Executive Summary

Introduction

This report summarises the results of research into the economic impact of hunting. The study was commissioned by the Victorian Department of Environment and Primary Industries (DEPI) and undertaken by RMCG, EconSearch and DBM Consultants.

Hunting expenditure is influenced by hunter effort, which in turn is influenced by seasonal conditions. The research investigates hunting-related expenditure in 2013, which was an average year in terms of game species populations and hunter success, and thus is also likely to be an average year for expenditure.

Through the course of the project, data was also collected on the social impact of hunting. While there is some analysis in this report, detailed analysis of the social data was not within the scope of this project and there are opportunities for further analysis at a later date.

Survey method

A survey was used to gather statistically significant information about hunters' expenditure patterns.

The survey focussed on hunters: those who have a firearms licence for the purpose of "recreation", with the primary interest being game hunters, as the expenditure of this group is of interest to government policy makers. Primary producers and wildlife controllers who are not game hunters or who hold a firearms licence as part of a business requirement to reduce pest populations were excluded from the research. This survey covered all hunting in Victoria, regardless of the residency of the hunter; hunting by Victorians in other states or overseas was not covered.

The game licence database and hunting association memberships were used as sampling frames for the research. This provided good coverage of the population of game licence holders. Non-game licence holders were under-represented, but this was acceptable, given that the main focus of the research was on game hunting.

1,000 responses were gathered for the survey, with surveys conducted online and over the phone. Invitations to complete the online survey were emailed to game licence holders and association members.

Email addresses and phone numbers are not available for all game licence holders on the database. Those licence holders with email addresses and phone numbers are younger than the overall population. This is a potential source of bias.

Survey design and structure

The design of the survey was informed by interviews with hunting associations, as well as other, similar expenditure surveys on recreational fishing and tourism.

A list of possible expenditure items related to hunting was created and categorised into on-trip and off-trip expenditure. For items such as vehicles, boats, clothing etc. that could be used for other purposes, respondents were asked the proportion of that item used for hunting.

Respondents were asked about the total number of trips in Victoria for the year. The survey also asked them about their expenditure on one hunting trip. The selection of that trip was guided by two imperatives: reducing recall bias and ensuring a sufficient number of responses for expenditure relating to each target animal. Ideally, each respondent would be asked about their most recent trip,

and this was the case for 55% of respondents. The remainder of respondents were asked about their most recent trip for a particular animal group, in order to ensure there was sufficient data to estimate expenditure related to each animal group.

Method used for the economic modelling

The approach used for economic modelling was an extended input-output model known as the RISE model (Regional Industry Structure and Employment). This method is suitable for estimating the economic contribution of an activity to a regional economy but, in itself, is not a direct policy or investment evaluation tool.

In order to prepare the survey data for modelling, the following processes were undertaken:

- data cleaning and adjustment from "purchasers' prices" to "basic values"
- sorting and attributing expenditure data by animal group and, for each animal group, by on-trip and off-trip categories
- extrapolating the sample data to the population, by using multiplication factors for the characteristics: age, animal group, hunting activity level and hunting association membership
- sorting the data spatially, by town, Local Government Area (LGA) and Regional Development Victoria (RDV) region.

The results were calculated for ABS local government areas, with a composite region created for Melbourne. Town estimates also were created by allocating economic impact to towns in proportion to expenditure estimates.

Due to the small number of responses from non-game licence holders (71) in relation to the non-game licence population (87,000), expenditure data from this population were considered too unreliable to use as input data for the economic impact model, and these data were not analysed and are not presented in this report. As such this report presents expenditure data related to game licence holders only.

Economic impact of hunting in Victoria

The total expenditure for hunting game animals was estimated to be $282 million. When pest hunting by game licence holders is included the estimate is $417 million. 42% was on off-trip expenditure items and 58% on on-trip expenditure items. 40% of expenditure occurred in metropolitan local government areas (LGAs) and 60% in regional Victoria.

Direct Gross State Product (GSP) impact of game hunting by game-licence holders in 2013 (including game animal groups, deer, duck and quail) was estimated to be $118 million, with flow-on effects of $177 million, giving a total contribution to gross state product of $295 million. There were an estimated 1,115 jobs (full-time equivalent) generated directly by hunting-related expenditure with a further 1,268 jobs stemming from flow-on employment, giving a total employment impact of 2,382 jobs. When pest hunting (by game licence holders) is included, that is, to give the economic impact of all hunting by game licence holders, the direct impact is $177 million, flow-on impact of $262 million, with a total impact of $439 million.

In terms of direct GSP impact of the different animal groups, pest animal hunting is the most significant ($59 million), followed by deer ($57 million), duck ($43 million), and quail ($18 million).

With a GSP of $439 million including flow-on effects, the economic impact of hunting activity by game licence holders was estimated to make up 0.13% of the Victorian economy. Hunting activity is concentrated in certain areas, with the highest concentration of hunting being Mansfield local

government area (LGA) where hunting accounts for 2.5% of the LGA's economy. Hunting was also economically significant in Murrindindi and Gannawarra LGAs where it makes up 1.2% and 1.6% of their economies respectively.

Total hunting-related expenditure in top 20 towns was estimated to be $135 million, which accounts for 54 per cent of total non-metropolitan game hunting-related expenditure ($250 million).

A large proportion of economic activity occurs in the Melbourne region. Among the Regional Development Victoria (RDV) regions, the largest impacts were estimated for the Gippsland Region where hunting expenditure of $76 million generated direct Gross Regional Product (GRP) of $28 million and direct full-time equivalent (FTE) employment of 267.

Comparison with other estimates of hunting expenditure

The estimate of expenditure related to game hunting of $282m is significantly higher than a previous estimate derived from the 2006/07 mail survey of hunters conducted by DEPI which, when inflated to 2013 dollars and the 2013 population of game licence holders, would be $130 million. The method used for the respective surveys differs markedly, the main difference being that the 2006/07 survey, having limited space, asked hunters to estimate their average annual expenditure in one question, whereas this survey was dedicated to expenditure and was able to separate out the various components of expenditure into number of trips, expenditure per trip and expenditure categories. This reduces the possibility of recall bias, and the risk that hunters will omit their expenditure on certain items. Additionally, the 2006/07 survey was conducted in a year with no duck season, requiring hunters to recall their duck hunting expenditure from greater than one year previously. There are thus strong reasons to believe that the 2006/07 survey produced an underestimate of hunter expenditure.

Future data collection

It is recommended that future surveys concentrate on specific animal groups and be conducted soon after the completion of the hunting season. Collecting game licence holders' email addresses would facilitate the collection of data in the future.

This research focuses on game hunters; future research on pest hunting could be undertaken with access to the firearms licence database.