the attitudes and knowledge of the public, and of those directly involved in the management of pest animals, over current practices in vertebrate pest control. The workshop discussions identified the following main areas where such variation exists or where there are significant gaps in our knowledge of or responsiveness to public attitudes or awareness:

- A lack of a common understanding of basic animal welfare principles related to vertebrate pest control.
- A lack of community knowledge of vertebrate pest management issues, including the reasons for controlling vertebrate pests, and the impact of control techniques on target and non-target animals.
- A lack of knowledge and awareness about the origin and distribution of community attitudes to vertebrate pest control.
- The need for balanced decision-making on conflicting or controversial issues associated with vertebrate pest control.

These four factors limit our ability to achieve more humane and effective vertebrate pest control in a number of ways. First, in order to set standards or goals for the improvement of animal welfare in vertebrate pest control we need to have a common understanding of the initial starting point and the principles that we need to apply to create and meet our objectives. Second, if the public does not understand why there is a need to control certain populations of animals, it is difficult to gain acceptance for the development or use of more humane control techniques. In some circumstances, such as where animals are compromised or control is lacking, this lack of public understanding can have a direct adverse effect on animal welfare. Finally, unless government and policy makers have informed the public and obtained a good understanding of community attitudes towards vertebrate pest control, it will be difficult to obtain widespread acceptance and adoption of more humane control practices.

3.5.2 Barriers

A number of potential barriers to achieving a better understanding of public awareness and attitudes were brought up during discussions:

- Presumptions may be made as to what might be appropriate attitudes and who should have them.
- How should industry respond to public attitudes? Should we try to match industry actions and response with public attitudes?
- What is an appropriate level of knowledge for the public to have?

- There are many problems with ascertaining public attitudes and with distinguishing espoused attitudes from attitudes in practice or behaviour.
- We need programs to educate people so they are not driven by extremes. The quality of the information going out should be consistent.
- The best approach might be influencing how people think (eg through schools and universities)
- We should be careful of avoiding paternalistic approaches.

3.5.3 Identifying public attitudes

Public attitudes to vertebrate pest control can be regarded as a mixture of general attitudes and behaviour-specific attitudes. General attitudes are those which are collected by surveys and which are reported in terms of relative frequency of occurrence. They reflect people's opinions but, because they are based on variable sources of information and may not be a product of experience, may not be especially salient for an individual, are not specifically directed to a particular behaviour and may not be expressed in a specific behaviour, for example, opposition or support for pest control strategies.

It is useful to distinguish these public opinions from personal, behaviourally directed attitudes that an individual holds, which are derived from experience. Such attitudes are not general but are directed towards specific behaviours, for example publicly opposing vertebrate pest control or voting for a particular legislative change. Understanding this distinction and the differential effects of the two is important in predicting their effects on public response to specific pest control instances and the relevance of education and regulation. Behavioural attitudes are direct predictors of behaviour and are relevant to, for example, proactive individual acts. General attitudes, on the other hand, are expressed in survey results and influence politicians and regulatory bodies and lead to changes in policy and regulations.

At present, there is a substantial amount of information available on public attitudes towards animal welfare in general, human use and management of wildlife and public attitudes towards various methods of wildlife control. However, it can be difficult to identify an appropriate response to these public attitudes because their relationship to relevant behaviours is not known. For example, a recent Rural Industries Research and Development Corporation (1998) report showed that many people concurrently held the opinions that kangaroos were a pest to graziers and should be controlled while at the same time believing that they should be protected because they are unique to Australia. It is clearly necessary to understand how these attitudes relate to pest control practices.

People may hold a strong attitude towards a particular subject but, because that attitude is not particularly relevant to their behaviour, do not behave in a way that is consistent with that attitude. A clear example of this from the animal welfare literature is that the majority of people have a negative attitude towards caged hens but their choice behaviour when purchasing eggs does not reflect this.

Appropriate, sustainable and effective vertebrate pest control requires an informed decision process based on an understanding of community views about specific aspects of control and the importance of these for individuals in conjunction with appropriate consultation and education processes. In particular, those attitudes that are specifically relevant to particular control practices, the factual underpinnings of these attitudes and their behavioural consequences need to be understood.

3.5.4 Outcomes

Developing an understanding of relevant public attitudes and awareness can be used to:

- identify gaps in current knowledge or areas of misinformation

- educate the public
- formulate industry policy
- direct science research and extension.

In regard to public education, Wilkinson and Fitzgerald (1997) issued a caution about public communication strategies that have the objective of providing information about vertebrate pest control. Any communication that contains a hint of deception or public manipulation is likely to increase the risk of public rejection of any particular control strategy.

A similar point can be made about the formulation of public policy. All stakeholders need to be satisfied that the information upon which policies are based is factual and dispassionate.

In addition, appropriately planned scientific study which addresses the complex factors which underpin public attitudes to vertebrate pest management can provide a factual and dispassionate basis for informing the decision making process.

3.5.5 Specific actions

It was clear from the workshop discussions that there was a need to achieve a better match between community attitudes and vertebrate pest practices. The main actions required to achieve this goal are to:

- Conduct research into national community attitudes, knowledge and behaviour relating to vertebrate pest control. Determining current attitudes and awareness will allow benchmarks to be set to measure further actions against.
- Disseminate acquired information to policy makers and practitioners.
- Identify any gaps in knowledge and/or discontinuity in community attitudes towards vertebrate pest control.
- Implement a public education program to address gaps in community knowledge.

3.6 Component E: integrating animal welfare into control programs

3.6.1 Background

While each of the Components discussed so far is integral to development of a national approach to humane vertebrate pest control, they will serve no practical purpose unless the achievements made are fully integrated into on-ground control programs. The workshop discussed how best to achieve effective integration of humane control principles and methods into the planning, implementation and evaluation of control programs. Discussions focused in the following three areas:

- (i) **Coordination:** improving the outcomes of control programs requires better coordination of on-ground control. While the quality of coordination is important, how this coordination is established is equally important.
- (ii) **Capacity building:** also important is to improve the knowledge level of on-ground staff and those involved in the development and implementation of control programs, so that all those involved are aware of the animal welfare implications of control techniques and the options available to improve the humaneness of control programs.
- (iii) **Communication:** successful integration of animal welfare into planning, implementation and evaluating control programs is reliant on the establishment of a clear and efficient process for communication between stakeholders.

3.6.2 Example of integration in action

The importance of setting up a good process for coordination and communication was identified during the development of the *South-east NSW and ACT Wild Dog Management Project* (WDMP) and subsequent *Brindabella/Wee Jasper wild dog and fox control program* (WDFCP). During the research stage of the WDMP it was clearly identified that the impact of implementing control measures on people, their lives, their enterprises and their communities was a major impediment to achieving successful control of vertebrate pest animals on any front. The project identified the economic factors affecting the choice of control methods, both in time and dollars, for the isolated location, as well as the logistical difficulties involved. A communication process was developed and subsequently debated at the NSW Rural Lands Protection Boards (RLPB) Annual Conference in 2002. Contributing to this debate were RLPB Directors (landholders of 10 hectares or more representing 48 RLPBs around NSW), NSW National Parks and Wildlife Service, NSW State Forests, NSW Agriculture and NSW Department of Land and Water. The procedure recommended and adopted by motion at the Conference is described in Box 3.2.

The process outlined here recognises that due respect must be given to the input of all stakeholders, their knowledge and experience, and the sincerity of their endeavours to reduce the impact of vertebrate pest animals. Acknowledging the important role of all stakeholders at this early stage in the development of a control program frees up energy to deal with the problem at hand, meeting as far as practicable, all stakeholder needs as well as optimising the coordination of on-ground control.

Box 3.2 Wild dog and fox control program planning, communication and coordination process

- Step 1**
- (i) Form a working group of all stakeholders, whether regional or local
 - (ii) Define and agree on the problem
 - map the areas involved across all tenures
 - monitor (and record) the current problem to establish a ‘benchmark’ for the pest species
 - identify other stakeholders and include them
 - (iii) Identify relevant parallel planning processes in progress
- Step 2** Agree on aims and objectives
- Step 3**
- (i) Develop a strategic plan
 - (ii) Identify available management strategies, which includes communication and continuing consultation strategies for the plan, its actions and its outcomes
 - (iii) Identify resource requirements/cost each strategic action and direction
 - (iv) Agree on strategy and delegate actions, roles and responsibilities
 - (v) Overlay land tenures on the plan
 - (vi) Allocate timeframes and costs
- Step 4** All parties sign off/agree to the plan
- Step 5** Implement, monitor, record and evaluate the plan
- Step 6** Review the plan and implement any necessary changes
- Step 7** Communicate the results to stakeholders

3.6.3 Barriers

One barrier identified was the difficulty in organizing regional or local coordination where there is no existing local network. In NSW the RLPB system presents a suitable vehicle to coordinate on-ground programs at the local level. Equivalent systems exist in several other States.

Where there is no existing local network for on-ground coordination, one way to build one is to identify particular problem areas and establish how the communities in those areas interact at a recreational or business level. There are many types of local networks throughout Australia. Although these are not always overt, they do exist and result from a variety of circumstances and cultural practises, sometimes created by need, eg the Rural Fire Service, or for support, eg the Country Women’s Association. The impact of vertebrate pests can create a network of its own: wild dog associations are well established in northern tablelands NSW and northern Victoria. Existing ‘passive’ networks (ie groups of landholders with the same aim but no formal coordination) could be identified by stock and station agents, or companies supplying poisons, traps etc.

The use of established groups with related interests should also be considered, eg comparative analysis groups, Bestprac, Wool 2000, or other new groups currently being established by Australian Wool Innovation (AWI) etc. It may be more helpful to target groups that carry out active on-ground work, rather than political or solely bureaucratic organisations (although these are excellent for identifying possible contacts), as humane control relies on individual on-ground operators.

3.6.4 Outcomes

(i) Stakeholder consideration of humaneness as integral to the process

While animal welfare issues need to be considered alongside many other factors, they should not be seen as an add-on extra to the development of a control program. What is required is a process of inclusive and balanced decision-making. Increasing awareness of the relative humaneness of control techniques and integrating this knowledge into the development of control programs should have a positive impact on animal welfare, while ensuring that the control program remains focused and there is inclusive and balanced decision making.

(ii) Improved coordination of control and uptake of best practice techniques

Sections 3.2.3 and 3.4.4 have already referred to the development of national COPs and SOPs to improve the national consistency of humane vertebrate pest control and ensure that good practice standards can be applied at all levels. The integration of these SOPs and other State/Territory or national standards into on-ground control programs is essential if they are to have any practical impact.

While government may play the major role in the top- and mid-level coordination of control programs, this may not necessarily be in the best interests of a successful animal welfare outcome. An alternative approach is for local groups to decide on coordinators. This may well result in government coordination, however there is a subtle but enormous difference in the perception of the role of government when this is decided by stakeholders on the ground. Stakeholders can retain responsibility for their share of the problem. If government coordination comes in from the top to “consult, plan, implement and evaluate humane control programs” it could result in resistance to regional ownership or inclusion of humane principles.

(iii) Adequate justification for control decisions

The integration of the eight implementation principles set out in Section 1.3 into the development of on-ground control would provide a sound practical means of improving the humaneness, effectiveness and target specificity of control programs. Ensuring that the aims of the program are clear, that there is a likelihood that the aims can be achieved, that the most humane methods that will most effectively achieve the aims are used, that the methods should be applied according to best practice and that the success of the program is assessed are useful principles to apply to all control programs. Their implementation at the on-ground level will help to ensure that all relevant issues are considered before embarking on a control program.

The communication process outlined in Box 3.2 above provides a mechanism for the issues raised by these principles to be aired and debated by all stakeholders. It is during step three of this process that the humane control principles identified in Section 1.3 would apply. By employing these principles in the development of a control program’s strategic plan, it ensures that they become part of the decision-making process and that animal welfare is an integrated consideration.

(iv) Distribution of information to all stakeholders

This needs to be ongoing and carried out at several levels:

- on-ground, immediate regional level – newsletter and meetings
- regional coordinators (across State boundaries) so they are in touch with what else is happening, successes and difficulties, eg on-forward newsletters
- national and organisational level – State reports
- general public – organisational publications, press releases, stories to print, radio and television from all levels (requires coordinating).

3.6.5 Specific actions

The actions identified to integrate animal welfare into on-ground control activities in an effective and long-standing manner are summarised as follows:

- Coordinate pest animal control activities at a district/regional level and upwards, with inclusive stakeholder involvement. Consideration should be given to the adoption of a process similar to that described in Box 3.2; existing networks and problem areas (geographical/species) should be identified and targeted.
- Develop consistent training programs for frontline control staff from all relevant agencies. This would involve the cooperation of government agencies, industry and other non-government organisations. Additional training could link in with existing courses for pest animal control staff or with pesticides/chemical courses for landholders.
- Accredit training courses by government agencies with the aim of increasing knowledge and use of best practice techniques on the ground.
- Disseminate RDE and other information and improved networking/sharing of resources. There are many possible mechanisms for improving current communication of information and knowledge. These include the establishment of a humane vertebrate pest control website, production of newsletters at regional, State or national levels, centrally coordinated database of existing control programs, plans, successes and any COPs/SOPs in place, regular meetings.

All these activities require an adequately resourced peak body to take them forward.

4 Implementing a national approach

The control of vertebrate pests is an issue of national significance. The environmental and economic costs arising from the adverse impacts of vertebrate pests have been estimated to total \$720 million per year (McLeod 2004). The importance of a strategic and coordinated approach to the management of this issue has been recognised for many years, as has the need for integrating animal welfare concerns into the management of vertebrate pests (Braysher 1993). But despite the apparent support for such an approach, there was overwhelming agreement from the workshop participants that current management processes are not addressing these concerns. The clear message from the workshop was that something must be done to move from intentions to action and to produce a coordinated national approach.

There are a number of references within this discussion paper to existing mechanisms for managing vertebrate pests. The central focus of these is the national Vertebrate Pests Committee. The workshop identified the need for a national body to carry forward the principles and actions outlined in this paper, and at that time the VPC seemed to be the best fit for this task.

On the surface, the VPC seems the obvious driver of change towards a national approach. The Committee already has representation from all relevant jurisdictions, has a range of experience in vertebrate pest control matters, and its mere existence should demonstrate a willingness by all parties to act in a coordinated and communicative manner. But if this is the role of the VPC, why is there no effective national coordination already in place? Without any resources for secretariat support or the development and implementation of national strategies, the VPC cannot carry through the actions that form one of the principle reasons for its existence. The VPC has no national budget and no authority to implement agreed actions at a national level. It does not have the capacity to coordinate research or set national priorities for research and development. All it can do without these, is act in an advisory capacity and provide a means of communication between jurisdictions over the work they are doing within State and Territory boundaries. And without additional input and expertise on animal welfare issues, it cannot promote an inclusive and coordinated approach that incorporates humaneness into control strategies.

The workshop concluded that the VPC could only function as the driver of a national approach if it revised its structure and terms of reference and was provided with the appropriate resources and authority by the participating governments. Since the time of the workshop, these issues have been examined in a review of the VPC by its supervising committee, the Land, Water and Biodiversity Committee. The review concluded that no additional resources would be allocated to the VPC and that the committee would be restructured to reduce the level of Commonwealth government representation. These changes have made the VPC an even less appropriate candidate for the carriage of the actions outlined here.

This discussion paper makes reference to the development of SOPs and COPs for vertebrate pest control. This project was identified as a readily achievable means of improving humaneness in on-ground control by increasing awareness of the welfare impacts of control methods and allowing practitioners to choose the most humane, cost-effective, efficient and target-specific method available and to apply this method according to best practice standards. Over the past year a wide range of SOPs and COPs have been developed as a result of this project. However, they have not gained national acceptance, indeed there has been considerable resistance to their adoption by some jurisdictions. The lack of a resourced peak body and national coordination means that there is no real means to promote these standards so that they can realise their potential on-ground impact.

As a final step in the workshop process, participants were asked to nominate their requirements for the successful implementation of a national approach to humane vertebrate pest control. Seven elements

were identified as essential to replace the current fragmented approach and enable the specific actions identified in this discussion paper to be taken forward. The elements are to:

- 1 Provide coordination and support for RDE into improving the humaneness of vertebrate pest control.
- 2 Ensure that adequate resources are available to carry out the specified actions.
- 3 Establish relationships, communication channels and linkages between stakeholders.
- 4 Identify and foster drivers for change.
- 5 Gain approval and support at the Ministerial level.
- 6 Gain a long-term commitment to continual improvement in humane vertebrate pest control practices from all parties.
- 7 Set targets for strategy evaluation and key performance indicators.

Pest animal control is a national problem that cuts across government departments and State and Federal jurisdictions. Yet it is clear that the development of an implementation process to tackle this problem cannot rely solely on existing mechanisms. Improving the humaneness of control methods is a challenge that needs to be addressed by a coordinated national approach, but without a national body to provide this coordination, there is no identifiable means of advancing the priorities and actions set out in this document.

One solution may be to link the progression of a national approach to the implementation of the Australian Animal Welfare Strategy (AAWS), which promotes the development and use of humane and effective control methods. The Federal Government, through the Department of Agriculture, Fisheries and Forestry and in close cooperation with stakeholders, has taken a prominent leadership role in the development and implementation of the AAWS. This discussion paper provides the foundation for Government to take a similar role in promoting and implementing a national approach on humane vertebrate pest control.

Appendix 1 – Working party membership

This document was drafted by the Humane Vertebrate Pest Control Working Party. Membership of the working party was drawn from workshop participants. Contact details for all workshop participants are provided in Appendix 2.

Members of the working party

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Clyde McGaw	Land Protection, Queensland
Mary Bomford	Bureau of Rural Sciences
John Barnett	AWC, Department of Primary Industries, Victoria
Helen Cathles	NSW Landholder
Michael Hartmann	Cattle Council of Australia
Clive Marks	Nocturnal Wildlife Research Pty Ltd

Additional assistance was provided by

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Appendix 2 - List of workshop participants

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Abbreviations

ANTA	Australian National Training Authority
APVMA	Australian Pesticides and Veterinary Medicines Authority (formerly the National Registration Authority)
AVA	Australian Veterinary Association
AWAC	Animal Welfare Advisory Committee (committee that advises the relevant State government on animal welfare issues. Exact title varies from State to State)
AWC	Animal Welfare Centre (now known as the Animal Welfare Science Centre)
AWWG	Animal Welfare Working Group (under the VPC)
COP	Code of practice
DEH	Department of Environment and Heritage, Australia (formerly Environment Australia)
HVPC	Humane vertebrate pest control
LWBC	Land, Water and Biodiversity Committee (under NRMCC)
NGO	Non-government organisation
NRMCC	Natural Resources Management Ministerial Council
PIMC	Primary Industries Ministerial Council
PISC	Primary Industries Standing Committee
RDE	Research, development and education
RLPB	Rural Lands Protection Board (NSW only)
RSPCA	Royal Society for the Prevention of Cruelty to Animals
SOP	Standard operating procedure
VPC	Vertebrate Pests Committee

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