Vertebrate Pest Research Unit

Attitudinal Survey on Vertebrate Pest Management in Victoria

M. J. Johnston and C. A. Marks
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VICTORIA

ATTITUDINAL SURVEY ON VERTEBRATE PEST MANAGEMENT IN VICTORIA

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Victorian Institute of Animal Science

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The Vertebrate Pest Research Department is part of the Victorian Institute of Animal Science within Agriculture Victoria (a business of the Department of Natural Resources and Environment). The Department aims to develop humane, safe and effective techniques for the control of exotic and native pests.

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FOREWORD

Wildlife management and conservation practices are frequently controversial; often creating debate within the community. The control of vertebrate pests presents researchers and policy makers alike with a range of choices. We are often forced to ask fundamental questions concerning community acceptance of various pest management practices. Assessment of general community attitudes cannot be easily undertaken as few organisations can claim to represent the entire community. If we are to justify our actions with reference to the "public interest", it is appropriate that we attempt to develop some process whereby we may assess community expectations.

The Vertebrate Pest Research Department (Victorian Institute of Animal Science) believes that, as part of a strategic approach to the research and development of pest control strategies and technologies, current community attitudes should be considered. This survey was developed and executed as an attempt to canvas such attitudes, as an integral part of the strategic planning process. The authors acknowledge that any survey technique cannot reveal totally objective and unbiased data concerning community attitudes. It is also important that we accept that a survey such as this is more concerned with "perception" rather than "fact". Consequently it must be accepted that we have recorded responses which are greatly influenced by the recipients' understanding of terminology and issues contained in the survey. There is little to be gained by asking, for instance, if the respondents had a clear understanding of such terms as "humane" and "biological control" or could differentiate a Common Mynah from a Starling. It is "perception" that this survey was concerned with and not if respondents shared a similar scientific understanding of such terms and concepts.

It is hoped that the information contained in this report will be used by both government and non-government organisations who are involved in pest management to serve both conservation and agricultural objectives.

Michael Johnston Clive Marks

ACKNOWLEDGEMENTS

The success and validity of any survey is reliant upon the participation of the respondents. Our sincere thanks are extended to the many Victorians who took part in this exercise. We appreciate the criticism and guidance offered by Tania Cowled, Pat Keane, and Robin Nelms who were consulted during the design phase of this project. Data entry was undertaken by Ashley Lott and Katherine Taylor. Preliminary data analysis was further assisted by Robin Nelms. The 'Estimated Resident Population data for Victoria' was provided by Arvie Dobson of the Australian Bureau of Statistics. Penny Fisher and Michele Nijk provided assistance during this project. We thank Peter and Rhonda Jones at Ropet Printing for their characteristic enthusiasm and assistance.

CONTENTS

METHOD

General procedure

A total of 2000 Victorians over the age of eighteen were randomly selected from the Australian Electoral Roll. Each recipient received a survey pack containing a postage paid return envelope, a covering letter (Appendix 1) and the survey document (Appendix 2).

All Victorians registered on the Australian Electoral Roll were potential recipients of the survey. Respondents were not asked to nominate their ethnicity or any other socio-economic data as it was anticipated that the random nature of selection invited comment from a diverse group of citizens.

The survey was largely 'tick the box' style, where respondents chose an answer from a range of options. Three opportunities were provided for open-ended comments. A short demographics section asked for information about the respondent's age, sex, farming experience and residential area classification.

Data presentation and analysis

All responses are, as far as possible, presented in a graphical format. Open-ended answers (Question 7c, 14 and 15) have not been compiled in this report due to the bulk of the responses received. Results for question 8 were for internal information only and are not presented in this report. A table summarising responses from question 14 is included in this document while all other responses are available in a companion volume upon request to the authors.

Where appropriate, some statistical analysis was conducted in order to reveal if any correlations existed between responses and age, sex, occupation (farming / no farming experience) and residential status. The Cramér coefficient (ϕ_2) statistic was calculated for all dichotomous nominal scale data and the significance of the result tested using the chi-square (χ^2) contingency test (Zar 1984). Additional correlations between responses were calculated where relationships appeared to exist from viewing the graphical data.

Key to symbols used

The following symbols are used throughout this document:

n	Number of respondents who provided a valid answer
NR	Number of respondents who failed to answer or answered invalidly
ϕ_2	The Cramér coefficient value
χ^2	The chi - square value
P	Probability value - indicating significance (P<0.05 or P<0.01 in this document)

The survey was worded such that the respondent read and subsequently reacted to each question. Questions 5 to 9 used the following five response categories;

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

Descriptions following each graph show combined response data (strongly agree / agree and disagree / strongly disagree) unless otherwise stated.
The range of choices offered for questions 10-13 has been reprinted alongside the results section.

Key to animal species

A number of animal species which occur in Victoria were mentioned in the survey. The following table provides general information about these species.

Common Name	Specific Name	Victorian Legal Status
Common Brushtail Possum	*Trichosurus vulpecula* [1]	Protected wildlife [5]
Emu	*Dromaius novaehollandiae* [2]	Protected wildlife [5]
Domestic Cat	*Felis catus* [1]	Predation classed as threatening process[6]
Feral Cat	*Felis catus* [1]	Predation classed as threatening process[6]
Common Mynah	*Acridotheres tristis* [2]	Exotic species
Kangaroo	*Macropus sp* [1]	Protected wildlife [5]
Long-Billed Corella	*Cacatua tenuirostris* [2]	Protected wildlife [5]
Common Wombat	*Vombatus ursinus* [1]	Protected wildlife [5]
Platypus	*Ornithorhynchus anatinus* [1]	Protected wildlife [5]
Red Fox	*Vulpes vulpes* [3]	Established pest animal [7]
Domestic Rabbit	*Order Lagomorpha* [4]	Exotic species
Wild Rabbit	*Oryctolagus cuniculus* [1]	Established pest animal [7]
Wild Dog	*Canis familiaris* [1]	Established pest animal [7]
Starling	*Sturnus vulgaris* [2]	Established pest animal [7]

1. Menkhorst (1995)
2. Simpson and Day (1993)
3. Strahan (1995)
4. Chapman and Flux (1990)
5. Wildlife Act 1975
6. Flora and Fauna Guarantee Act 1988- Draft Action Statement
7. Catchment and Land Protection Act 1994

RESULTS

Return of survey

Of the 2000 surveys dispatched, a total of sixty were 'returned to sender'. This reduced the sample size to 1940. A total of 822 completed responses were received within the three months allocated for survey returns; resulting in a response rate of 42.4%. The majority of these responses (71%) arrived within the first full working week.

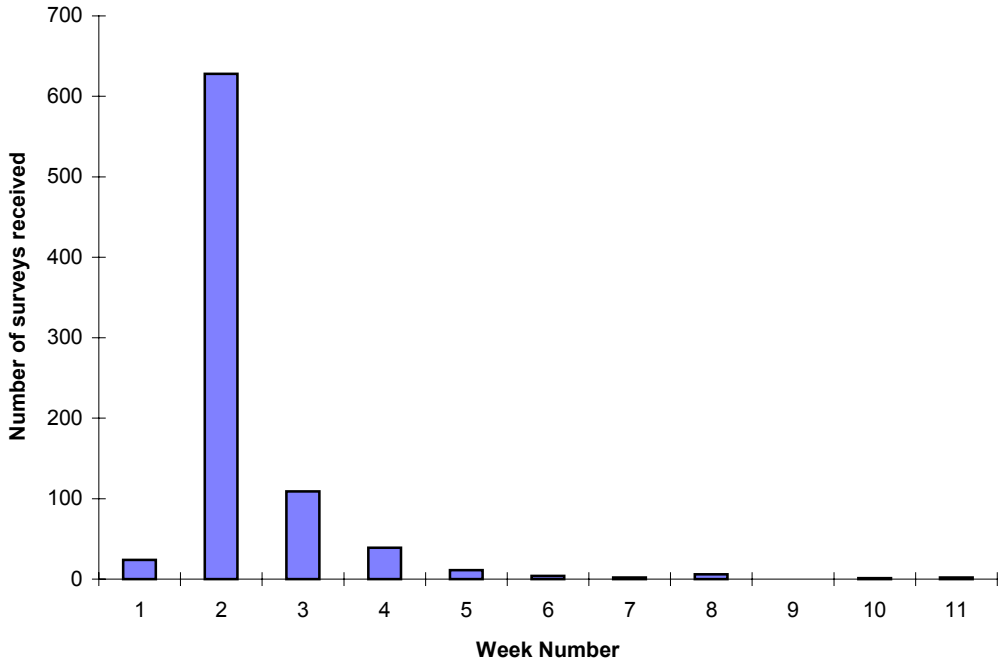

Figure 1. Number of survey returns recorded from 1st March 1996 to 10th May 1996.

NB. Week 1 as shown on graph included two working days only

1. Are you?
a) Male b) Female

2. Your approximate age.
a) Under 20 b) 21-30 c) 31-40 d) 41-50 e) 51-60 f) 61-70 g) >71

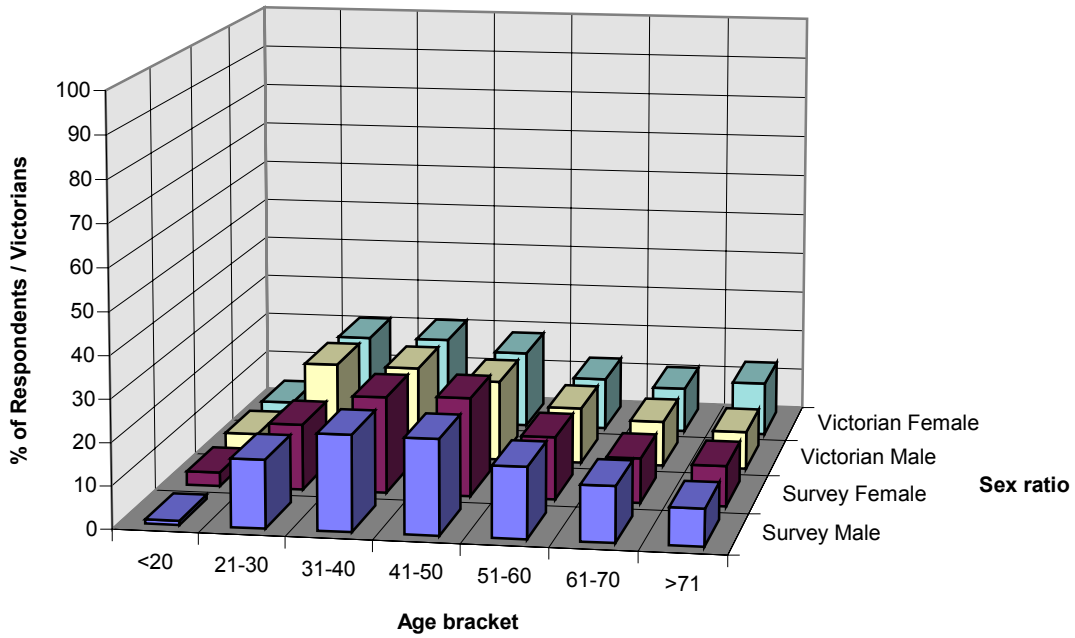

Figure 2. Percentage of survey respondents (n=822) by sex and age contrasted with Victorian population demographics (Source: Australian Bureau of Statistics, 1994)

Age demographics of the survey respondents were contrasted with data obtained from the Australian Bureau of Statistics (ABS). Groupings are shown as a percentage of the total number of survey responses and the total number of Victorians in each age/sex class as listed by the ABS .

The age and sex of respondents is consistent with the age demographics and sex ratio for the estimated Victorian population. Survey age demographics were tested to determine if the distribution departed significantly from the estimated age groups of the Victorian population. The Chi-square test revealed no significant departure from homogeneity ($P > 0.05$) suggesting that the survey response represented a valid sample of the Victorian population age and sex groups.

3. Are you currently or have you previously been a farmer or involved with primary production?
a) Yes b) Don't know c) No

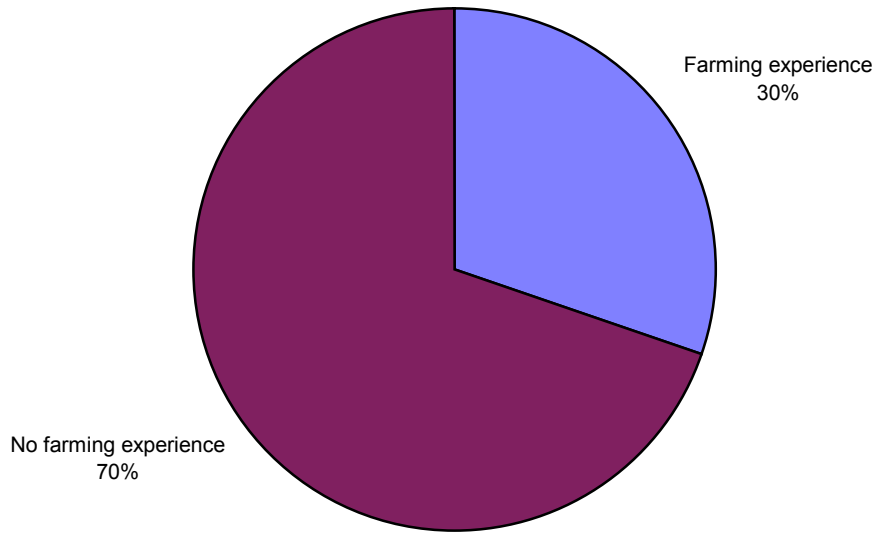

Figure 3. Farming and primary industry experience of respondents (n = 808, NR = 14)

Thirty percent of respondents classified themselves as farmers or having some farming experience. The remainder of respondents (70%) did not claim to have any farming experience.

4. Do you currently live in an urban or rural environment?
a) Urban b) Semi-Rural c) Rural

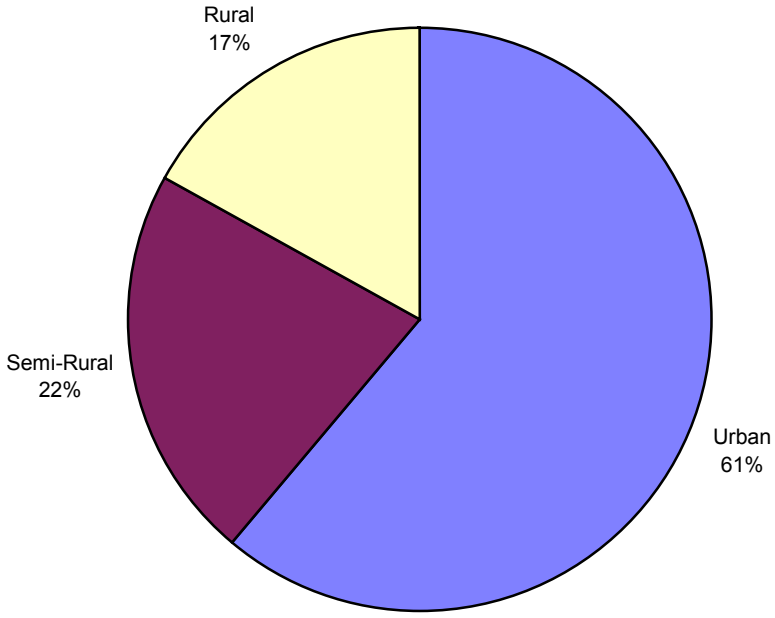

Figure 4. Rural / Urban residential status of respondents (n = 803, NR = 19)

The majority of respondents (61%) live in urban areas with the remaining respondents evenly divided between semi-rural and rural residents (22% and 17% respectively).

5. Most of our introduced animals have been present in Australia for 100 years or more. These animals should now be considered native.

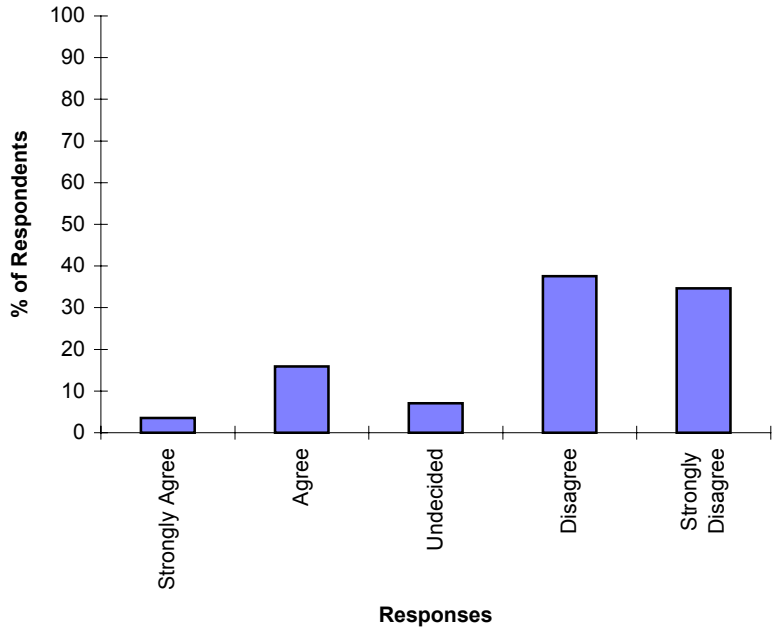

Figure 5. Response to statement
(n = 812, NR = 10)

Seventy-two percent of respondents felt that "introduced animals" cannot yet be considered "native". This can be contrasted against a total of nineteen percent of respondents who indicated that these species should be considered native.

A weak correlation existed between respondents with farming experience and those without, and response to this statement (ϕ_2 = -0.22, P<0.05) suggesting that rural respondents disagreed with this statement slightly more than urban respondents.

6. Biological agents should be introduced to control some of our pest animal species.

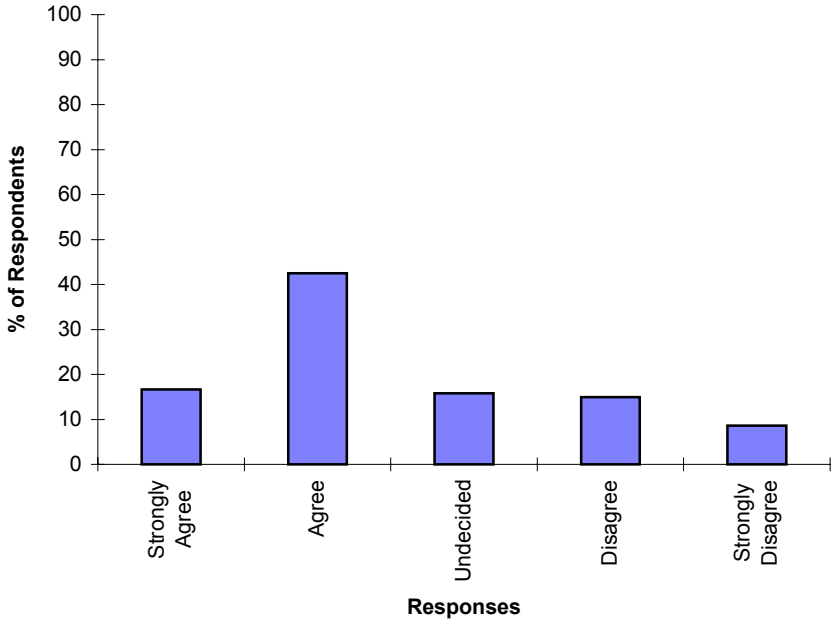

Figure 6. Response to statement
(n = 810, NR = 12)

A total of 58% of respondents were in favour of the introduction of biological control agents. Twenty-two per cent of respondents disagreed with the use of biological control.

A very weak positive correlation ($\phi_2 = 0.159$, $P<0.05$) existed between those respondents who had farming experience and agreement with the statement. No obvious correlation was identified between sex and the acceptability of biological control ($\phi_2 = 0.076$, $P<0.05$).

7a. It is an acceptable risk for a small number of non-target native wildlife species to die in the process of controlling larger numbers of pest species.

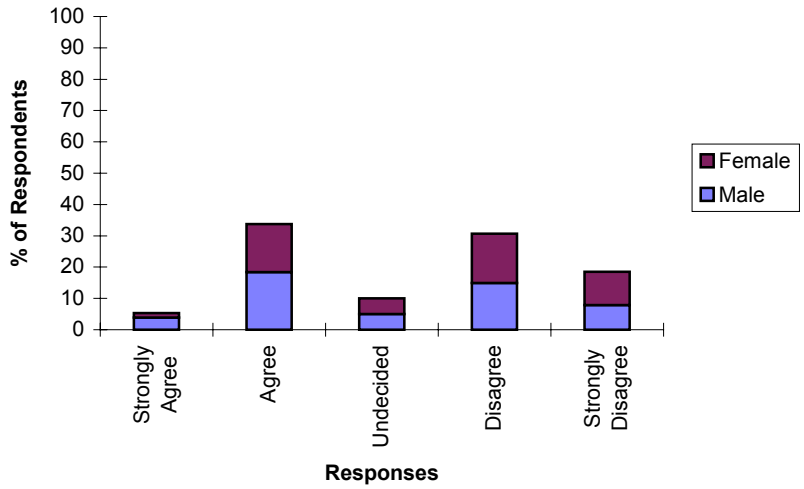

Figure 7. Response to statement
(n = 812, NR = 10)

Thirty-nine per cent of people found it acceptable that a small number of non-target native wildlife species may die during efforts to control larger numbers of pest species. Alternatively, 49% of respondents did not agree, with 18% strongly disagreeing with the statement.

A very weak, but non-significant ($\phi_2 = 0.12$, $P>0.05$) correlation was identified between respondents with farming experience and agreement with the statement. There appeared to be little relationship between sex and response to the statement ($\phi_2 = 0.10$, $P<0.05$).

7b. It is an acceptable risk for a small number of non-target domestic pets to die in the process of controlling larger numbers of pest species.

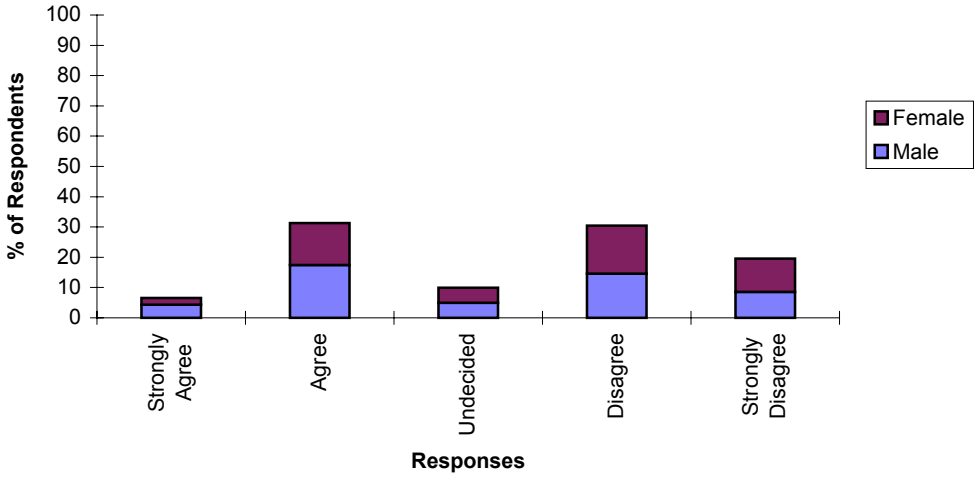

Figure 8. Response to statement.
(n = 809, NR = 13)

There was a greater percentage (51%) of respondents not prepared to accept any risk to small numbers of domestic animals as non-target casualties compared with those who considered the possibility of domestic pet deaths an acceptable risk (38%).

A weak positive correlation was identified for respondents with farming experience who agreed that it was acceptable for a small number of domestic pets to die in the process of controlling large numbers of pest species ($\phi_2 = 0.19$, $P<0.05$). Consistent with the previous statement, no strong correlation existed between response and sex ($\phi_2 = -0.11$, $P<0.05$).

A modest correlation was observed between respondents who were unwilling to accept non-target risks in both statement 7a and 7b ($\phi_2 = 0.66$, $P<0.05$).

7c. Do you have any extra comments that you would like to make on this issue?

Written responses were received from 247 respondents. Due to the large volume they have not been included in this document but are available upon request to the authors.

8. During 1995/96 the Victorian Government allotted approximately $190,000 towards the research of vertebrate pest animal control. This level of funding is adequate when considering the effect that pest populations have upon agriculture and the environment.

This question was for internal information only and is not presented in this report.

9. Pest animals are being adequately controlled by current field operations.

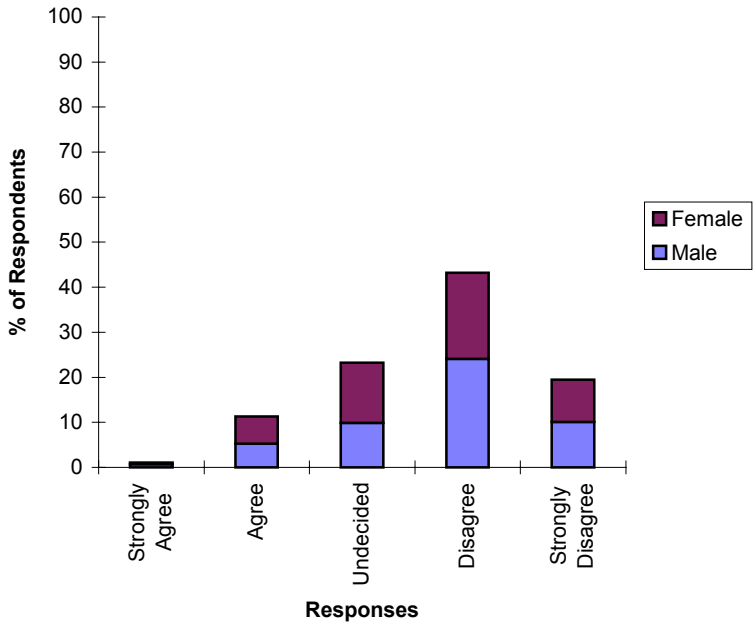

Figure 10. Response to statement.
(n = 815, NR = 7)

The majority of respondents (63%) disagreed that pest animals are adequately controlled by current field operations; 20% of whom strongly disagreed. Only 12% believed that pests are controlled adequately. A considerable proportion (23%) of respondents were undecided on this issue.

Less than 1% of farmers and 1.2% of non-farmers strongly agree that the current level of pest control is adequate.

No strong correlation existed between respondents with a farming background and a negative response to this statement (ϕ_2 = -0.11, P<0.05).

10. Classify all of the following animals as either pest or non-pest animals; a) Emu, Kangaroo, Wombat, Corella, Platypus and Brush Tail Possum.

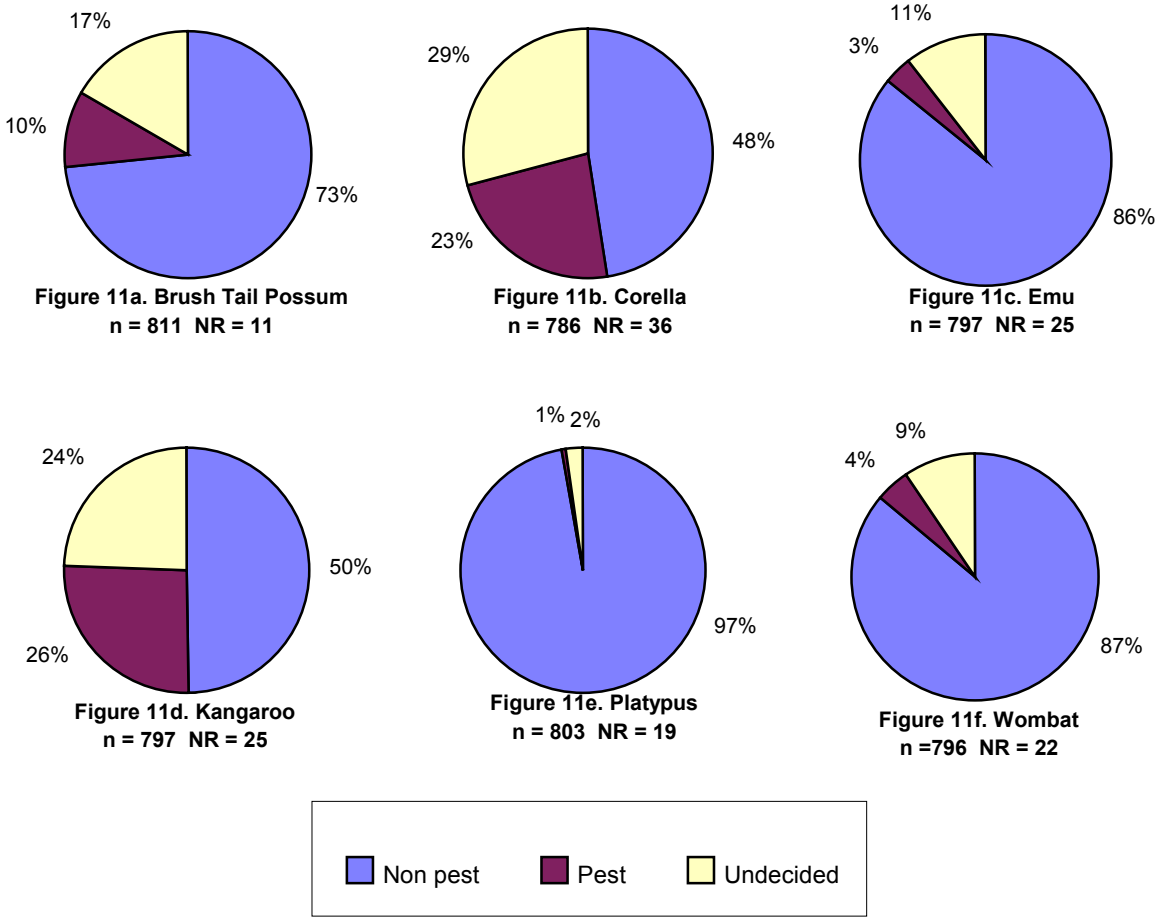

Figure 11 (a - f). Response to statement

Each native species was clearly identified as a non-pest by an majority of respondents. There was, however, a distinct group of respondents who described the Kangaroo and Corella as pests (26% and 23% respectively). The Wombat was considered to be a pest by only 4% of respondents.

A weak to moderate correlation was identified between those who had a farming background and designation of some species as pests including the Kangaroo ($\phi_2 = 0.17$, $P<0.05$), Wombat ($\phi_2 = 0.24$, $P<0.05$) and Corella ($\phi_2 = 0.25$, $P<0.05$).

10. Classify all of the following animals as either pest or non-pest animals; b) Starling, Domestic Rabbit, Common Mynah and Domestic Cat.

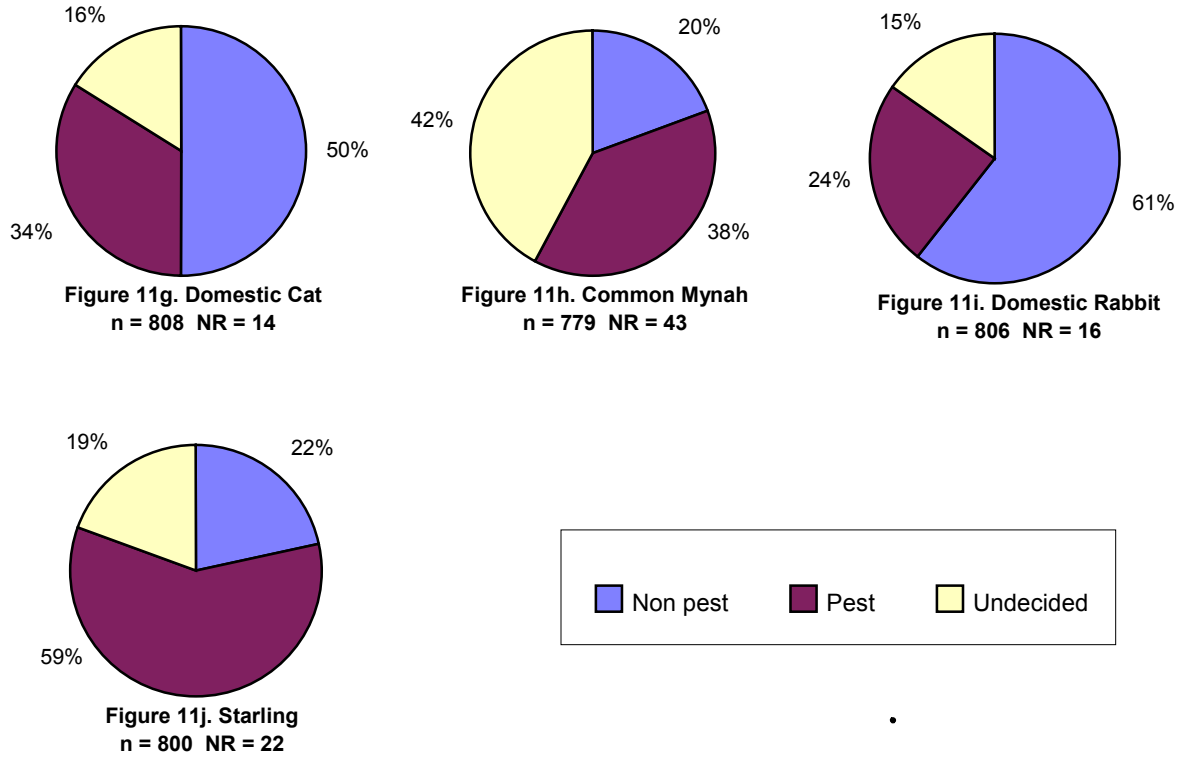

Figure 11 (g- j). Response to statement

The Domestic Rabbit and Domestic Cat were viewed by the majority of respondents to be a non-pest (61% and 50% respectively) but significant numbers of people did consider them to be pests (24% and 34% respectively). There was no correlation between farming / non-farming background and perception of the Domestic Cat ($\phi_2 = 0.0004$, $P>0.05$) and Domestic Rabbit ($\phi_2 = 0.004$, $P<0.05$) as a pest.

The Common Mynah was considered to be a pest by 18% of respondents. Thirty-nine per cent were undecided on how to classify this species. A weak correlation was observed between respondents with a farming background and who perception of the Common Mynah as a pest ($\phi_2= 0.153$, $P<0.05$).

A total of 59% of respondents described the Starling as a pest species. A weak correlation was identified between respondents with a farming background and considerations of the Starling as a pest ($\phi_2 = 0.217$, $P<0.05$).

10. Classify all of the following animals as either pest or non-pest animals; c) Wild Rabbit, Fox, Wild Dog and Feral Cat.

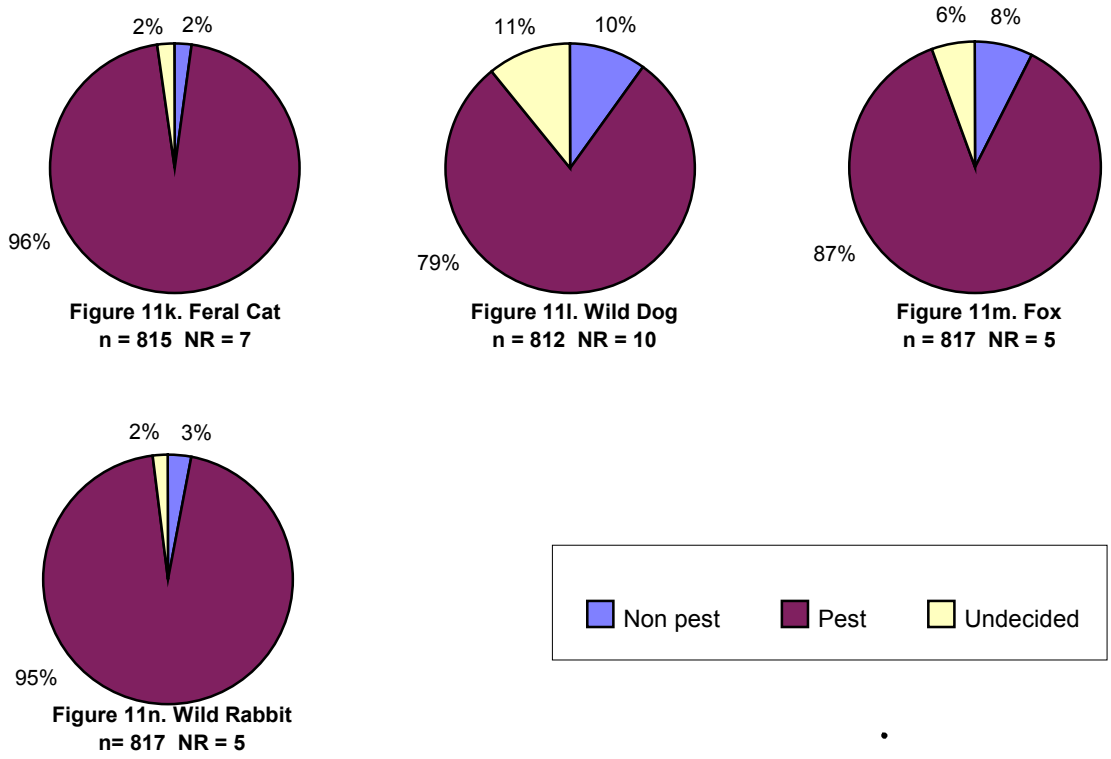

Figure 11 (k - n). Response to statement.

These data show that the respondents were strongly united in their classification of these species as pests.

There appeared to be no firm correlation between farming / non-farming background respondents and classification of the Fox (ϕ_2 = -0.112, P<0.05) and Wild Dog (ϕ_2 = -0.065, P>0.05) as pests.

11. In your opinion, what level of management is ideally most appropriate for the following species?

a) Eradicate b) Manage as a resource c) Undecided
d) Control at low numbers e) Do nothing

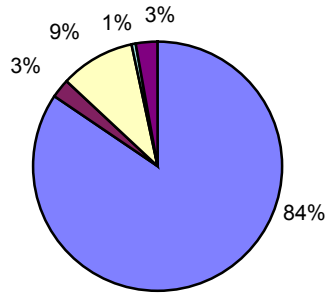

Figure 12a. Feral Cat
n = 812 NR = 10

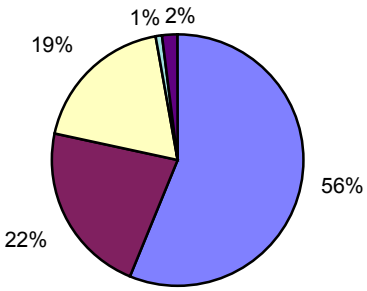

Figure 12b. Wild Rabbit
n = 813 NR = 9

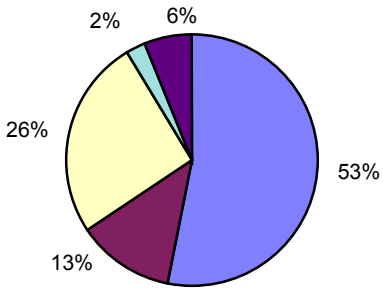

Figure 12c. Fox
n = 809 NR = 13

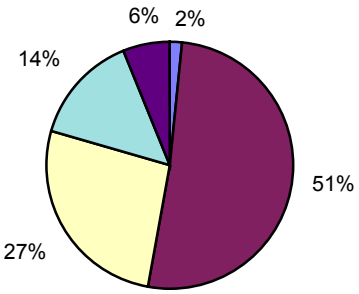

Figure 12d. Kangaroo
n = 809 NR = 13

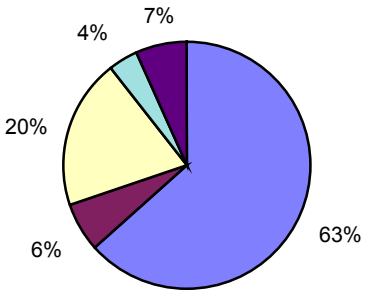

Figure 12e. Wild Dog
n = 807 NR = 15

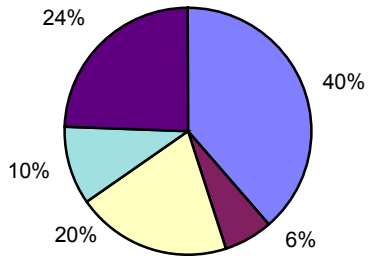

Figure 12f. Starling
n = 806 NR = 16

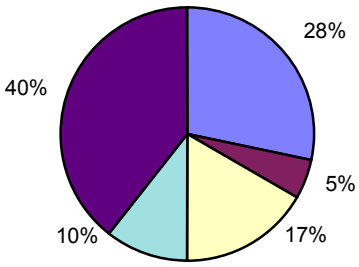

Figure 12g. Common Mynah
n = 787 NR = 35

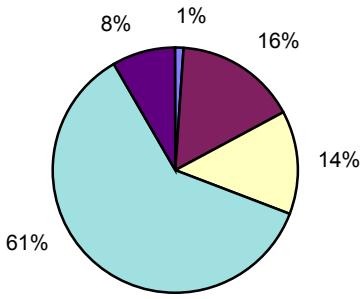

Figure 12h. Wombat
n = 804 NR = 18

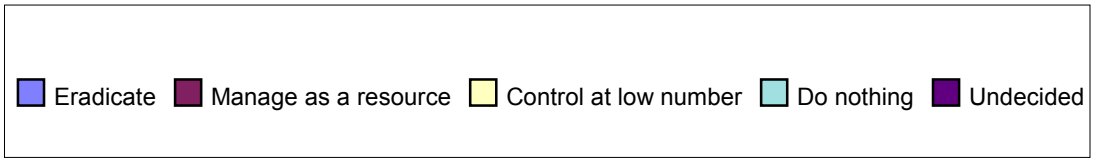

Figure 12 (a - h). Response to question

An overwhelming majority (84%) of respondents chose eradication as the favoured option for Feral Cat management. This was also the option selected by the majority of respondents for Wild Dog, Wild Rabbit and Fox control, (63%, 56% and 53% respectively).

Relatively few people saw eradication as a favoured option for Wombat or Kangaroo management (1% and 2% respectively). The large undecided figure for Starlings and Common Mynahs (24% and 40%) may be indicative of some confusion concerning the general familiarity or status of these species in Victoria.

12. Where populations of animals are subject to control, several methods are generally available. Please select the most appropriate technique of pest animal control.
a) Shooting b) Poisoning c) Trapping d) Biological control
e) No appropriate technique f) Undecided

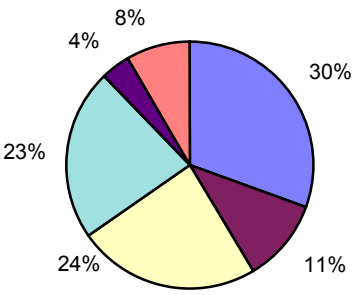

Figure 13a. Feral Cat
n = 711 NR = 111

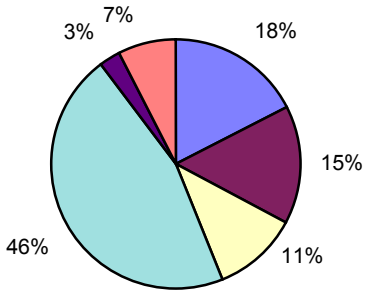

Figure 13b. Wild Rabbit
n = 723 NR = 99

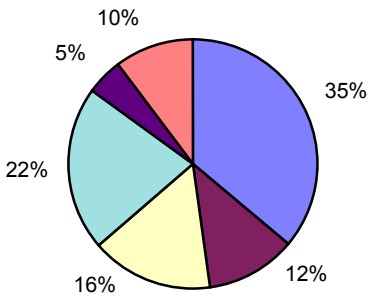

Figure 13c. Fox
n= 720 NR = 102

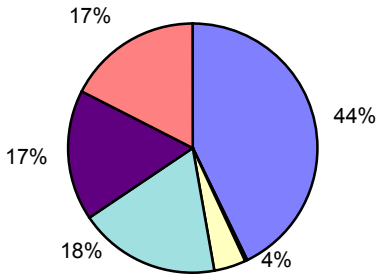

Figure 13d. Kangaroo
n = 767 NR = 55

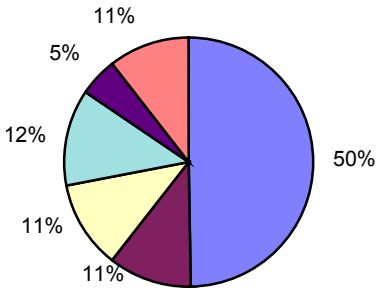

Figure 13e. Wild Dog
n = 734 NR = 88

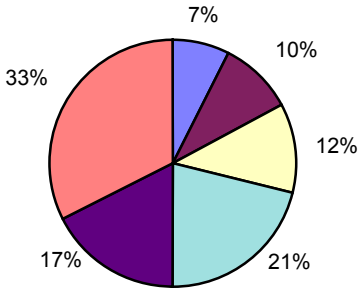

Figure 13f. Starling
n = 745 NR = 77

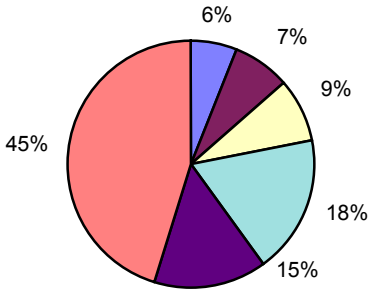

Figure 13g. Common Mynah
n = 749 NR = 73

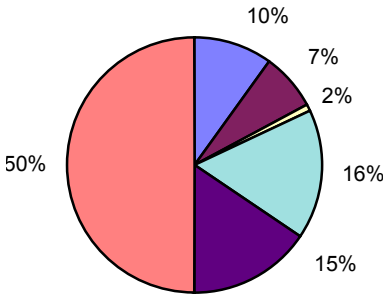

Figure 13h. Wombat
n = 555 NR = 267

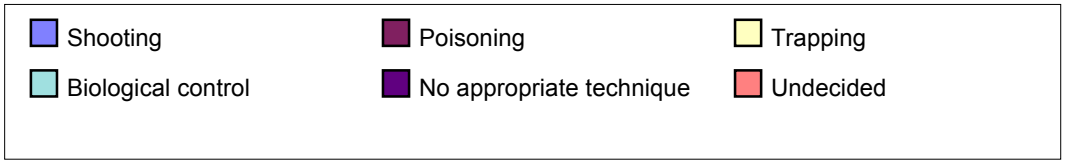

Figure 13 (a - h). Response to question

There was no clear favoured technique for the control of Feral Cats. Shooting, trapping and biological control were selected with approximately similar frequencies (30%, 24% and 23% respectively).

Biological control was the preferred control method for Wild Rabbits (46%). Eighteen per cent of respondents selected shooting as a preferred option.

Destruction of Foxes by shooting was nominated by 35% of respondents. The second favoured option was biological control at 22%.

Forty-four per cent of respondents selected shooting for the control of Kangaroos with the development of a biological control selected as the second highest option (18%).

Shooting of Wild Dogs was selected by 50% of the respondents with each of the other options receiving approximately 10% approval.

The respondents appeared to be largely uncertain of how to best control introduced birds such as the Starling and Common Mynah which was reflected in the high percentage of respondents who were undecided (33% and 45% respectively). Wombats also rated highly in the undecided group with 50% of respondents unsure of which technique was best suited for the control of Wombats. A similar percentage (32%) chose to ignore or did not answer the Wombat statement correctly .

13. *Please rank the following techniques of pest animal population control in order of your preference.*
a) Biological control b) Temporary fertility control c) Permanent fertility control d) Humane and target specific toxin e) Undecided

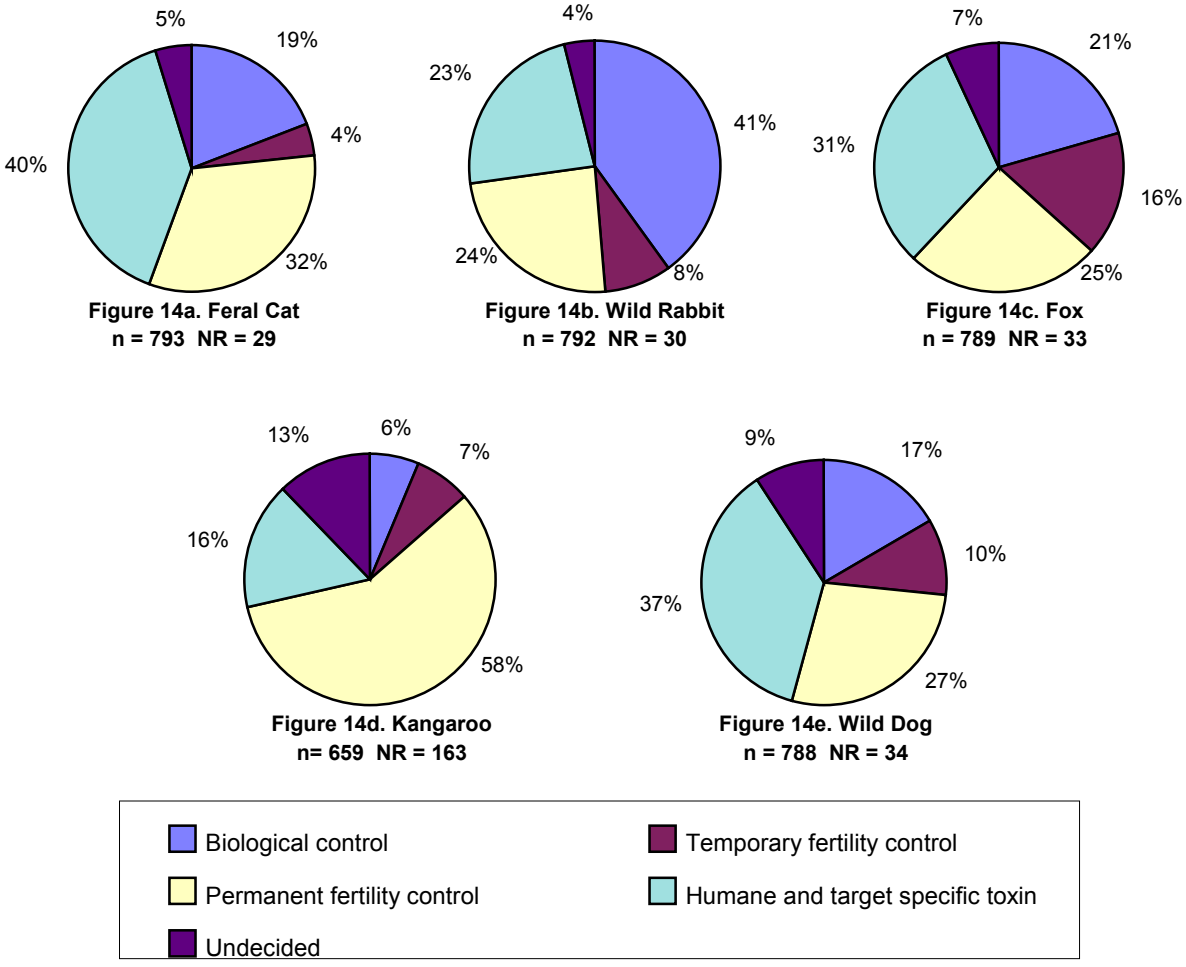

Figure 14a. Feral Cat
n = 793 NR = 29

Figure 14b. Wild Rabbit
n = 792 NR = 30

Figure 14c. Fox
n = 789 NR = 33

Figure 14d. Kangaroo
n= 659 NR = 163

Figure 14e. Wild Dog
n = 788 NR = 34

Figure 14 (a - e). Response to statement

The use of a humane and target specific toxin was the most favoured control technique for the Feral Cat (40%), Fox (31%) and Wild Dog (37%).

Permanent fertility control for Kangaroos was quite clearly preferred over the other options with 58% of respondents choosing it. Permanent fertility control was also the second most popular option for Feral Cats (32%), Wild Rabbits (24%) and Foxes (25%).

Biological control for Wild Rabbits was selected by the largest group of respondents (41%).

14. *Are there any other animal species that you classify as pests? (Please list)*

Three hundred and fifty-three (353) respondents completed this question with a total of sixty-seven species listed.
The summary below presents the species and the number of occasions recorded.

Native species	*No. of responses*
Cockatoo	33
Crow / Raven	17
Snake	15
Fly (including; Bush, March, Fruit and Sand)	14
Mosquito	11
Seagull	11
Crown of Thorns starfish	8
Galah	8
Duck	6
Corella	4
Locust	4
Ant	3
Magpie	3
Ring Tail Possum	3
Spider	3
Brush Tail Possum	2
Crocodile	2
Kangaroo	2
Termite	2
Blue Green Algae	1
Budgerigar	1
Cormorant	1
Eagle	1
Emu	1
Ibis	1
Sawfly Cockchafer larvae	1
Swan	1
Water hen	1
Wombat	1

Introduced species	*No. of responses*
Mouse	86
Rat	60
Pig	57
Carp	50
Sparrow	44
Goat	37
Cane toad	33
Buffalo	29
Horse (Brumby)	26
Dog (domestic)	24
Cat (domestic)	23
Blackbird	20
European Wasp	20
Cat (feral)	18
Camel	17
Dog (wild)	14
Donkey	14
Rabbit (wild)	14
Fox	12
Starling	12
Deer	10
Human	10
Common Mynah	6
Japanese starfish	5
Pigeon	3
Rabbit (domestic)	2
Bee (introduced)	1
Cow (feral)	1
Hare	1
Mosquito Fish	1
Redfin	1
Puma	1
Sheep (feral)	1
Trout (Rainbow & Brown)	1

15. Do you have any other comments about pest management?

Three hundred and forty-two (342) written responses were received. Due to the large volume and varied nature they have not been included in this document but are available upon request to the authors.

CONCLUSIONS

The return rate of 42% (n=822) achieved in this study may be an indicator of the high level of interest within the Victorian community concerning pest management issues. Our result can be compared to the return rate reported by Fraser (1995) who, in a postal survey of public attitudes towards introduced wildlife in New Zealand, achieved a return rate of 33% (n=859). This is despite a method which used financial or material incentives to encourage survey returns. It is notable that no rewards or incentives were used to encourage returns in this study.

In this survey there was no major bias in age and sex demographics in comparison to the known age and sex demographics for the Victorian population. On this basis the survey data can, with some limitations, be assumed to provide a useful indication of general community perceptions. While the majority of respondents indicated that they had no prior farming experience (70%), those with farming experience (30%) provided a sufficient sample to make statistically valid comparisons between these two groups.

The distribution of the survey was randomised as a means of gaining general community perceptions and it is unlikely that sampling error influenced the validity of this survey to any great extent. Non-response biases reduce the ability of survey results to reflect the target population (Filion 1980) and it cannot be known to what extent non-respondents' answers would have varied from those received and the extent to which this bias would have influenced the outcome of the survey. Response bias is an error introduced by respondents due to answers not reflecting their true attitude or beliefs and may be influenced by social desirability, the wording of the question and the amount of burden in responding (Filion 1980). It must be accepted that in this survey non-sampling errors which include non-response and response bias cannot be accounted for.

Throughout the survey no strong correlations could be drawn between responses and persons with or without farming experience. It is not possible to demonstrate that persons from these different backgrounds differed greatly in their perception of vertebrate pest management issues; in most instances a high level of concordance in response is demonstrated. The responses do suggest that persons with a rural background may be only slightly more inclined to consider introduced animals as "non-native". Rural respondents were also more likely to consider Wombats, Kangaroos, Corellas and Starlings as pests. However these correlations were weak and any suggestion of a distinct dichotomy in attitudes for both these groups cannot be supported. It is however likely that issues surrounding the pest status of Wombats and Corellas are confined to bio-geographic regions of the State and that local attitudes may differ vastly from general community attitudes which this survey attempted to describe.

Relatively few respondents (19%) believed that introduced animals should be considered to be "native" if their populations were established for 100 years or more. This suggests that most Victorians are prepared to make a distinction between fauna which is "native" and that which is "non-native". This result may suggest a general community attitude that exotic animal species should be considered to have a different status to endemic species.

The majority of respondents (58%) agreed that biological control was appropriate as a method of control for some pest species and can be contrasted with attitudinal data which

suggests that 68% of Australians accept Rabbit Calicivirus Disease (RCD) as an appropriate Rabbit control method (Morgan 1995). It is significant however that biological control, while being a preferred method of control for rabbits in this survey, was selected second for the control of Foxes and as a third option for control of Feral Cats and Wild Dogs. For the former three species, humane and target-specific toxins were selected by the largest proportion of respondents. These results support the conclusion that no single method of pest control is seen as the most appropriate for all pest species and that the acceptability of the control technique selected depends upon the species concerned and perhaps the circumstances when it is used.

Approximately half of the respondents found the death of a small number of domestic animals or wildlife species to be unacceptable in the course of pest control activities. Those respondents who found the death of domestic animals unacceptable were also highly likely to find the death of wildlife species equally unacceptable and there was a moderate degree of cross correlation between responses to statement 7a and 7b. This result should serve to reinforce the importance of the non-target impact issue in control programs. At this stage it cannot be assumed that general community support will be given to pest control practices which result in inevitable off-target impacts. Significantly, there was no indication that off-target impacts were better accepted by those respondents who had farming experience.

The overwhelming majority of respondents identified the Feral Cat, Wild Rabbit, Fox and Wild Dog as pest species and eradication was seen to be the most desirable management outcome. Other introduced species such as the Common Mynah and to a lesser extent the Starling seemed to cause some confusion with respondents who were undecided as to the pest status and most appropriate control methods.

This survey has provided some useful base-line data for the measurement of community perceptions of vertebrate pest management in Victoria. It should be recognised that community perceptions and attitudes are likely to be dynamic and will change with time. Consequently, these results will probably be of most value as a comparison for future surveys as a means to determine the extent to which perceptions and attitudes have changed.

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Catchment and Land Protection Act 1994, The Law Printer, Victoria.

APPENDIX 1. COVERING LETTER USED IN EACH SURVEY PACK

DEPARTMENT OF CONSERVATION & NATURAL RESOURCES
Keith Turnbull Research Institute
P.O. Box 48, Frankston, 3199

Date

Dear «NAME»,

You may be already aware that a viral agent called Rabbit Calicivirus Disease (RCD) escaped from a quarantined island off the South Australian coast in October 1995. This biological agent was under assessment for its potential to control wild rabbits. This one event has initiated a wider debate concerning the aims, ethics and type of control used for animal pests which the community finds acceptable.

Currently, there is little information that we can use to assess general community expectations of this area. Obtaining this information is highly important to us, as we are currently reviewing the direction which our research programs should take in the next ten years.

You are one of only a few people who have received this letter. It is my hope that you will help us in our efforts to better serve you and the Victorian environment. We greatly value your opinion, comments and the return of this survey. Please do not underestimate how important it is for this Institute to receive a reply from you. This is a genuine process of consultation where you have an opportunity to change the techniques and practices which we use to control animal pests now and in the future.

We would appreciate it if you could spend a few minutes to fill out the attached survey and return it by March 3rd, 1996. There is a reply paid envelope attached to facilitate the return of the survey.

Yours sincerely,

ROBERT V. EDGAR
MANAGER
KEITH TURNBULL RESEARCH INSTITUTE

APPENDIX 2. SAMPLE SURVEY DOCUMENT

Department of Conservation and Natural Resources

Vertebrate Pest Control Survey 1996

Vertebrate Pest Research Unit
Keith Turnbull Research Institute
Frankston, Victoria.

Please complete this survey with an ink pen.

1. Are you?

Male ❑ *Female* ❑

2. Your approximate age?

Under 20 ❑ *21-30* ❑ *31-40* ❑ *41-50* ❑ *51-60* ❑ *61-70* ❑ *Over 71* ❑

3. Are you currently or have you previously been a farmer or involved with primary production?

Yes ❑ *Don't know* ❑ *No* ❑

4. Do you currently live in an urban or rural environment?

Urban ❑ *Semi - Rural* ❑ *Rural* ❑

5. Most of our introduced animals (eg. foxes, rabbits) have been present in Australia for 100 years or more. These animals should now be considered native.
Do you?

Strongly Agree	*Agree*	*Undecided*	*Disagree*	*Strongly Disagree*
❑	❑	❑	❑	❑

6. Biological agents, (ie. viruses, bacteria, parasites) should be introduced to control some of our pest animal species.
Do you?

Strongly Agree	*Agree*	*Undecided*	*Disagree*	*Strongly Disagree*
❑	❑	❑	❑	❑

7. A 'non-target' species' is an animal which is an unintended victim of control activities.

a) It is an acceptable risk for a small number of non-target native wildlife species to die in the process of controlling larger numbers of pest species.
Do you?

Strongly Agree	*Agree*	*Undecided*	*Disagree*	*Strongly Disagree*
❑	❑	❑	❑	❑

b) It is an acceptable risk for a small number of non-target domestic pets to die in the process of controlling larger numbers of pest species.
Do you?

Strongly Agree	*Agree*	*Undecided*	*Disagree*	*Strongly Disagree*
❑	❑	❑	❑	❑

c) Do you have any extra comments that you would like to make on this issue?

_____
_____
_____
_____

8. During 1995/96 the Victorian Government allotted approximately $190,000 towards the research of vertebrate pest animal control.
This level of funding is adequate when considering the effect that pest populations have upon agriculture & the environment.
Do you?

Strongly Agree	*Agree*	*Undecided*	*Disagree*	*Strongly Disagree*
❑	❑	❑	❑	❑

9. Pest animals are being adequately controlled by current field operations.
Do you?

Strongly Agree	*Agree*	*Undecided*	*Disagree*	*Strongly Disagree*
❑	❑	❑	❑	❑

10. Classify all of the following animals as either pest or non-pest animals.
(Tick one box for each species)

Species	*Non - pest*	*Pest*	*Undecided*
Emu	❑	❑	❑
Wild Rabbit	❑	❑	❑
Fox	❑	❑	❑
Kangaroo	❑	❑	❑
Wild Dog	❑	❑	❑
Starling	❑	❑	❑
Feral cat	❑	❑	❑
Wombat	❑	❑	❑
Corella	❑	❑	❑
Domestic rabbit	❑	❑	❑
Indian Mynah	❑	❑	❑
Platypus	❑	❑	❑
Domestic cat	❑	❑	❑
Brush tailed Possum	❑	❑	❑

11. In your opinion, what level of management is ideally most appropriate for the following species?
(Tick one box for each species)

Species	*Eradicate*	*Manage as a resource*	*Undecided*	*Control at low numbers*	*Do nothing*
Feral cat	❑	❑	❑	❑	❑
Wild Rabbit	❑	❑	❑	❑	❑
Fox	❑	❑	❑	❑	❑
Kangaroo	❑	❑	❑	❑	❑
Wild Dog	❑	❑	❑	❑	❑
Starling	❑	❑	❑	❑	❑
Indian Mynah	❑	❑	❑	❑	❑
Wombat	❑	❑	❑	❑	❑

12. Where populations of animals are subject to control, several methods are generally available.
Please select the most appropriate technique of pest animal control.

Species	*Shooting*	*Poisoning*	*Trapping*	*Biological control*	*No appropriate technique*	*Undecided*
Feral cat	❑	❑	❑	❑	❑	❑
Wild Rabbit	❑	❑	❑	❑	❑	❑
Fox	❑	❑	❑	❑	❑	❑
Kangaroo	❑	❑	❑	❑	❑	❑
Wild Dog	❑	❑	❑	❑	❑	❑
Starling	❑	❑	❑	❑	❑	❑
Indian Mynah	❑	❑	❑	❑	❑	❑
Wombat	❑	❑	❑	❑	❑	❑

13. Please **rank** the following techniques of population control of pest animals in order of your preference.
(1= technique most favoured -...4 = technique least favoured.)

Please read the following definitions before you answer this question.

Biological control - A disease or other biological agent that only kills the pest species, eg. Myxomatosis in wild rabbits

Temporary fertility control - Where infertility is caused but is temporary or reversible.

Permanent fertility control - The animal is living normally in the wild but is unable to reproduce for its' entire life.

Humane and target specific toxin - A bait is used with a poison that will kill only the intended species without subjecting it to any suffering.

Species	*Biological control*	*Temporary fertility control*	*Permanent fertility control*	*Humane and target specific toxin*	*Undecided*
EXAMPLE Animal	3	4	1	2	
Feral cats	❑	❑	❑	❑	❑
Wild Rabbits	❑	❑	❑	❑	❑
Foxes	❑	❑	❑	❑	❑
Kangaroos	❑	❑	❑	❑	❑
Wild Dogs	❑	❑	❑	❑	❑

14. *Please refer to the list of animal species in question 10.*
Are there any other animal species that you classify as pests? (If yes, please list below)

_____
_____
_____
_____

15. Do you have any other comments about pest management? (If yes, please list below)

_____
_____
_____
_____
_____
_____

Thank you for completing the survey. Your opinion is important!

Please place this survey in the supplied envelope and post at your earliest convenience.

You do not have to place a stamp on the envelope.