CSIRO PUBLISHING

Wildlife Research, 2014, **41**, 76–83
http://dx.doi.org/10.1071/WR13171

Expenditure and motivation of Australian recreational hunters

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Abstract

Context. Recreational hunting has a long history in Australia, as in other parts of the world. However, the number, characteristics and motivations of Australian hunters have never been investigated in the same way as those in other countries where hunting occurs.

Aims. In this report, we aimed to systematically survey Australian recreational hunters to determine their demographic characteristics, patterns of spending and motivations.

Methods. Between September 2011 and June 2012, we encouraged hunters to participate in an anonymous online survey hosted by SurveyMonkey. We asked 53 questions about the hunters, their hunting patterns, expenditure on hunting and their motivations to hunt.

Key results. In total, 7202 hunters responded to the survey. The respondents were overwhelmingly male and 67% were aged between 31 and 60 years. Almost 34% of respondents were from Victoria, 26.7% from New South Wales and 22.0% from Queensland. Average direct expenditure on hunting was A$1835 per person per annum, whereas indirect expenditure was A$2168. Over 99% of respondents said that they would be willing to participate in pest-control activities if they had the opportunity.

Conclusions. There are likely to be at least 200 000 and more likely 300 000 recreational hunters in Australia and they spend in excess of A$1 billion dollars annually on hunting. Almost all of these hunters are willing to participate in direct wildlife management activities, such as pest control.

Implications. The Australian recreational hunting community is large, active and willing to spend large amounts of money on hunting. Their activities need to be understood and participants engaged by wildlife managers so as to obtain the best outcomes for wildlife management in Australia.

Additional keywords: attitudes, hunters, survey.

Received 11 October 2013, accepted 9 April 2014, published online 19 May 2014

Introduction

Hunting has been intimately linked to human development (Harding and Teleki 1981; Hudson *et al*. 1989; Yalden 1996; Gaudzinski 2004) and to cultural identity (Bauer and Giles 2002; Leader-Williams 2009). Hudson *et al*. (1989) described three hunting categories, namely, subsistence (food for survival), commercial (animal products for sale or barter) and recreation. There is much overlap among these categories. All forms of hunting are controversial, with arguments against the continuation of hunting stemming from conservation, animal welfare and animal rights reasons (Booth 2009*a*, 2009*b*; Hutton *et al*. 2009).

Hunting with firearms in Australia has occurred since the earliest days of colonial settlement in each of the three categories above (Haigh and Coleman 1995; Bauer and Giles 2002). The desire for more recreational hunting opportunities in the new colonies led many within the Acclimatisation Societies to introduce exotic species into Australia (Cause 1995; Bauer and Giles 2002; Sharp and Wollscheid 2009). The legacy of these introductions continues to be a significant wildlife management issue today and provides the main target species for many recreational hunters (Dobbie *et al*. 1993; Choquenot *et al*. 1996; Parkes *et al*. 1996; Booth 2009*a*, 2009*b*).

Recreational hunting is widely practiced legally in all Australian states and territories (SSAA 2013). Membership of Australian organisations representing recreational hunters' interests such as the Sporting Shooters Association of Australia (SSAA) and Field and Game Australia (F&G) is increasing (F&G 2012; Green 2013). Although recreational hunting in Australia has a long history and is widely undertaken, there is a dearth of quantitative data available on hunting in Australia. Bauer and Giles (2002) estimated that in 2002, there were ~900 000 Australians (4% of the 2002 population estimate) participating in some form of hunting, but

provided no evidence for their estimate. However, that rate is similar to the estimated ~5% of the population participating in recreational hunting in New Zealand, the United States of America and Canada (Woods and Kerr 2010).

This lack of quantitative data about hunting in Australia contrasts with most other OECD countries. For instance, since 1955, the USA Fish and Wildlife Service have conducted a national survey of fishing-, hunting- and wildlife-associated recreation in the USA every 5 years. In 2011, there were a total of 13.7 million hunters aged 16 or older in the USA (USFWS and USCB 2012). A similar survey by the Canadian Wildlife Service in 1996 estimated that there were 1.2 million hunters (Leigh *et al*. 2000). A survey of recreational hunters in the UK in 2006 estimated that there were 480 000 active hunters (PACEC 2006). Similar data exist for European countries where hunting is regulated. The European Federation of Associations for Hunting and Conservation (FACE) claims to represent 7 million hunters across 38 European countries (FACE 2012).

Quantifying hunting activity in these countries is more than an academic activity. In Europe, as in North America, recreational hunting is a major source of funding for conservation (Muth and Jamison 2000; Hansen *et al*. 2012) and, therefore, of significance to wildlife managers. For instance, UK hunters spent almost A$3 billion on direct and indirect hunting expenses during 2006 (PACEC 2006). Canadian hunters spent A$383 million directly and A$440 million indirectly on hunting during 1996 (Leigh *et al*. 2000), whereas in the USA, hunters spent A$13.94 billion directly on hunting equipment and another A$20.06 billion indirectly on their pastime in 2011 (USFWS and USCB 2012).

Most detail on hunting participation and expenditure statistics is available from the USA. One of the five cornerstones of the North American wildlife conservation model includes funding conservation through taxes and licence sales directly associated with hunting (Muth and Jamison 2000). The USA Fish and Wildlife Service promotes the fact that 'the sale of hunting licenses, tags, and stamps is the primary source of funding for most state wildlife conservation efforts' (USFWS 2013*a*). A decline in hunting participation and expenditure in the USA is recognised by many wildlife managers as being financially detrimental for conservation in general in that country (Adams *et al*. 2010; Peterson 2004).

There may be many reasons why there is a lack of quantitative information on hunting in Australia. For example, although there is some licensing of recreational hunters, not every state regulates all hunting. Even where licensing takes place, not all forms of hunting are licenced. For instance in Victoria and Tasmania, where the hunting of native species such as ducks and quail or introduced species such as deer is regulated, the hunting of other species, including pigs, foxes or rabbits, is not licenced. This means that even for states that hold some data on hunting participation, they do not cover all hunting activities.

In contrast to introduced animals, all legal hunting of native species in Australia is regulated by government agencies where it does occur. However, most recreational hunting in Australia is for introduced species, most of which are considered pests (Bauer and Giles 2002; Woods and Kerr 2010). Therefore, there has been limited need for agencies to regulate hunters or to know what they are doing so long as they have the legal access to where they hunt. This philosophy has been suggested as the likely reason for a similar lack of data on New Zealand recreational hunters (Woods and Kerr 2010). However, this reasoning fails to recognise that recreational hunters, wherever the location, are active participants in wildlife management. The actions and attitudes of Australian recreational hunters are likely to have impacts on wildlife welfare as well as populations and habitats, either positive or negative, just as they do in other countries. Without quantifying how numerous recreational hunters are, and where they hunt, Australian wildlife managers and policy makers have limited ability to know what effects they may have on wildlife and the Australian environment.

The recognition of the importance of the human dimensions of wildlife management is described by Gigliotti *et al*. (2009) as a significant paradigm shift in wildlife management in the USA since the 1960s. In this context, hunters must be regarded as an important part of the wildlife management community and understanding their motivations has become integral to many wildlife management programs in the USA (McCullough and Carmen 1982; Rollins and Romano 1989; Hammitt *et al*. 1990; Tynon 1997; Heberlein and Kuentzel 2002; Bhandari *et al*. 2006) and, to a lesser extent, Europe (Hansen *et al*. 2012). More recently, it has been recognised as important to managing recreational hunting activities in New Zealand where most recreational hunting involves introduced pest species similar to the Australian context (Woods and Kerr 2010).

There is clearly much to be learnt about Australian hunters and their activities. We conducted the first broad-scale attempt to quantify the Australian recreational hunting demographic, their motivations and what they spend in the pursuit of their pastime across Australia. This information will have much greater value for decision makers if the total number of hunters is also known. Here, we report on the above demographic characteristics of recreational hunters and attempt an estimate of the total number of hunters.

Methods

During 2010, we formulated a pilot survey after extensive consultations with the main hunting organisations in Australia, including Australian Deer Association, Sporting Shooters Association of Australia, Field and Game Australia, Victorian Hound Hunters, the New South Wales Game Council and Game Victoria. The pilot survey contained 49 questions and was trialled in hard copy form at the Australian Deer Association Hunting and Outdoor show at Morayfield, North Brisbane, in August 2011. Eighty-five people responded to the pilot survey. The responses were scrutinised for internal consistency and evidence of ambiguities in question wording. The responses also suggested further questions, which should be asked in the full survey. Discussions with respondents after they had completed the questionnaire clearly indicated that the great majority would not participate unless the questionnaire was completely anonymous, and that it must be able to be completed in less than 10 min.

Given those constraints, we formulated a survey containing 53 questions that was made available online on SurveyMonkey between September 2011 and June 2012. Because of the completion-time constraint, the final survey contained only

two open questions (Table 1), one requiring the respondent to record the number of days they spend, in an average year, hunting with a dog, and the other, the year they last hunted. All other questions had categories for the respondents to choose from, except where 'other' was an option, there was room for the respondent to specify. The questions fit broadly into six categories (Table 1). There were six questions about the demographics of the respondent (e.g. how old are you, in which state do you live), 16 about broad cultural hunting habits, (e.g. what hunting clubs do you belong to), 13 about hunting practices (e.g. what species do you hunt), nine about usual expenditure on hunting or willingness to pay fees and levies, four about training and information sources, and five about motivation and satisfaction. Thirty-one of the closed questions allowed the respondents to make only one selection, and 19 allowed multiple selections from the categories provided (Table 1).

The survey was promoted by each of the above hunting organisations, with many having links to the survey on their websites. To further promote the survey to Australian hunters who do not belong to any organisation, we emailed the editor of every Australian hunting magazine, including archery and bow hunting journals, asking for promotion of the survey to their readers.

Each of the organisations listed above acknowledged that there is a widespread mistrust among many Australian hunters of government at all levels, and this was confirmed during the pilot study. Therefore, to maximise participation the survey was anonymous and open to anyone who logged in, verifying they were over 18 years old. We also conducted face to face surveys with randomly selected participants at the Wild Deer Hunting and Guiding Expo in Bendigo, Victoria, on the 4 and 5 February 2012, and at the Sydney SHOT Show in Homebush, New South Wales, on the 16 and 17 of June 2012.

There was a great deal of information contained in the responses to this survey. Here, we have space and scope to report only on the demographic characteristics and expenditure of hunters. Other, no less interesting or valuable, findings will be reported elsewhere. We examined differences in various responses using Chi-squared tests of association.

Table 1. Structure of questionnaire
A summary of all questions can be found at http://www.deerresearch.com.au/wp-content/uploads/2012-08_summary-university-of-queensland-hunter-survey1.pdf

Question category	Closed		Open	Total
	One selection allowed	Multiple selections allowed		
Demographics	5	1	0	6
Hunting culture and habits	9	5	2	16
Expenditure and willingness to pay	5	4	0	9
Hunting practices	7	6	0	13
Motivation and satisfaction	3	2	0	5
Training and information sources	2	2	0	4
Total	31	20	2	53

Results

There were a total of 7202 respondents, with 94% (6770) completing the questionnaire, although a variable number of respondents answered any one question. One-third of respondents identified as living in Victoria, whereas slightly more than a quarter lived in New South Wales and over 22% lived in Queensland. Together, these states accounted for 82.6% of all respondents (Table 2). The proportion of respondents in each state was broadly similar to the overall population pattern for Australia (Fig. 1).

Of the respondents, 21 could be identified as not responding in good faith on the basis of their responses (e.g. 'leave the animals alone', 'shoot the **** hunters not the animals') – these were removed from the analyses. Ninety-five per cent of the respondents had hunted in the previous 3 months (Fig. 2). For those who had not hunted in the past 3 months, the mean length of time since they last hunted was 7.5 years ($n = 399$).

There was a significant difference ($\chi^2 = 65.12$, d.f. = 42, $P = 0.012$) between the age of respondents in each hunter-age category by state. The main difference was a lower proportion of 41–50-year olds in New South Wales, and Northern Territory having a higher proportion of 31–40-year olds than in other states (Table 2).

Australia-wide, 98% of respondents were male, with significantly more female respondents in Queensland and Tasmania than in other states ($\chi^2 = 14.63$, d.f. = 7, $P = 0.041$). Ninety-two per cent of respondents belonged to a hunting club (Fig. 3); however, 45% of respondents knew three or more active hunters who did not belong to a hunting club. Twenty per cent of respondents knew more than 10 people who hunted and did not belong to a hunting club.

When asked to categorise what motivated respondents to hunt, most selected pest control followed by recreation and

Table 2. Number of respondents in each state and age category
Numbers in cells are the number of responses received

Age (years)	Qld	NT	WA	SA	Vic.	Tas.	ACT	NSW	Total (% of total)
18–30	276	21	54	78	483	48	26	412	1398 (19.4%)
31–40	364	27	85	74	513	55	37	449	1604 (22.3%)
41–50	413	22	113	**82**	584	64	43	433	1754 (24.4%)
51–60	321	12	79	79	513	66	25	369	1464 (20.3%)
>60	208	9	57	57	345	33	10	263	982 (13.6%)
Total	1582	91	388	370	2438	266	141	1926	7202
(% of total)	(22%)	(1.3%)	(5.4%)	(5.1%)	(33.9%)	(3.7%)	(2%)	(26.7%)	

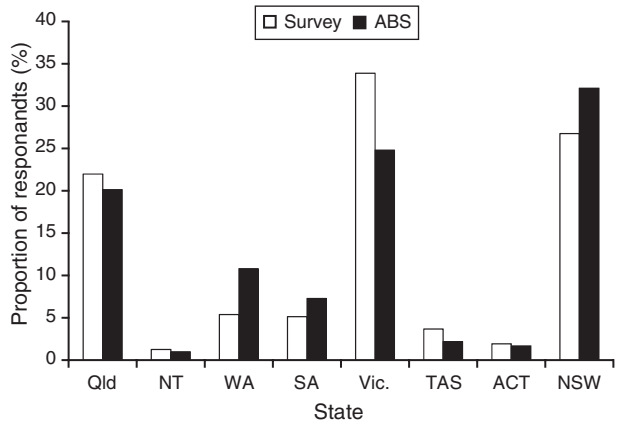

Fig. 1. Proportion of respondents in each Australian state compared with population in each state (ABS 2012). ABS, Australian Bureau of Statistics.

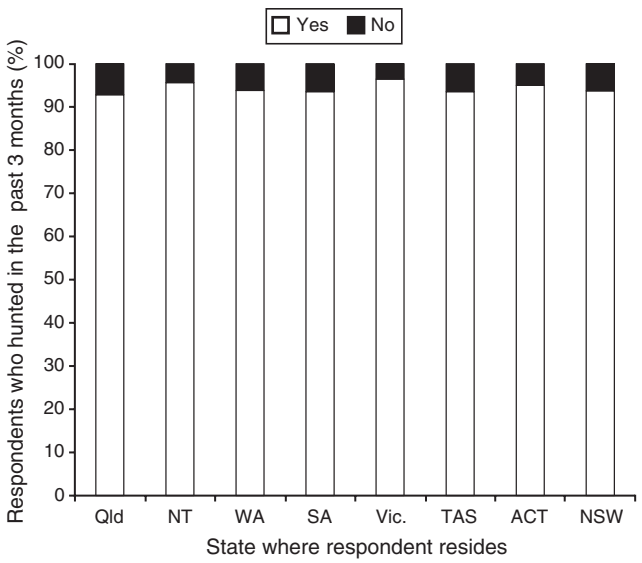

Fig. 2. Proportion of survey respondents who had hunted in the preceding 3 months.

hunting for meat. Participants could choose more than one category for this question, with the responses in each state being significantly different ($\chi^2 = 199.6$, d.f. = 49, $P = 0.00$; Table 3). In response to the question 'would you be willing to assist landholders to control pest species', 99.3% answered yes. Participants were also asked to rank their participation in a range of non-hunting natural resource-management activities (Fig. 4).

Responses to questions about expenditure were constrained to categories. Using the minimum value of each category (except for the first, which contained A$0, where we used the median amount) as a conservative representative expenditure, we found that direct annual individual expenditure by survey respondents on hunting equipment totalled A$13 204 900. The average annual direct expenditure per respondent was A$1835. Indirect annual expenditure by respondents was slightly greater at A $15 415 200, with an average of A$2140 (Table 4).

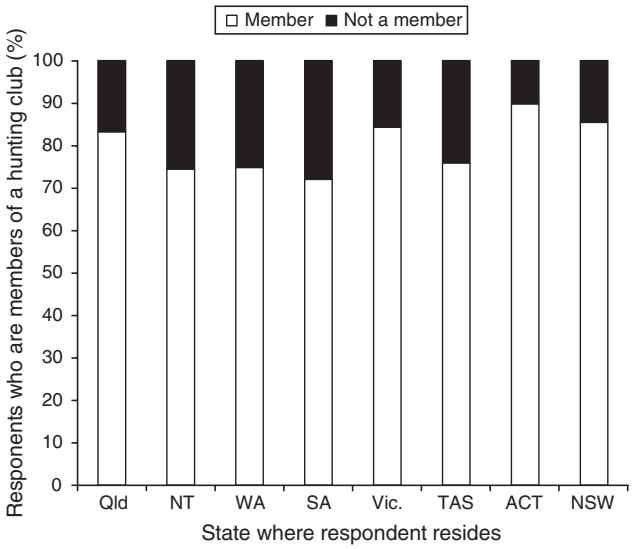

Fig. 3. Proportion of respondents who were members of a hunting club in each state.

Question 39 of the survey was introduced with the preamble 'Hunters and anglers in the USA pay an 11% levy on all hunting and fishing merchandise which together with hunting licenses produces 75% of all money spent on conservation in the USA. In principle, would you be willing to pay a levy on hunting merchandise purchased in Australia if you had an influence on how the levy was spent?'. Of the 7140 respondents to this question, 68.6% answered that they were willing to pay such a levy. Of those willing to pay, 60% supported a 5% levy and 30% supported a 10% levy.

Discussion

The survey reported here was the first attempt to quantify the characteristics of the recreational-hunting community of Australia. Being offered online, with participants able to remain anonymous, there was no way of ensuring we would reach our target audience. However, we believe the survey does effectively provide base-line information on Australian recreational hunters, with 92% of respondents reporting actively hunting in the 3 months preceding the survey. Given the way the survey was promoted, it is not surprising that 92% of respondents belonged to a hunting club. Forty-five per cent of respondents said that they know three or more hunters who do not belong to a club, suggesting that these survey results are biased towards club members. However, because of the large sample size of the survey, we believe that extrapolations from the data reported here at least represent hunters who belong to a club. Future surveys of this kind in Australia need to increase the participation rate of hunters not belonging to a club and this may be difficult because such people may be predisposed to avoiding organised and regulated activity.

Ninety-eight per cent of the survey respondents were male, which is a larger proportion than reported overseas, with 95% being male in New Zealand, 93% in United Kingdome, 91% in the USA and 85% in Canada (PACEC 2006; Woods and Kerr 2010). Despite the low female participation, there are anecdotal

Table 3. Responses to the question 'what motivates you to hunt?'

Motivation for hunting	Qld	NT	WA	SA	Vic.	Tas.	ACT	NSW	Total
Trophy	571	37	74	93	882	147	51	716	2571
Meat	1140	75	310	296	2090	247	116	1454	5728
Recreation	1320	83	312	307	2099	232	126	1611	6090
Pest control	1416	78	354	330	2040	235	125	1681	6259
Income	90	6	20	20	84	6	5	91	322
Game management	663	29	120	130	962	163	71	693	2831
Conservation	1067	67	278	261	1504	131	99	1247	4654
Other	71	5	12	14	153	11	14	96	376

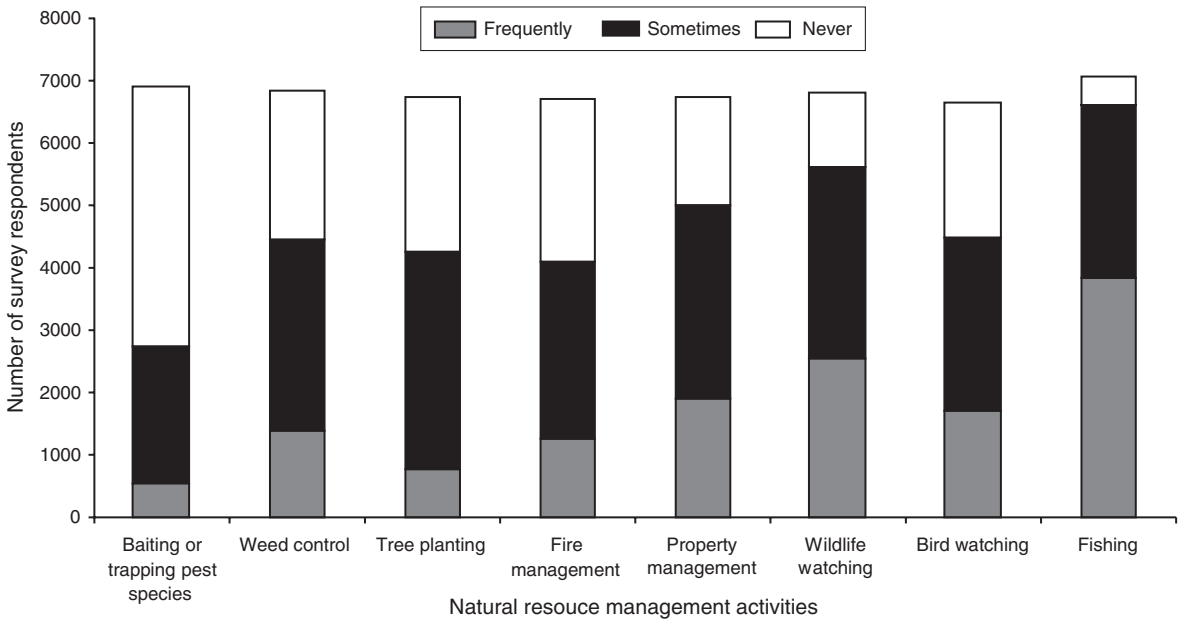

Fig. 4. Participation in non-hunting natural resource-management activities.

Table 4. Reported direct and indirect annual expenditure by survey respondents

Values are number of respondents in each category. Minimum estimate is a dollar estimate based on the number of respondents in each category, spending the lowest amount of that category, except for the first category which was calculated using the median (A$50)

Expenditure	A$0–100	A$101–500	A$501–1000	A$1001–5000	A$5001–10 000	>A$10 000
Direct						
Firearms or bows	915	1336	1613	2331	298	77
Licences	2246	3896	330	65	1	0
Guides	1822	188	163	260	306	35
Ammunition	815	3238	1815	942	61	15
Other	532	651	606	566	100	43
Minimum estimate	A$316 500	A$930 900	A$2 263 500	A$4 164 000	A$3 830 000	A$1 700 000
Indirect						
Fuel	403	2085	2343	2192	221	38
Accommodation	1408	1650	1070	427	33	2
Airfares	1522	322	465	442	61	11
Photo equipment	1828	1644	596	209	13	7
Camping equipment	813	2848	1834	765	37	14
Food	426	2220	2386	1662	125	27
Other	402	277	221	206	40	17
Minimum estimate	A$340 100	A$1 104 600	A$4 457 500	A$5 703 000	A$2 650 000	A$1 160 000

reports (Turra 2011) that female participation in hunting is increasing in Australia. In the USA, there are now perhaps between two and three million female hunters, with this number reportedly increasing when overall hunter numbers are decreasing (Zeiss Strange 2010). In the United Kingdom, female participation is also believed to be increasing (PACEC 2006). The proportion of male respondents to this survey is also higher than the membership of SSAA, which, at 31 August 2013, had 91.7% of its membership self-disclosed as male (M. Godson, pers. comm., September 2013). This over-representation of males in our survey may be a reflection of a greater readership of hunting magazines (which promoted the survey) by males, or it may reflect a higher motivation among male hunters to have their demographics examined and reported. This male bias probably does not invalidate the findings of this survey because it is common for more than 90% of the hunting population in any country to be male, so it is their opinions that will be the most influential. This is also the case with this survey.

It may also be that some SSAA members are not hunters and those non-hunting SSAA members may have characteristics different from those who hunt. The higher proportion of older respondents reported here possibly indicates that they are more conservative in their attitudes, and less open to new ideas than is the wider hunting community (Sears 1981).

The age of Australian hunters is also similar to that in other countries, with almost two-thirds of the respondents being between 30 and 60 years old. This is similar to Canada and New Zealand, where the highest proportion of hunters are in the 25–54-year-old category (Woods and Kerr 2010). Hansen *et al*. (2012) reported that the age of hunters in Denmark is increasing, whereas American hunters are well represented in all age categories between 16 and 64 (Sharp and Wollscheid 2009).

We believe the participation rate for Australian recreation hunters is less than the 4% of the population, as proposed by Bauer and Giles (2002). To estimate the number of recreational hunters, we utilised two forms of data. Our first method was based on firearm ownership in Australia, which was 764 518 licensees in 2002 (Mouzos 2002). The largest representative group of firearm owners is the SSAA who claim 80% of their 150 000 members participate in hunting in some form (Green 2013). If this group were representative of all firearm owners, then 611 000 Australian firearm owners would be hunters. There are many hunters who hunt with bows or dogs without firearms and our survey suggested that this group could make 16% of all hunters. If this were correct, then the total would be closer to 700 000 hunters in Australia or 3% of the population.

Our second method of estimating hunter numbers is by extrapolating known hunter numbers from Victoria to other states. We chose Victoria as a comparator because most recreational hunting activities in that state are licenced; therefore, we conclude most hunters are licenced. In 2013, there were 41 500 licenced recreational hunters in Victoria (DEPI 2013). That state accounts for ~25% of the Australian population (ABS 2012). If we assume that participation in recreational hunting occurred in all states at a similar proportion of the population, then there would be approximately only 166 000 hunters. Actual participation rates would be greater than this, because there are still many forms of hunting that do not require a licence in Victoria, as previously discussed. The results of the present survey suggested that the proportion of the population participating in hunting activities is different in each state of Australia (Fig. 1). This is consistent with other regions of the world, such as the USA, Canada and Europe, where participation rates vary between 1% and 15% of the population for any given jurisdiction (Sharp and Wollscheid 2009).

Our chosen methods of estimating the number of recreational hunters in Australia represented both a realistic upper and lower limit. The true number of recreational hunters is probably somewhere between these estimates, most likely between 200 000 and 350 000, or 1.5% of the population.

Recreational hunting is an activity that directly affects wildlife, and sometimes its habitat. Among the many possible ways of quantifying this activity, the direct and indirect expenditure of recreational hunters is of interest to wildlife managers in many countries (Muth and Jamison 2000; Hansen *et al*. 2012). This metric provides a measure of the value participants place on their hunting and on the opportunity to hunt.

Expenditure by Australian hunters is significant. Of the participants to this survey, 66% spent annually between A$500 and A$5000 directly on goods and services specific to hunting. Two per cent of survey respondent reportedly spent over A$10 000 per year directly. If we conservatively extrapolate these findings to apply to 200 000 hunters in Australia, then 2% of the hunting population is spending over A$40 million directly on hunting alone.

Hunters in the United Kingdom spent the equivalent of A$7000 each in 2006 directly on hunting-related goods and services (PACEC 2006; Sharp and Wollscheid 2009). This figure is heavily biased because of the expensive nature of artificially reared game-bird shooting. When this form of hunting is excluded from overall expenditure in the United Kingdom, the average expenditure for all other types of hunting was A$1700 per a participant (PACEC 2006; Sharp and Wollscheid 2009). Average direct expenditure per hunter in the USA is approximately A$1500 (Sharp and Wollscheid 2009), which is greater than that for Canadian hunters who spend approximately A$1000 each per year directly on hunting expenses (Leigh *et al*. 2000; Canadian values were adjusted to 2012 values from 1996). It is, however, less than resident South African hunters who reportedly spend A$2200 each per year directly on hunting (Damm 2005). Caution should be exercised when comparing these values because the definition of direct and indirect expenditures varies between surveys.

The average expenditure, directly and indirectly on hunting, by respondents of the present survey was A$1830 and A$2140 each per year. This is less than the value in Cause (1995) who estimated the annual expenditure by Australian deer hunters at A$5870 each per year (direct and indirect expenses were combined and adjusted to 2012 figures from 1995). However, deer hunting may genuinely be a more expensive past time than many other forms of recreational hunting (Cause 1995). These average expenditures for Australian hunters are on par with hunters in the USA. Extrapolated to 200 000 hunters, the total expenditure directly relating to hunting in Australia is approximately A$366 million, whereas the indirect expenditure would be A$428 million. If we assume that the number of

hunters in Australia is closer to 300 000, then the total expenditure by Australian recreational hunters exceeds A$1 billion annually. These are all conservative estimates reported in the survey, because we used the lower bounds of all expenditure categories, not the upper or midpoint.

The current methodology to analyse hunter motivations uses the multiple-satisfactions approach (Woods and Kerr 2010). This method recognises that people gain more than one benefit and/or satisfaction through participating in recreational hunting (Hendee 1974). Motivations for hunting are defined as the forces directing an individual's behaviour to satisfy the goal of hunting (Manfredo *et al*. 2004). Woods and Kerr (2010), as part of an extensive review of studies examining hunter motivations, concluded that New Zealand hunters appeared to have motivations similar to those of hunters from other countries. This is significant, given that hunting in New Zealand, similar to Australia, is predominantly for introduced species. Most international studies reviewed by Woods and Kerr (2010) focussed on hunters hunting native species.

Several of the questions in this survey sought to identify the motivations of Australian recreational hunters. Responses included a range of motivations including harvesting animals for meat and trophies and/or just recreation, similar to New Zealand hunters (Woods and Kerr 2010). However, a motivation by many Australian hunters to assist landholders and control pests was apparent in the study. These forms of motivations are not recorded in other studies, with the closest similar motivation in the literature being the management of deer populations in the USA (Bhandari *et al*. 2006). Hunters can of course be motivated by more than one of these reasons and it is conceivable that while gaining a trophy, obtaining some meat or enjoying recreation, a hunter assists a landholder to control a pest species. Over half the respondents to this survey participated in other forms of natural resource management such as weed control and fire management or tree planting. This is consistent, with almost 65% citing conservation as a motivation to hunt.

The relationship between hunting and conservation in Australia has been challenged in recent years (Booth 2009*a*, 2009*b*). However, specific levies and taxes paid by hunters and anglers in the United States of America contribute the majority of conservation funding in that country (USFWS 2013*a*). Although making these contributions is significant in itself, of note here is that hunters and anglers lobbied the United States of America government to impose these taxes themselves (USFWS 2013*b*). This was a very strong indication of the conservation ethic of American hunters in the 1930s. Over two-thirds of the survey participants reported here supported the idea of paying a levy on hunting merchandise to contribute toward wildlife conservation. Of those that supported the idea, 60% supported a 5% levy and 30% supported a 10% levy. Clearly, these respondents wished to contribute toward conservation beyond just killing feral animals. Should such a levy be introduced in Australia, it could generate significant funding for conservation in this country.

Consistent with many OECD countries, the Australian recreational hunting community is large, active and willing to spend large amounts of money associated with hunting. Unlike in other OECD countries, recreational hunters in Australia are not currently widely engaged by wildlife managers. The results of the present survey suggested that wildlife management in Australia could benefit from greater engagement between wildlife managers and the recreational hunting community. Although we acknowledge that recreational hunting is not a panacea to Australia's conservation problems, we believe that the potential exists for this large and active community to become a valuable resource to wildlife managers in this country.

Acknowledgements

This survey was undertaken as part of the broader The University of Queensland *Wild deer management in Australia* project. The authors gratefully acknowledge the financial support of the Australian Deer Association, Biosecurity Queensland, NSW Game Council, SCI Down Under, Sporting Shooters Association of Australia and the Toowoomba Regional Council. Biosecurity Queensland, Sporting Shooters Association of Australia, Australian Deer Association, New South Wales Game Council, Field and Game Australia contributed to valuable discussions during formulation of the survey questions. We acknowledge the thousands of respondents who completed this survey.

This research was carried out under Human Ethics approval from The University of Queensland (2011000945).

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