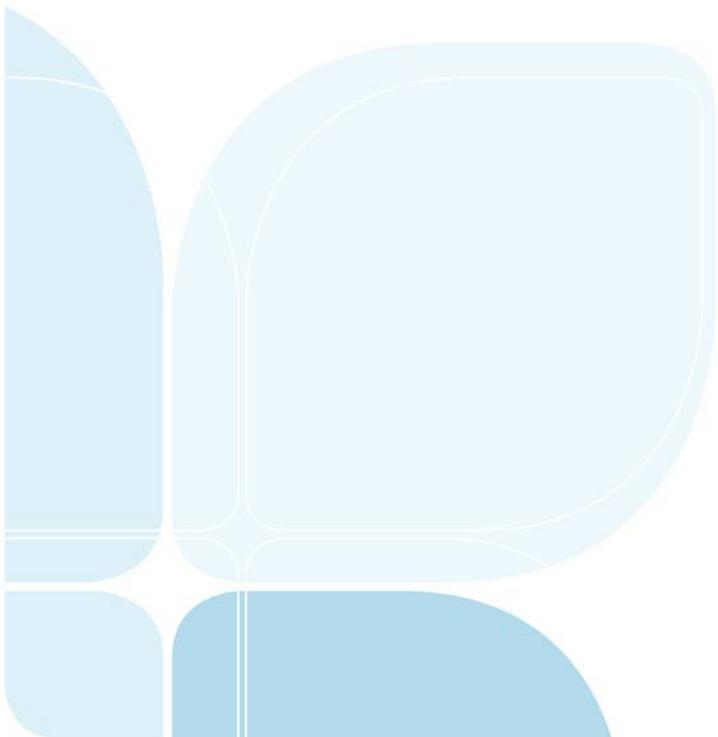




Local Land  
Services  
Western

# Catchment action plan: Regional Landholder Survey 2014

Western Local Land Services



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**More information**

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**Acknowledgments**

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing March 2015.

However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Local Land Services or the user's independent adviser.

## Executive Summary

This report provides social monitoring information in relation to the attitudes, beliefs and practices of landholders in the Western Local Land Services region.

The objectives of the survey were (i) to assess landholder attitudes, beliefs and practices in relation to land management and the broader role and functions of Western Local Land Services, including agricultural production advice, biosecurity, natural resource management; (ii) assess landholder beliefs and attitudes towards Western Local Land Services; (iii) develop baselines against which progress towards targets can be measured; and (iv) where possible compare information against similar baseline information collected in 2009 and 2012.

All landholders in the Western Local Land Services region with properties of 10 hectares or more were identified and questionnaires mailed to a random sample of 1,500 landholders. Questionnaires were returned from 446 landholders, representing a response rate of 30%. In order to make comparisons across survey periods a comparative subsample was used which included only those landholders located within the boundary of the previous Western Catchment Management Authority.

### Landholder characteristics

Landholders reported being on their current property for an average of 21 years, with 28% of landholders indicated they did not live on their property full time. In the 12 months prior to the survey 85% of family income was obtained from activities on the property.

The majority of landholders (56%) indicated the highest level of education they had attained was a secondary school education.

A third of all landholders were a member of an industry or producer group, with most landholders being members were Landcare or Rangecare groups (36%) and farmers associations (35%).

Landholders were also described in relation to their core beliefs or attitudes towards agriculture and farming – what are known as ‘farming styles’. Six farming styles were identified, which included:

1. **Professional:** These were landholders who operated efficient properties; were knowledgeable about production and markets; kept their machinery in good condition; and carefully considered any changes that they might make to their property or production.
2. **Innovator:** The innovator landholder was somewhat of a risk taker; was the first to undertake new farming practices and was always seeking new and innovative ways of managing their property and their production.
3. **Struggler:** The struggler sometimes considers moving out of farming; struggles to achieve outcomes even with the amount of work they undertake; and finds it difficult to progress against rising farm input costs.
4. **Lifestyle:** The lifestyle landholder not only farms to make an income, but also enjoys the lifestyle of farming.
5. **Conservative:** The conservative landholder is an established farmer who is wary of undertaking new or different farming practices and where farming is central to their lifestyle.
6. **Risk-averse:** As the label suggests, the risk averse landholder is averse to taking risks with their property.

### Property characteristics

The average property size was 10,074 hectares, with the three most common property uses being growing sheep for wool (44%), cattle (43%) and growing sheep for meat (41%). In addition, 28% of landholders harvested feral goats and a further 15% undertook dryland cropping.

Ninety-six percent of landholders indicated they were the owner of the property and 97% indicated their property was family rather than corporate owned.

Amongst those landholders who did not live on their property, 20% had a fulltime manager living on the property, while 6% had a part-time manager for the property.

A third of all landholders indicated they had changed enterprises in the past 10 years, with the two most common changes being the introduction of new livestock breeds and an expansion, development or increase in production.

In addition, 25% of landholders indicated they were considering making changes to their enterprise in the next five years, with the two most commonly reported changes being to change or improve their livestock or pasture management practices and to expand, develop or increase production.

Only 4% of landholders indicated their property was organically certified, with few landholders selling organically certified products into an organic market or supply chain in the last two years. Only 9% of all landholders indicated they were planning to gain or regain organic 'in conversion' status or certification in the next two years, with main reason for not doing so being the belief that 'there was not need or benefit in doing so'.

The average distance to the closest market for farm products was 350 kilometres.

Twenty-eight percent of landholders did not have internet access on their property and a comparison between survey periods showed a significant decline in the percentage of landholders with internet access, which fell from 80% in 2009 to 70% in 2014.

### **Training and property management**

A quarter of all landholders (25%) indicated they had undertaken agriculture, grazing or land management related courses in the two years prior to the survey, with there being a significant decline in course attendance in 2014 relative to 2009 and 2012.

Two thirds of landholders who attended a course in the past two years had attended a chemical handling course; 26% had attended a grazing for profit course and 21% had attended a course in property planning.

The most common type of additional training required was business management, including accounting, farm financial management and bookkeeping.

Fifty percent of landholders indicated they had a succession plan and 17% of landholders reported they had a biosecurity or access policy for their property.

Twenty-two percent of landholders reported they had a documented or written property management plan, which represented a significant increase since 2009.

Property management plans were found to have been developed on average 9 years ago, with nearly half of all landholders indicating they updated their property management plan either 'always' or 'often'.

The most common elements included in a property management plan were an air photo or satellite imagery; natural or man-made watering points; fencing requirements; vegetation types; soil or land types; and future plans or developments.

Neighbours and other landholders were identified as the most common sources of information influencing changes made to the property.

### **Livestock enterprises**

Three quarters of all landholders indicated they managed livestock on their property, with two thirds of landholders involved in sheep production, including most commonly the production of Merino sheep for wool or meat and the production of fleece-shedding sheep for meat.

Half of all landholders indicated they produced cattle on their property, with 86% of these landholders breeding cattle and 51% fattening cattle.

Fifty-five percent of all landholders ran goats on their property, with the two most common goat enterprises being harvesting goats and having rangeland goats contained within fencing.

### **Dryland and irrigated cropping**

Twenty-percent of landholders indicated they undertook cropping activities on their property in the last two years, however there was a significant decrease in the percentage of landholders undertaking cropping activities from 20% in 2009 to 7% in 2014.

The average area under cropping was 684 hectares, with just over a third of landholders cropping over 1,000 hectares.

Amongst landholders undertaking cropping activities, 41% indicated they irrigated their crops, with an average 80 hectares of crops being irrigated.

Two common cropping practices undertaken by the majority of landholders were stubble retention (69%) and crop rotation (66%).

### **Horticulture**

Thirteen percent of landholders reported they undertook horticultural activities on their property in the two years prior to the survey, with an average of 25 hectares used for horticultural production.

Sixty-seven percent of landholders who undertook horticultural activities also indicated they used soil amendments, which most commonly included the use of animal manure to condition their soil.

Amongst those landholders who undertook horticultural activities, 95% also indicated that they had a water allocation that they had used in the last two years, with the average allocation being 249 megalitres. Of those landholders who had a water allocation, a third indicated they needed to increase their allocation by an average of 3 megalitres per hectare.

Sixty-three percent of horticultural production was irrigated through drip irrigation, 22% was irrigated with micro-sprinklers and 15% through overhead irrigation.

### **Grazing for production**

Seventy-nine percent of landholders indicated their property was used to graze livestock, with livestock being grazed on an average of 14,480 hectares.

In times of drought, 84% of landholders indicated they would reduce the number of stock they had to a core herd and 53% indicated they would provide supplementary feed.

Two thirds of landholders indicated that in managing stock on their property they regularly moved stock between paddocks, with two of the most commonly reported reasons for deciding on when to move stock between paddocks being the level of use of palatable grasses and the height of pasture grasses.

The majority of landholders (54%) indicated they managed or controlled stock access to watering points, with two of the most commonly reported reasons for controlling stock access to watering points being to trap feral goats and to control domestic stock movements.

Two thirds of landholders who grazed stock on their property indicated they would consider incorporating total grazing pressure fencing or multi-species exclusion fencing technologies on their property.

When landholders were asked what percentage of groundcover they tried to maintain in their paddocks throughout the year, 58% reported 'whatever I can'. However, amongst landholders who reported the percentage of groundcover they tried to maintain in paddocks, the average percent of groundcover maintained was 60%.

### **Enterprise production and profitability**

Thirty-eight percent of landholders indicated that in the last five years they had tried to increase the production of their enterprise.

Amongst those landholders with livestock, 54% increased the production of meat mass per hectare and 52% increased reproduction rates; while amongst landholders involved in horticulture, 77% increased their crop yield and 43% had quality improvements.

Amongst landholders involved in livestock production the main reasons underpinning an increase in production were improved 'grazing management'; 'genetics' and the 'control of predators'. Amongst landholders involved in horticulture, improved production was related to a number of factors, including for example adjustments to nutrition, improvements to infrastructure and an increase in production area.

Only 19% of landholders indicated they purposefully used fire to improve the condition of their land, with the majority of these landholders using fire for this purpose at least three times a year or more.

### **Natural resource management issues**

For each of 11 natural resource management issues landholders identified (i) the extent of the issue or problem including whether it was a minor, moderate or major problem; (ii) their ability to address the issue on a scale from very low to very high; and (iii) whether the issue was of concern on their property (prevalence).

In terms of assessing the extent of each issue as a problem; that is whether the natural resource management issue is a minor, moderate or major problem; invasive native scrub, access to water for agricultural purposes, 'other pest animals'<sup>1</sup>, a decline in the diversity of native plants and animals and total grazing pressure were natural resource management issues that were most problematic to landholders.

Landholders were found to have the highest ability to address wild dogs and problems in accessing water for agricultural purposes; and the least ability to address invasive native scrub and soil erosion to river banks.

In terms of prevalence, 'other pest animals' (85%), invasive native scrub (55%), low groundcover (53%), access to water for agricultural purposes (51%) and total grazing pressure (51%) were problems experienced by the majority of landholders.

An examination of the relationship between (i) the extent of the issue; (ii) landholder's capacity to address the issue and (iii) the prevalence of the issue is shown in Figure A.

Four quadrants are shown in Figure A representing differences in the extent of the problem and the ability of landholders to address each issue. The size of the circle represents the prevalence of the issue amongst landholders.

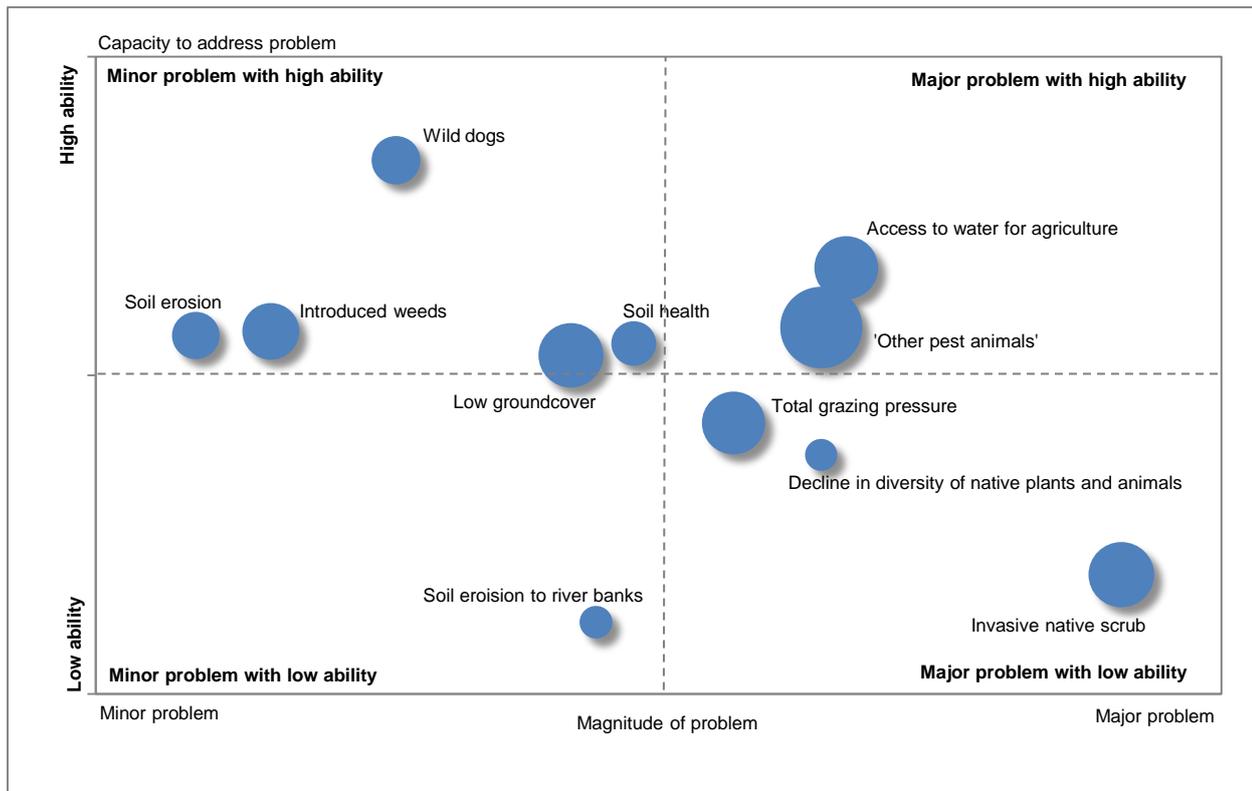
The lower right quadrant is of most interest as it includes those issues which are seen as relatively major problems and for which landholders have relatively low ability to address each issue. In this quadrant are found three issues namely (i) total grazing pressure, (ii) invasive native scrub and (iii) the decline in the diversity of native plants and animals.

In addition, the size of the circle represents the prevalence of the issue amongst landholders. For instance, while the decline in the diversity of native plants and animals was seen as a relatively major problem and one in which landholders had relatively low ability to address the issue, it was not regarded as one of the most prevalent natural resource management issues amongst landholders.

On the other hand, total grazing pressure and invasive native scrub were not only relatively major problems, with landholders also having relatively low ability to address each issue; but each issue was a relatively prevalent problem amongst landholders.

<sup>1</sup> 'Other pest animals' included all pest animals with the exception on unmanaged goats and wild dogs.

Figure A. Landholder ability, extent and prevalence of natural resource management issues



Source: EBC (2015)

With the exception of soil erosion to riverbanks and soil erosion in general, the majority of landholders had actively managed all natural resource management issues, with wild dogs and total grazing pressure being actively managed by over 80% of landholders.

Landholders were least successful in managing the decline in the diversity of native plants and animals, soil erosion to river banks and invasive native scrub; and most successful in managing total grazing pressure and wild dogs.

Across all natural resource management issues, the resources most commonly available to landholders were (i) an optimistic belief about addressing the issue; (ii) favourable land and water conditions; (iii) good markets and income from their products; and (iv) favourable climate and seasonal conditions.

Resource least available to address natural resource management issues were (i) the knowledge of how to address the issue; (ii) practical skills to address the issue, (iii) support from neighbours and formal groups and (iv) support from business and contractors.

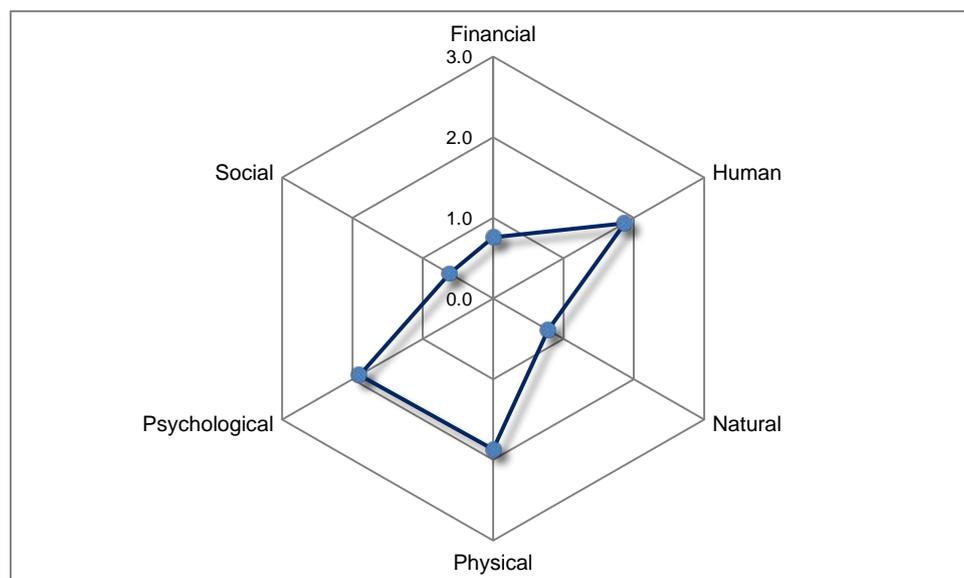
Figure B shows that psychological (optimism and a belief in ability to address the issue); physical (equipment, machinery and materials) and human (knowledge, skills and health) capacity are resources most commonly available to landholders in addressing each of the natural resource management issues.

The resources least commonly available in addressing natural resource management issues are those resources associated with natural (climate, seasons and property condition); financial (income); and social (support from friends, neighbours, businesses) capital (Figure B).

### Cultural heritage and property management

The majority of landholders indicated they understood their duty of care towards Aboriginal cultural landscapes; believed they had a good understanding of traditional ecological knowledge; and could identify sites of Aboriginal or historic significance on their property. The majority of landholders also indicated they applied or were interested in applying traditional ecological knowledge to the management of their property.

Figure B: composite capacity scores across natural resource management issues



Source: EBC (2015).

### Awareness of Western Local Land Services

Eighty-four percent of all landholders indicated they had heard of Western Local Land Services prior to receiving the survey.

Amongst those landholders who had heard of Western Local Land Services, 54% believed the main activity of Western Local Land Services was administering the National Livestock Identification System. In addition, 48% believed the main activity was funding programs for natural resource management projects and 47% believed it to be associated with administering rabbit baits.

Across all landholders, 46% had contact with Western Local Land Services in the six months prior to the survey, with the primary contact between landholders and Western Local Land Services being in relation to the baiting of pest animals (37%); general phone, face-to-face, mail or email contact (22%) and Brucellosis testing (14%).

Landholders who had contact with Western Local Land Services rated their level of satisfaction with the service provided by Western Local Land Services on a 10 point scale with endpoints which were 'not at all satisfied' (0) and 'very satisfied' (10). The majority of landholders (78%) indicated they were satisfied with the service provided with 34% providing a maximum satisfaction score of ten.

Landholders who had contact with Western Local Land Services were also asked to indicate how likely they would be to recommend the services to a friend using a ten point scale with endpoints 'not at all likely' (0) and 'very likely' (10). This measure of satisfaction is also referred to as a 'net promoter score' as detractors (a score of 6 or less) are subtracted from promoters (scores of 9 or 10), to provide an estimate of how many more promoters than detractors the organisation has. In relation to Western Local Land Services the percentage of promoters (47%) outweighs the percentage of detractors (26%).

Landholders who had contact with Western Local Land Services were asked to indicate what they believed Western Local Land Services did 'really well'. Sixty-three percent of landholders believed Western Local Land Services communicated well, which included descriptions such as being helpful, prompt, knowledgeable, timely and efficient. Interestingly, when the same landholders were asked what Western Local Land Services could do better, 30% believed they could improve communication and the exchange of information with landholders.

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## Introduction

Local Land Services brings together agricultural production advice, biosecurity, natural resource management and emergency management into a single organisation. As a regional organisation they are responsible for delivering services that add value to local industries, enhance natural resources, protect industries from pests and disease and help communities respond to emergencies such as flood, fire and drought. Western Local Land Services has undertaken a survey of landholders to inform the delivery of projects and programs within the region.

In 2009 and 2012 surveys were undertaken to benchmark the level of landholder attitudes, awareness and involvement in natural resource management in the Western CMA region<sup>2</sup>. The current project also reassesses several of the indicators used in the previous surveys in order to identify changes in landholder attitudes and behaviour over time.

## Objectives

The core objectives of the project were to:

- to assess landholder attitudes, beliefs and practices in relation to land management and the broader role and functions of Western Local Land Services, including agricultural production advice, biosecurity, natural resource management;
- to assess landholder beliefs and attitudes towards Western Local Land Services;
- develop baselines against which progress towards targets can be measured; and
- where possible compare information against similar baseline information collected in 2009 and 2012.

## Methodology

There were two core components to the project methodology which included (i) questionnaire design and (ii) the sampling and implementation of the survey.

## Questionnaire design

The questionnaire was developed through discussions with Western Local Land Services staff; a review of questionnaires used in the 2009 and 2012 surveys; and a review of similar questionnaires undertaken of landholders for previous Catchment Management authorities in New South Wales.

Given that comparisons were to be made between the findings from previous surveys and the current survey, it was important to retain relevant questions and question wording. However, given the broader role and function of Western Local Land Services in comparison to the previous Western Catchment Management Authority, additional questions were also included which addressed the key of agricultural production and biosecurity.

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<sup>2</sup> Fenton, D.M. (2013). *Western Catchment Management Authority community target monitoring: Social benchmarking survey round 2 (2012/2013)*. Western Catchment Management Authority, Dubbo.

Fenton, D.M. (2009). *Western Catchment Management Authority community target monitoring: Social benchmarking survey*. Western Catchment Management Authority, Dubbo.

The questionnaire was designed for use as a mail survey, although an equivalent web based survey was also developed if landholders chose to complete the questionnaire online.

The questionnaire focused on several core areas of interest which included:

1. Property and landholder characteristics;
2. Training and property management;
3. Cultural heritage on properties;
4. Use of fire;
5. Awareness of Western Local Land Services;
6. Dryland and irrigated cropping;
7. Horticulture;
8. Livestock enterprises;
9. Grazing for production;
10. Enterprise change;
11. Enterprise production and profitability
12. Invasive native scrub;
13. Introduced weeds;
14. Groundcover;
15. Soil health;
16. Soil erosion to riverbanks;
17. Soil erosion;
18. Wild dogs
19. 'Other pest animals'
20. The decline in the diversity of native plants and animals;
21. Access to water for irrigation purposes; and
22. Total grazing pressure;

The questionnaire used in the current survey is presented in Appendix A.

## Survey sampling and implementation

The sampling frame consisted of all rural landholders in the Western Local Land Services region who had properties of 10 hectares or more. The NSW Department of Lands supplied a GIS cadastre database which identified property sizes and the postal address of all property owners in the Western Local Land Services region.

Table 1 shows there were 1,877 landholders with properties of 10 hectares or more. Across all social ecological systems (SES)<sup>3</sup> in the Western Local Land Services region, the Sunraysia Southern Mallee had the highest percentage of landholders (22%) and the Mallee Kool (0.3%) the lowest percentage of landholders.

<sup>3</sup> Developed from within a resilience framework, social ecological systems are sub regions within the Western Local Land Services region which comprise "organised assemblages" of humans and non-human-life forms in a spatially determined geophysical setting (Halliday, A., & Glaser, M. (2011). A management perspective on social ecological systems: A generic system model and its application to a case study from Peru. *Human Ecology Review*, 18(1), 1-18)

Table 1: survey sample sizes

Social ecological system	Population of landholders	Proportion in the population	Initial sample size	Final sample size	Final sample proportion	Difference between population and sample proportions
Central Darling	155	0.08	124	31	0.07	0.012
Cobar Red Plains	337	0.18	269	74	0.17	0.010
Far West	180	0.10	144	54	0.12	-0.028
Lachlan Rangelands	115	0.06	92	22	0.05	0.011
Lower Lachlan Floodplains	98	0.05	78	20	0.05	0.006
Lower Murrumbidgee Floodplain	50	0.03	40	11	0.03	0.001
Mallee Kool	6	0.00	5	3	0.01	-0.004
Northern Floodplains	141	0.08	113	36	0.08	-0.007
Rangelands	113	0.06	90	32	0.07	-0.013
Sunraysia Southern Mallee	413	0.22	330	86	0.20	0.023
Western Rivers	269	0.14	215	68	0.16	-0.012
Total landholders	1,877	1.00	1,500	437	1.00	

Note: The initial sample size is the number of questionnaires initially mailed to landholders.  
The final sample size is the number of questionnaires completed and returned.

Source: EBC (2015).

As 1,500 questionnaires were to be mailed to landholders in the region, a random sample was drawn of landholders from each of the 11 social ecological systems, where number of landholders sampled from each social ecological system was in proportion to the population of landholders in each subregion. Table 1 shows the initial sample sizes for landholders within each social ecological system.

Questionnaires were mailed to landholders on the 15<sup>th</sup> of September 2014, with the survey closing on the 5<sup>th</sup> of December 2014. One reminder letter was sent to landholders who had not completed and returned questionnaires six weeks after the initial questionnaire was mailed to them.

As an incentive to complete and return the questionnaire, landholders could request that they receive a \$30 IGA voucher or that \$30 be sent to the Royal Flying Doctor Service<sup>4</sup>.

The final sample included 446 completed questionnaires, although only 437 could be identified with a specific social ecological system (Table 1). The completed questionnaires included 410 mail surveys and 36 web based surveys, which represented an overall response rate of 30%.

Furthermore the 446 completed questionnaires represented a quarter or 24% of all landholders with properties over 10 hectares in the Western Local Land Services region.

## Analysis of survey data

The analysis of survey data included frequency tables used to describe landholder responses to all survey questions. The spatial variation in survey responses, which is based on Local Government Areas and Social Ecological Systems, is presented in a separate report<sup>5</sup>.

## Sample size and weights

Table 1 shows that the initial sample size was in proportion to the number of landholders found within each social ecological system. In addition, Table 1 also shows the final sample size for each social ecological system and the difference between initial and final sample proportions. As the final sample proportions are within 3% of population proportions for social ecological systems, no additional weighting of the data has been undertaken.

<sup>4</sup> In the final sample, 104 (23%) requested a \$30 IGA voucher, 337 (76%) requested that a donation be sent to the Royal Flying Doctor Service, and 5 (1%) did not indicate any preference for the incentive.

<sup>5</sup> Western West Local Land Services (2015). Catchment action plan: spatial analysis of the survey of landholders. Western Local Land Services, Dubbo

## Multiple response analysis

The questionnaire included several questions which allowed landholders to provide multiple answers or responses. For instance, in reporting the type of Western Local Land Services that were used, landholders may have identified one or any number of specific services. Similarly, in identifying what their property was used for, landholders may again have identified a number of discreet uses.

Tables based on the analysis of multiple responses have been identified in the footnote of each table. In these tables a single landholder may be included in multiple rows of the table if they have provided multiple responses to the question being analysed. In these tables it is important not to sum across the rows of the table so as to avoid double counting of individual landholders who may be reported in multiple rows.

## Capitals framework

In assessing natural resource management issues, a capitals framework has been used to identify the type of resources or assets available to landholders in managing different natural resource management issues. The resources or assets available to landholders have been conceptualised in relation to six capitals with specific questionnaire items used to define each capital.

Table 2 identifies the items within each of the six capitals. Landholders were asked to indicate if the item was available to them in the management of specific natural resource management issues. Summing the items within each of the six capitals produced a score for each landholder. However, as each of the capitals were defined using a different number of items and in order to ensure each of the capitals had equal weight, the score for each capital was weighted by the value shown in Table 2.

Table 2: capitals framework items

<b>Financial capital</b> ( <i>weighted by 2</i> )
Access to credit and funds to undertake the work Good markets and income for your products
<b>Human capital</b> ( <i>weighted by 0.0</i> )
Good health so as to undertake the work Practical skills to address the issue The knowledge of how to address the issue Time available to do the work
<b>Natural capital</b> ( <i>weighted by 1.3</i> )
A property able to support change Favourable land and water conditions on your property Favourable climate and seasonal conditions
<b>Physical capital</b> ( <i>weighted by 4.0</i> )
Equipment, machinery and materials to address the issue
<b>Psychological capital</b> ( <i>weighted by 2</i> )
A belief that you could address the issue Optimism about addressing the issue
<b>Social capital</b> ( <i>weighted by 0.0</i> )
People to help do the work Support from businesses and contactors Support from friends and family Support from neighbours or formal group

Source: EBC (2015).

### **Comparisons between 2009, 2012 and 2014 survey periods**

The analysis presents the findings from the 2014 survey and where appropriate provides a comparison between 2009, 2012 and 2014 survey periods.

However, some caution should be used in interpreting the findings of this comparison as the methodology used in the sampling of landholders in the 2014 survey was not the same as that used in the 2009 and 2012 surveys. In the 2009 and 2012 surveys the questionnaire was completed through telephone interviews, while in 2014 the questionnaire was completed as a mail survey.

In addition, the 2014 included a sample of all landholders in the Western Local Land Services region, which is an area larger than that used in the 2009 and 2012 surveys, which sampled landholders in the region of the Western Catchment Management Authority. Therefore, in order to make comparisons between the three survey periods only a subsample of landholders in the 2014 survey who were within the previous Western Catchment Management Authority region were used.

### **Significance tests**

When comparing differences between the three survey periods, whether it is a comparison of percentages or means; specific statistical tests of significance have been used to determine whether the differences are simply due to sampling variation or are meaningful differences.

The tests of statistical significance should be used as a guide to assessing differences between survey periods. For instance, for a specific variable of interest there may be a significant difference in scores between the three survey periods, however this difference may not always have any practical significance in terms of policy or decision making.

### **Missing data**

Although the total sample included 446 landholders, the analysis of specific questions may be based on a sample which is somewhat lower than the total sample size. This is due to landholders being unable or unwilling to answer the question or landholder's refusing to answer the question.

## Landholder characteristics

This chapter provides an analysis of the characteristics of landholders within the Western Local Land Services region.

### Years owned or managed land in western New South Wales

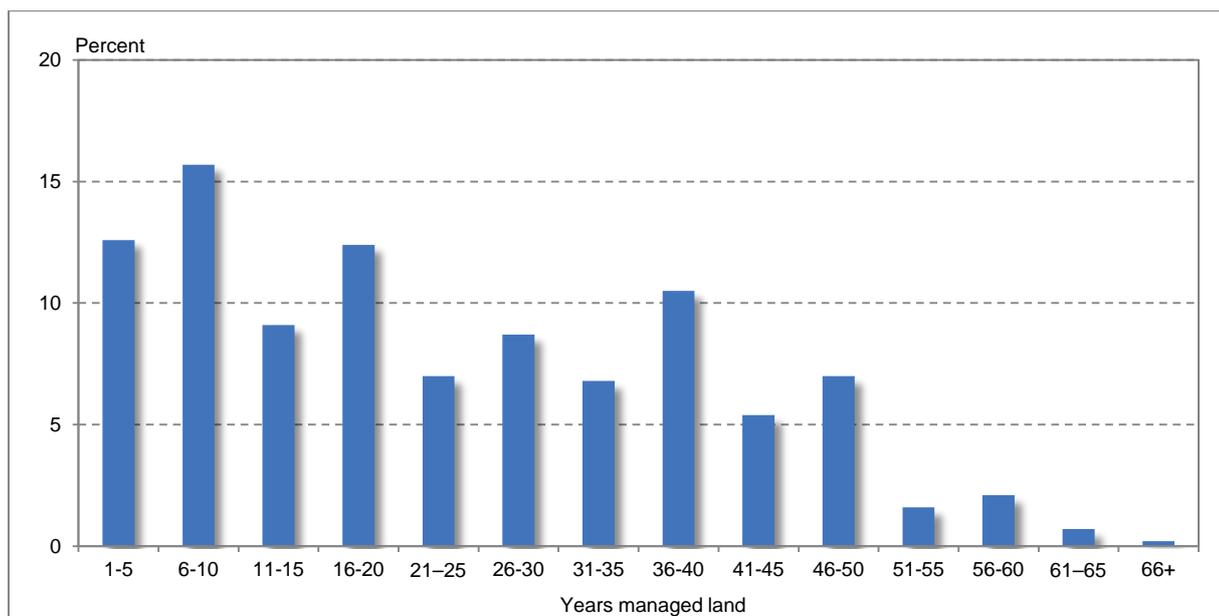
Landholders reported having owned or managed land in western NSW for an average of 21 years (Table 3 and Figure 1).

Table 3: "How many years have you owned or managed land in western NSW?"

Years	Count	Percent	Cumulative Percent
1-5	54	12.6	12.6
6-10	67	15.7	28.3
11-15	39	9.1	37.5
16-20	53	12.4	49.9
21-25	30	7.0	56.9
26-30	37	8.7	65.6
31-35	29	6.8	72.4
36-40	45	10.5	82.9
41-45	23	5.4	88.3
46-50	30	7.0	95.3
51-55	7	1.6	97.0
56-60	9	2.1	99.1
61-65	3	0.7	99.8
66+	1	0.2	100.0
Total landholders	427	100.0	
Median years			21.0

Source: EBC (2015).

Figure 1: length of time owned or managed land in western NSW



Source: EBC (2015).

## Years lived on the property

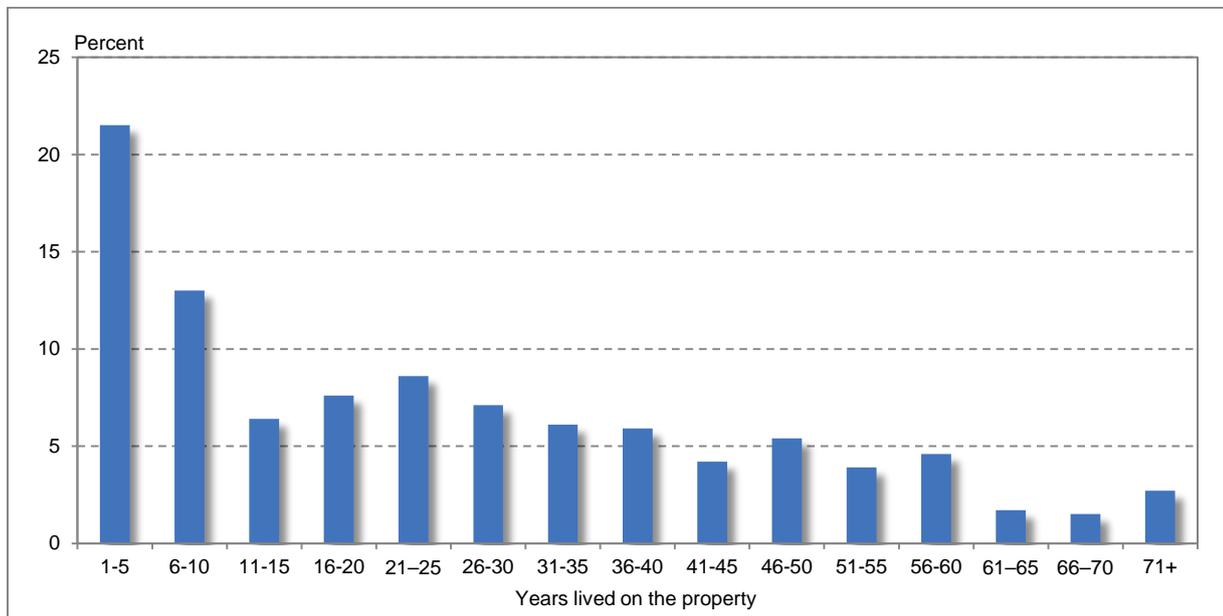
Landholders had lived on their property for an average of 21 years, with a third of all landholders having lived on their property for less than 10 years (Table 4 and Figure 2).

Table 4: “How many years have you lived on your current property?”

Years	Count	Percent	Cumulative Percent
1 - 5	88	21.5	21.5
6 - 10	53	13.0	34.5
11 - 15	26	6.4	40.8
16 - 20	31	7.6	48.4
21 – 25	35	8.6	57.0
26 - 30	29	7.1	64.1
31 - 35	25	6.1	70.2
36 - 40	24	5.9	76.0
41 - 45	17	4.2	80.2
46 - 50	22	5.4	85.6
51 - 55	16	3.9	89.5
56 - 60	19	4.6	94.1
61 – 65	7	1.7	95.8
66 – 70	6	1.5	97.3
71 +	11	2.7	100.0
Total landholders	409	100.0	
Median years			21.0

Source: EBC (2015).

Figure 2: length of time lived on current property



Source: EBC (2015).

## Absentee and resident landholders

Twenty-eight percent of landholders may be described as absentee landholders, as they indicated they did not live on their property full time (Table 5).

Table 5: "Do you usually live on your property full-time as an owner operator?"

Response	Count	Percent
Yes	289	71.7
No	114	28.3
Total landholders	403	100.0

Source: EBC (2015).

Amongst those landholders who did not usually live on their property (Table 5), 45% indicated they stayed on their property for more than 51 days in a typical year (Table 6). Only 11% of landholders indicated they never stayed on their property.

Table 6: "How many days do you usually stay on your property in a typical year?"

Days on property	Count	Percent
0	11	10.7
1 - 5	6	5.8
6 - 10	4	3.9
11 - 20	12	11.7
21 - 50	24	23.3
More than 51	46	44.7
Total landholders	103	100.0

Note: Based on landholders who indicated they do not usually live on their property full-time as an owner operator (Table 5).  
Source: EBC (2015).

## Farm income

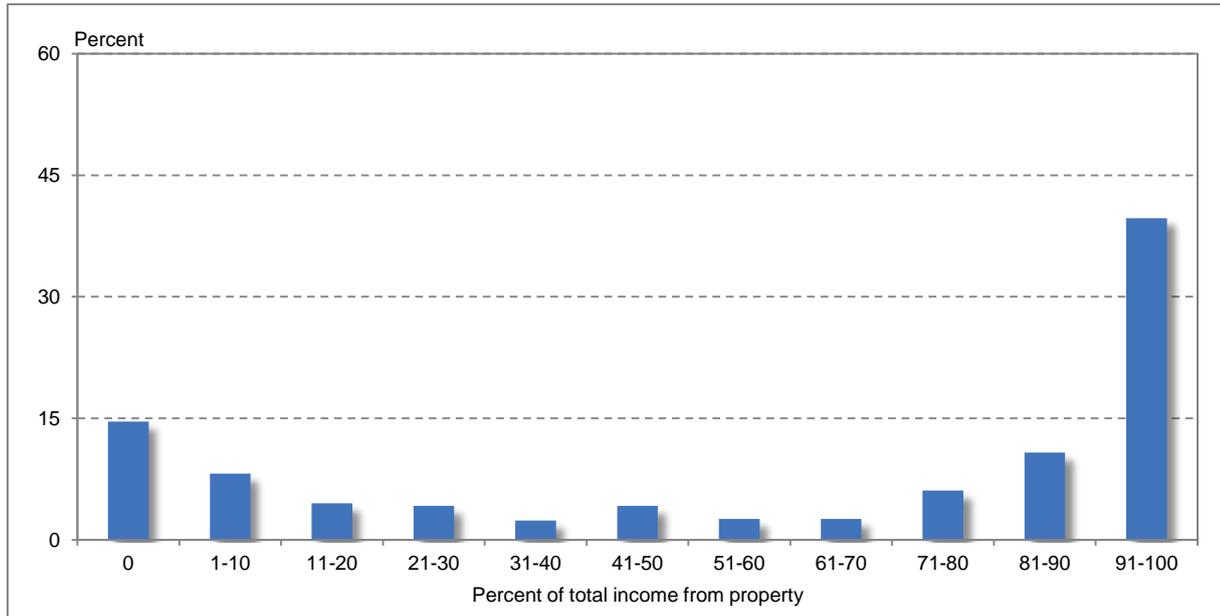
On average and across all landholders, 85% of their family income was obtained from activities on their property in the last 12 months (Table 7 and Figure 3). A quarter of all landholders (27%) obtained less than 20% of their family income from the property and 40% obtained over 90% of their family income from their property.

Table 7: "Think about all the income your family received in the past 12 months. Approximately what percentage of your total income was from activities derived on property?"

Percentage of income	Count	Percent	Cumulative Percent
0	55	14.6	14.6
1 - 10	31	8.2	22.8
11 - 20	17	4.5	27.2
21 - 30	16	4.2	31.5
31 - 40	9	2.4	33.9
41 - 50	16	4.2	38.1
51 - 60	10	2.6	40.7
61 - 70	10	2.6	43.4
71 - 80	23	6.1	49.5
81 - 90	41	10.8	60.3
91 - 100	150	39.7	100.0
Total landholders	378	100.0	
Median percent			85.0

Note: Zero percentage also include three landholders who reported a negative percent.  
Source: EBC (2015).

Figure 3: farm income as a percentage of total income



Source: EBC (2015).

### Education

The majority of landholders (56%) indicated the highest level of education they had attained was a secondary school education (Table 8 and Figure 4). However 18% indicated they had obtained a qualification from a TAFE college and a further 15% indicated they had obtained a university qualification.

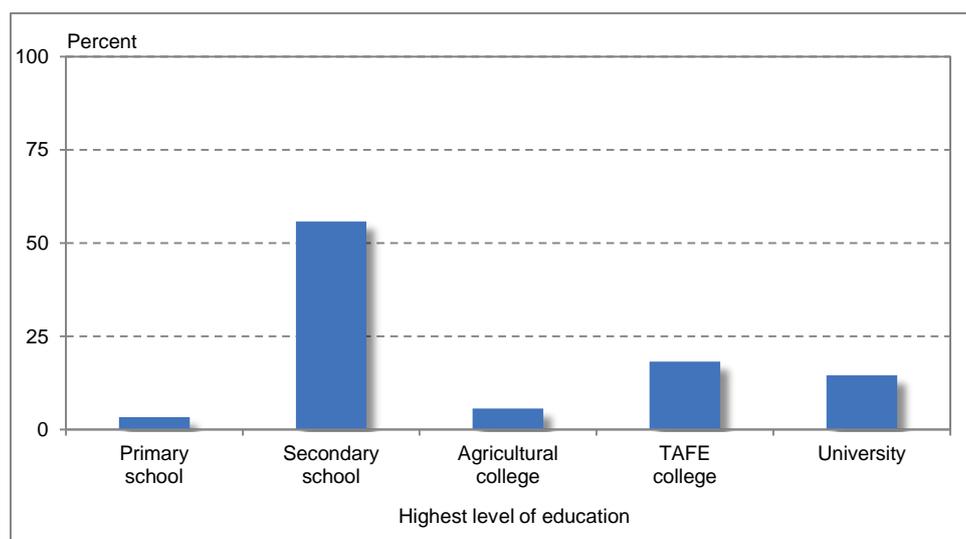
Table 8: "What is your highest level of education?"

Highest level of education	Count	Percent
Primary school	15	3.4
Secondary school	244	55.8
An agricultural college	25	5.7
A TAFE college	80	18.3
A university	64	14.6
Other ( <i>frequency of one</i> )	9	2.1
<b>Total landholders</b>	<b>437</b>	<b>100.0</b>

Note: Other included 'trade qualification' (2); 'Royal Australian Navy', 'advanced diploma'; 'none'(2); 'state registered nurse'; motor mechanic

Source: EBC (2015).

Figure 4: “What is your highest level of education?”



Source: EBC (2015).

### Number of family generations living on the property

Seventy three percent of landholders indicated their family had been on the property for one generation (Table 9 and Figure 5).

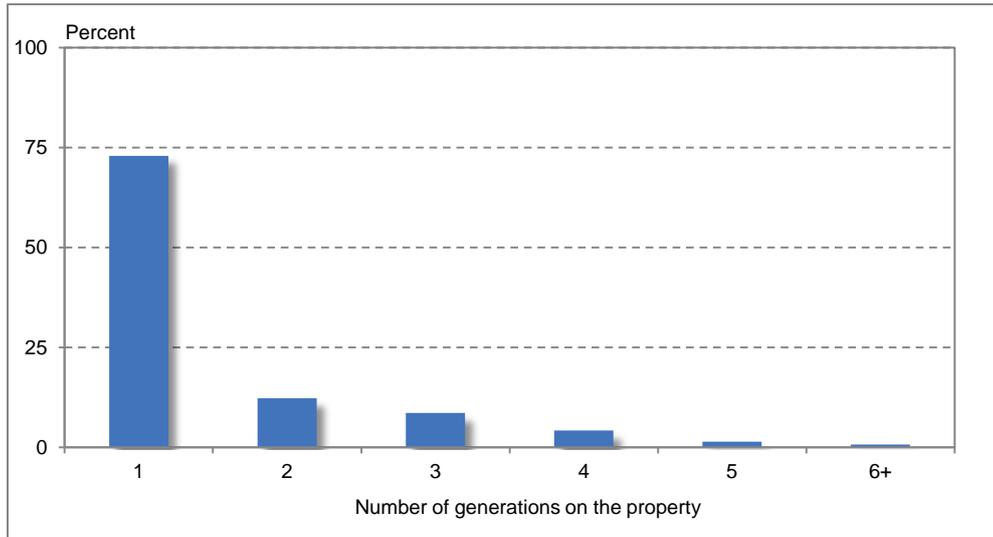
Table 9: “How many past generations of your family have been on the property?”

Number of generations	Count	Percent	Cumulative Percent
1	314	72.9	72.9
2	53	12.3	85.2
3	37	8.6	93.7
4	18	4.2	97.9
5	6	1.4	99.3
6+	3	0.7	100.0
Total landholders	431	100.0	
Median number of generations			1.0

Note: In calculating the median number of generations, six or more generations is assumed as six.

Source: EBC (2015).

Figure 5: “How many past generations of your family have been on the property?”



Source: EBC (2015).

Table 10 and Figure 6 show that in 2014 there was a significantly higher percentage of landholders who had lived on their property for one generation when compared to previous survey periods.

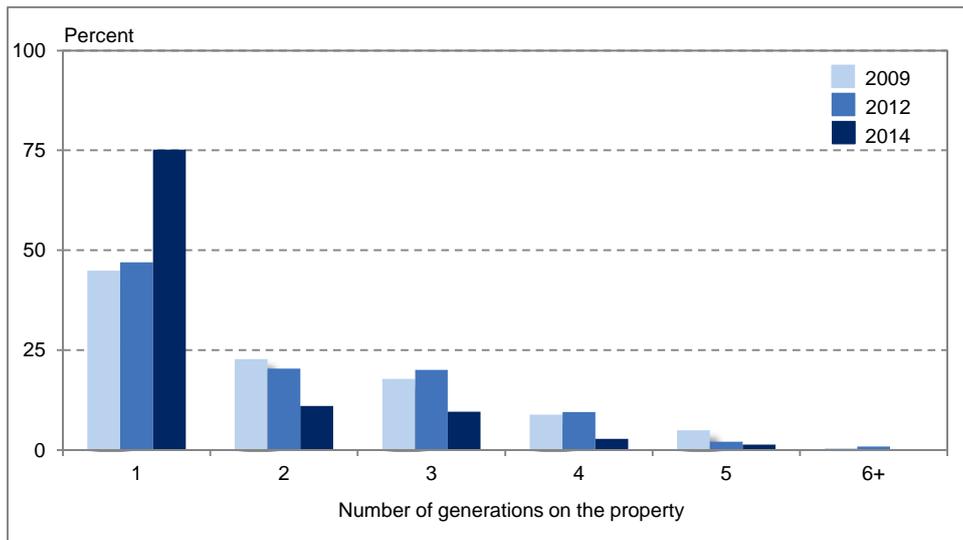
Table 10: a comparison of the number of generations living on the property between survey periods

Number of generations	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
1	171	44.9	154	47.0	164	75.2
2	87	22.8	67	20.4	24	11.0
3	68	17.8	66	20.1	21	9.6
4	34	8.9	31	9.5	6	2.8
5	19	5.0	7	2.1	3	1.4
6+	2	0.5	3	0.9	0	0.0
Total landholders	381	100.0	328	100.0	218	100.0
Median number of generations	2.0		2.0		1.0	

Note: In calculating the median number of generations, six or more generations is assumed as six. There was a significant difference in medians between survey periods.

Source: EBC (2015).

Figure 6: “How many past generations of your family have been on the property?”



Source: EBC (2015).

### Involvement in industry or producer groups

A third of all landholders indicated they were a member of an industry or producer group (Table 11).

Table 11: “Are you a member of an industry or producer group? For example, Landcare, producer discussion group, BestPrac, pest animal control or an Aboriginal Cultural Heritage group?”

Response	Count	Percent
Yes	147	33.4
No	293	66.6
Total landholders	440	100.0

Source: EBC (2015).

Table 12 indicates that the majority of groups in which landholders were members were Landcare or Rangecare groups (36%) or farmers associations (35%). There were relatively few groups to which landholders belonged that were involved in pest animal management (9%), environmental management (3%) or water management (3%).

Table 12: Membership of industry or producer groups

Groups	Count	Percent
<b>Landcare and Rangecare groups</b>		
Landcare(nonspecific)	27	13.6
Barrier Area Rangecare Group	12	6.0
Buckwarron Catchment Landcare Group	8	4.0
PinecreekRangecare Group	5	2.5
Anabranche Landcare	2	1.0
Ford's Bridge Landcare	2	1.0
Little Topar Range C	2	1.0
ByrockLandcare Group	1	0.5
Country Cowper Landcare Group	1	0.5
CulgoaLandcare Group	1	0.5
GilgunniaLandcare	1	0.5
Guilford-NewsteadLandcare	1	0.5
HomebushLandcare Group	1	0.5
KergunyahRangecare	1	0.5
Lower Lachlan Landcare Group	1	0.5
Marra Creek Landcare Group	1	0.5
North WillandraLandcare Group	1	0.5
TinnenburraLandcare	1	0.5
Troy Creek Landcare	1	0.5
Wattle Vale Landcare Group	1	0.5
Western Landcare Steering Committee	1	0.5
<b>Total groups</b>	<b>72</b>	<b>36.2</b>
<b>Farmers associations</b>		
NSW Farmers	28	14.1
Pastoralist's Association	9	4.5
Citrus Australia	5	2.5
Meat Livestock Australia	4	2.0
Dried Fruits Australia	3	1.5
Wine Grape Growers Association	3	1.5
Cotton Growers Association	2	1.0
Paroo River Association	2	1.0
Sunraysia Citrus Group	2	1.0
Victorian Farmers Federation	2	1.0
West Darling Pastoralists	2	1.0
Agforce (QLD)	1	0.5
Australian Walnut Industry Association	1	0.5
Australian Wool Growers	1	0.5
Darling River Food and Water	1	0.5
Grain Growers	1	0.5
Mildura Fruit Packers and Markets	1	0.5
Murray Valley Wine Group	1	0.5
<b>Total</b>	<b>69</b>	<b>34.7</b>

...continued

Table 13 (continued): Membership of industry or producer groups

Groups	Count	Percent
<b>Producer groups</b>		
Best Practice	8	4.0
Belah Cropper's Group	3	1.5
Booligal Plains Best Practice	2	1.0
Mallee Sustainable Farming Group	2	1.0
Birchip Cropping Group	1	0.5
Innovators Group Program	1	0.5
Merino Breeders Group	1	0.5
Producer Group	1	0.5
Victorian No Till Farmers Association	1	0.5
Western Organics Growers	1	0.5
White Cliffs Best Practice	1	0.5
Wilcannia Best Practice	1	0.5
Wine grape group	1	0.5
<b>Total groups</b>	<b>26</b>	<b>13.1</b>
<b>Pest animal management</b>		
Pest Animal Control	7	3.5
Louth Wild Dog Action Group	3	1.5
Wanaaring Pest Management Group	3	1.5
Buckwaroon Pest Management Committee	1	0.5
Ledknapper Wild Dog Action Group	1	0.5
Tilpa Pest Management Group	1	0.5
Tilpa Wild Dog Baiting Group	1	0.5
Yacannia Creek/Warwick Hills Dog Control Group	1	0.5
<b>Total groups</b>	<b>18</b>	<b>9.0</b>
<b>Environmental management</b>		
Willandra World Heritage	2	1.0
Australian Rangeland Society	1	0.5
Lake Victoria Committee	1	0.5
Mungo Joint Management	1	0.5
Stipa Native Grass Association	1	0.5
<b>Total groups</b>	<b>6</b>	<b>3.0</b>
<b>Water management</b>		0.0
Barwon Darling Water	1	0.5
Booberio Creek Water Users Association	1	0.5
Lower Balonne Floodplain Association	1	0.5
Lower Warrego Water Users Group	1	0.5
Northern Basin Advisory Committee	1	0.5
SW Water Users	1	0.5
<b>Total groups</b>	<b>6</b>	<b>3.0</b>
<b>Other</b>		0.0
Mt Grenfell Board of Management	1	0.5
Southern Paroo Cluster Group	1	0.5
<b>Total groups</b>	<b>2</b>	<b>1.0</b>
<b>Total groups</b>	<b>199</b>	<b>100.0</b>

Note: Counts and percentages are based on the number of groups and not the number of landholders  
Source: EBC (2015).

Only 12% of groups were identified as being currently inactive (Table 14), with many of these groups being either Landcare or producer groups.

Table 14: active and inactive groups

Groups	Active groups		Inactive groups	
	Count	Percent	Count	Percent
Landcare and Rangecare groups	58	80.6	14	19.4
Farmers associations	63	96.9	2	3.1
Producer groups	19	76.0	6	24.0
Water management	5	83.3	1	16.7
Pest animal management	17	100.0	0	0.0
Environmental management	6	100.0	0	0.0
Other groups ( <i>frequency of one</i> )	2	100.0	0	0.0
<b>Total groups</b>	<b>170</b>	<b>88.1</b>	<b>23</b>	<b>11.9</b>

Note: Counts and percentages are based on the number of groups and not the number of landholders  
 This is a multiple response table in which a respondent may be included in multiple rows.  
 Percentages are row percentages

Source: EBC (2015).

Table 15 shows that the 'primary drivers' for 88% of groups were landholders. Only 12% of groups were identified as having a primary driver other than landholders, with many of these drivers being Government agencies or departments.

Table 15: primary driver of groups

Groups	Landholders		Other		Other drivers
	Count	Percent	Count	Percent	
Landcare and Rangecare groups	67	97.1	2	2.9	Catchment Management Authority; Local Land Services
Farmers associations	60	92.3	5	7.7	Growers; professionals; Local Land Services
Producer groups	22	95.7	1	4.3	Dept. of Agriculture
Water management	6	100.0	0	0.0	
Pest animal management	15	100.0	0	0.0	
Environmental management	4	66.7	2	33.3	Scientists; Federal and State governments; Aboriginal groups; National Parks and Wildlife Service
Other groups	1	50.0	1	50.0	Traditional Owners; National Parks and Wildlife Service
<b>Total groups</b>	<b>175</b>	<b>88.1</b>	<b>11</b>	<b>11.9</b>	

Note: Counts and percentages are based on the number of groups and not the number of landholders  
 Percentages are row percentages

Source: EBC (2015).

## Farming styles

In addition to describing landholders on the basis of the objective characteristics of their property, their educational level or membership of external groups; it is possible to describe groups of landholders in relation to their beliefs or attitudes towards agriculture and farming – what are known as ‘farming styles’. The identification of farming styles is particularly important in targeting agricultural extension and understanding adoption behaviour amongst property owners and farmers<sup>6</sup>.

In addition, and although it has not been undertaken in the current report, farming styles themselves may be useful in explaining the variation in landholder responses to many of the questions used in the current questionnaire. For example, farming styles may explain why some farmers use services provided by Local Land Services, while other farmers do not; or why farmers vary in their adoption of specific land management, livestock management or biosecurity practices.

In describing the farming styles of landholders, 20 belief statements were identified which represented a range of different beliefs that might distinguish amongst landholders in the region. For each belief statement landholders indicated whether the belief statement was ‘a lot like me’; ‘somewhat like me’; ‘a little like me’ or ‘not like me’ (Table 16 and Appendix A).

It would be expected that several of the belief statements identified in Table 17 would be highly correlated. For instance, two of the belief statements might be correlated where a landholder who believes ‘that sometimes they are going backward even though they work hard’ would also believe ‘the increasing cost of farming is making it difficult to keep up’.

An examination of the inter-correlations amongst all 20 belief statements identified six farming styles (Table 17). Each of the farming styles were independent and uncorrelated with each other, although the belief statements *within* each farming style were highly correlated (Figure 7 to Figure 11).

Each of the six farming styles has been labelled based on the variables which are included in the style (Figure 7 to Figure 11). The values shown in Table 16 are loadings and show the extent to which each belief statement is correlated with each farming style. Farming styles are described as:

7. **Professional:** These landholders operate efficient properties are knowledgeable about production and markets, keep their farm machinery in good condition and carefully consider any significant changes that they might make to their property or production.
8. **Innovator:** The innovator landholder is somewhat of a risk taker; is the first to undertake new farming practices and is always seeking new and innovative ways of managing their property and their production.
9. **Struggler:** The struggler sometimes considers moving out of farming; struggles to achieve outcomes even with the amount of work they undertake on the farm and finds it difficult to progress against rising farm input costs.
10. **Lifestyle:** The lifestyle landholder not only farms in order to make an income, but also enjoys and appreciates the lifestyle of farming.
11. **Conservative:** The conservative landholder is an established farmer who is wary of undertaking new or different farming practices and where farming is central to their lifestyle.
12. **Risk-averse:** As the label suggests, the risk averse landholder is averse to taking risks with their property and as indicated by the belief statements also believes there are less environmentally risky methods of controlling pest animals and plants.

<sup>6</sup> See for example, Howden, P., Vanclay, F., Lemerle, D., and Kent, J. *Farming styles and extension in broad acre cropping*. Australian Society of Agronomy (<http://www.regional.org.au/au/asa/1998/7/275howden.htm>)

There are two ways in which farming styles can be interpreted.

In the first instance each of the farming styles can be considered as 'latent factors' which exist across all landholders. For example, any one landholder may have characteristics of the professional farming style, some of the innovator and lifestyle farming styles, but none of the other farming styles. In this interpretation each landholder has varying degrees of each farming style.

The second interpretation of farming styles<sup>7</sup> indicates there are distinct groups or clusters of landholders who belong to each farming style and no other. For instance, and using this approach further analysis of the data on farming styles indicates that landholders can be categorised on the basis of their farming styles as shown in Table 16.

Table 16 shows that two thirds (62%) of landholders in the Western Local Land Services region have a 'professional' farming style and an additional 28% have a 'lifestyle' farming style. If it is assumed there are 1,877 landholders in the region (Table 1), this also translates into there being an estimated 1,155 'professional' farmers and 521 'lifestyle' farmers (Table 16).

Table 16: number of landholders associated with each farming style

Farming style	Percent of landholders	Landholders in the sample	Landholders in the population
Professional	61.5	224	1,155
Lifestyle	27.7	101	521
Risk-averse	3.8	14	72
Struggler	3.8	14	72
Innovator	1.6	6	31
Conservative	1.4	5	26
Total landholders	100.0	364	1,877

Source: EBC (2015).

<sup>7</sup> While the findings have been presented for the second interpretation of farming styles, it is the view of the author of this report that the first approach to interpreting farming styles as latent factors is the most appropriate.

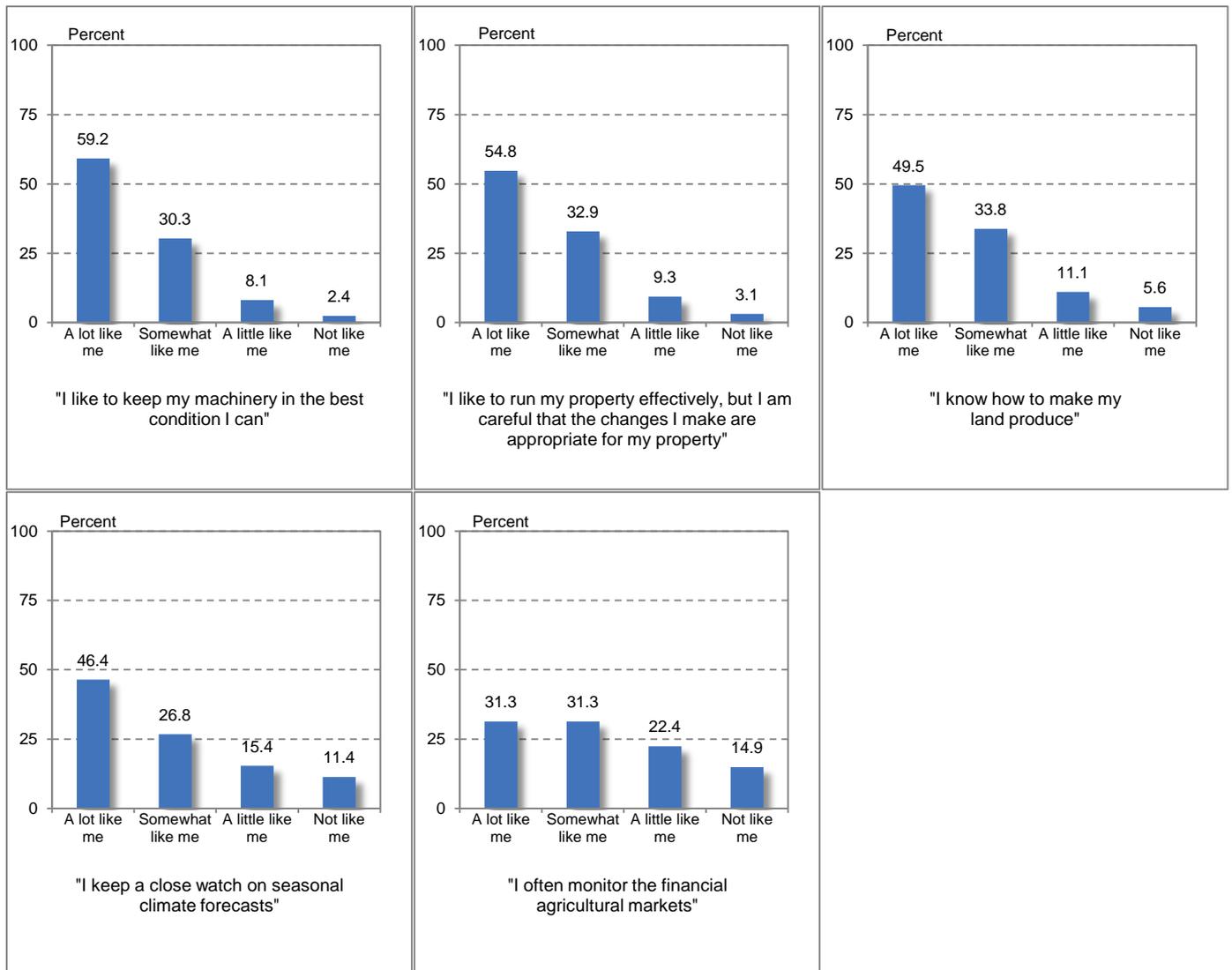
Table 17: identification of farming styles

Belief statements	1	2	3	4	5	6
	Professional	Innovator	Struggler	Lifestyle	Conservative	Risk averse
1. I like to keep my machinery in the best condition I can	0.737					
2. I like to run my property effectively, but I am careful that the changes I make are appropriate for my property	0.677					
3. I know how to make my land produce	0.666					
4. I keep a close watch on seasonal climate forecasts	0.508					
5. I often monitor the financial agricultural markets	0.498					
6. I like to be at the cutting edge of agricultural change		0.825				
7. I am constantly seeking new ideas about ways of doing things		0.768				
8. I am continually seeking to expand the size of my farm		0.569				
9. The only way to make money at farming is to take risks		0.508				
10. I sometimes feel that I am going backwards even though I work hard			0.873			
11. The increasing cost of farming is making it difficult to keep up			0.755			
12. I often think about moving out of farming or grazing			0.634			
13. Running my property is a good lifestyle for me and my family				0.790		
14. I enjoy running my property even though it can be tough at times				0.658		
15. I am good at what I do on my property				0.552		
16. I am wary of people who tell me that there is a better way of doing things					0.704	
17. I am considered a member of the established farmers in the area					0.589	
18. Farming is my life and I cannot see myself ever doing anything else					0.588	
19. I believe that there are more environmentally friendly ways of controlling weed and insect pests						0.749
20. I don't want to take risks with my property just to make more money						0.617

Note: Based on a varimax rotated factor solution which accounted for 62% of the total variance. The values in the table are referred to as loadings and vary between -1.0 and 1.0. A value close to 1.0 or -1.0 indicates a high correlation between the statement and the farming style. Loadings below 0.470 have been excluded from the table. The analysis was based on 364 landholders as it required each landholder to provide complete data on all statements.

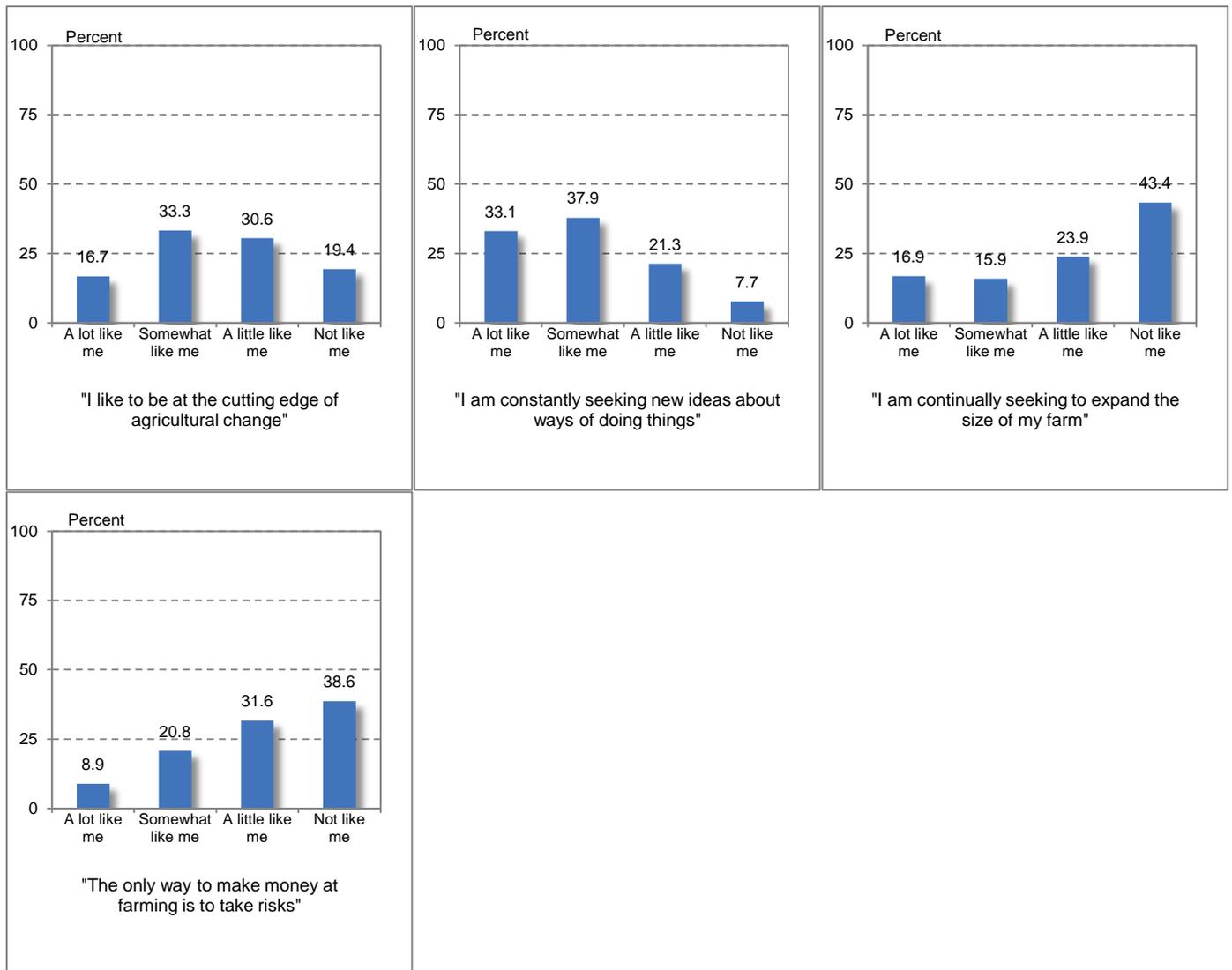
Source: EBC (2015).

Figure 7: 'professional' farming style scales



Source: EBC (2015).

Figure 8: 'innovator' farming style scales



Source: EBC (2015).

Figure 9: 'struggler' farming style scales

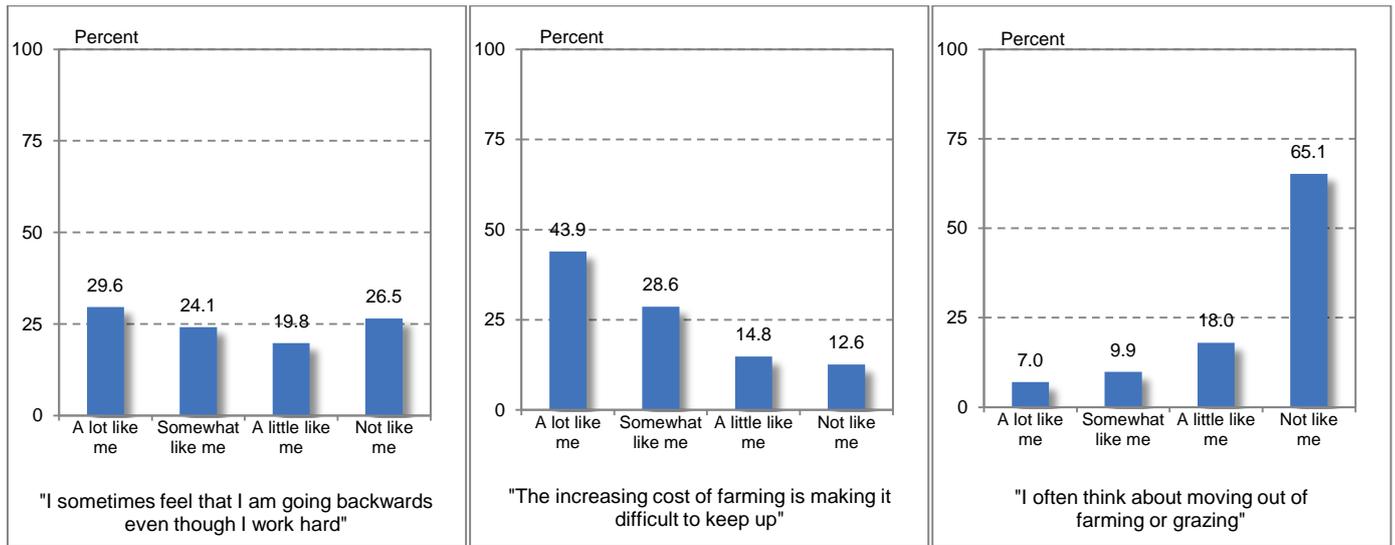


Figure 10: 'lifestyle' farming style scales

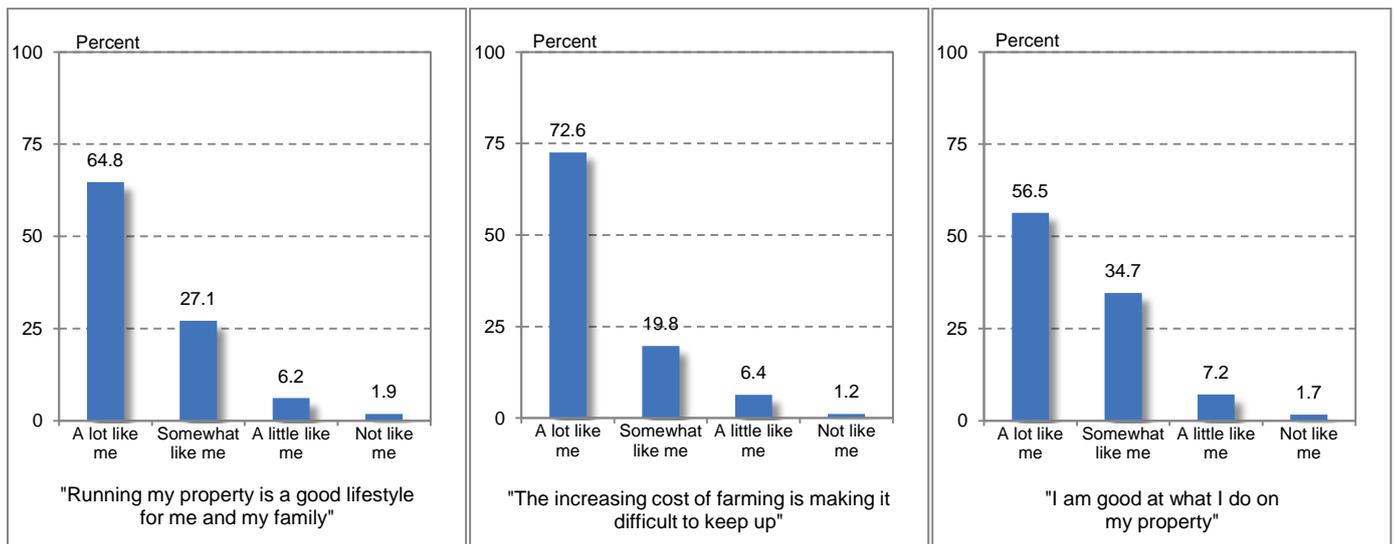


Figure 11: 'conservative' farming style scales

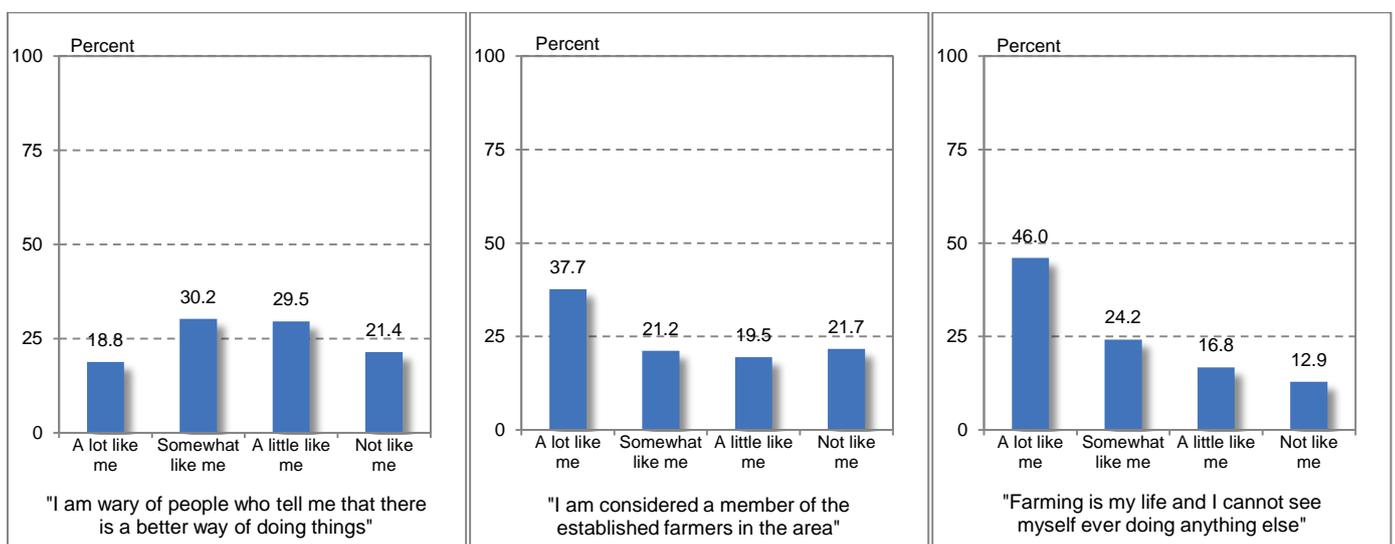
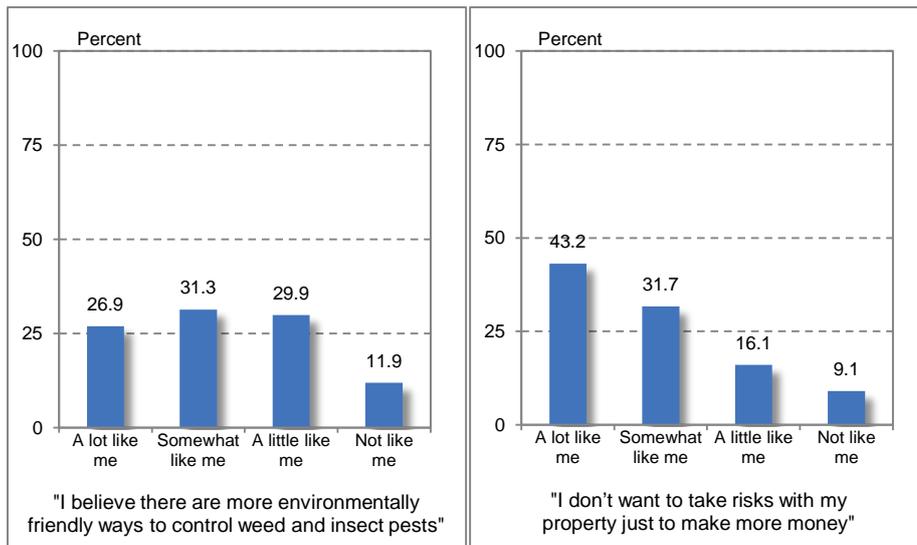
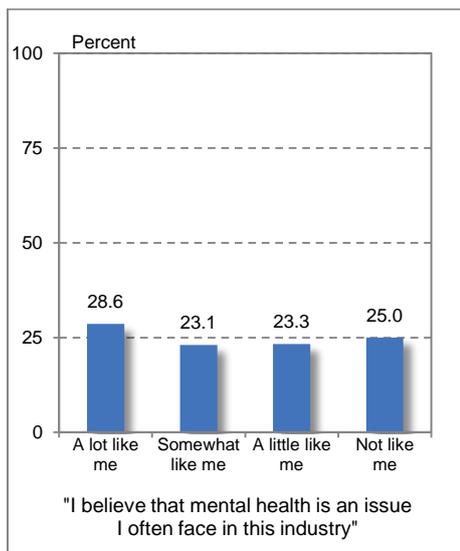


Figure 12: 'risk averse' farming style scales



Source: EBC (2015).

Figure 13: "I believe that mental health is an issue I often face in this industry"



Source: EBC (2015).

## Property characteristics

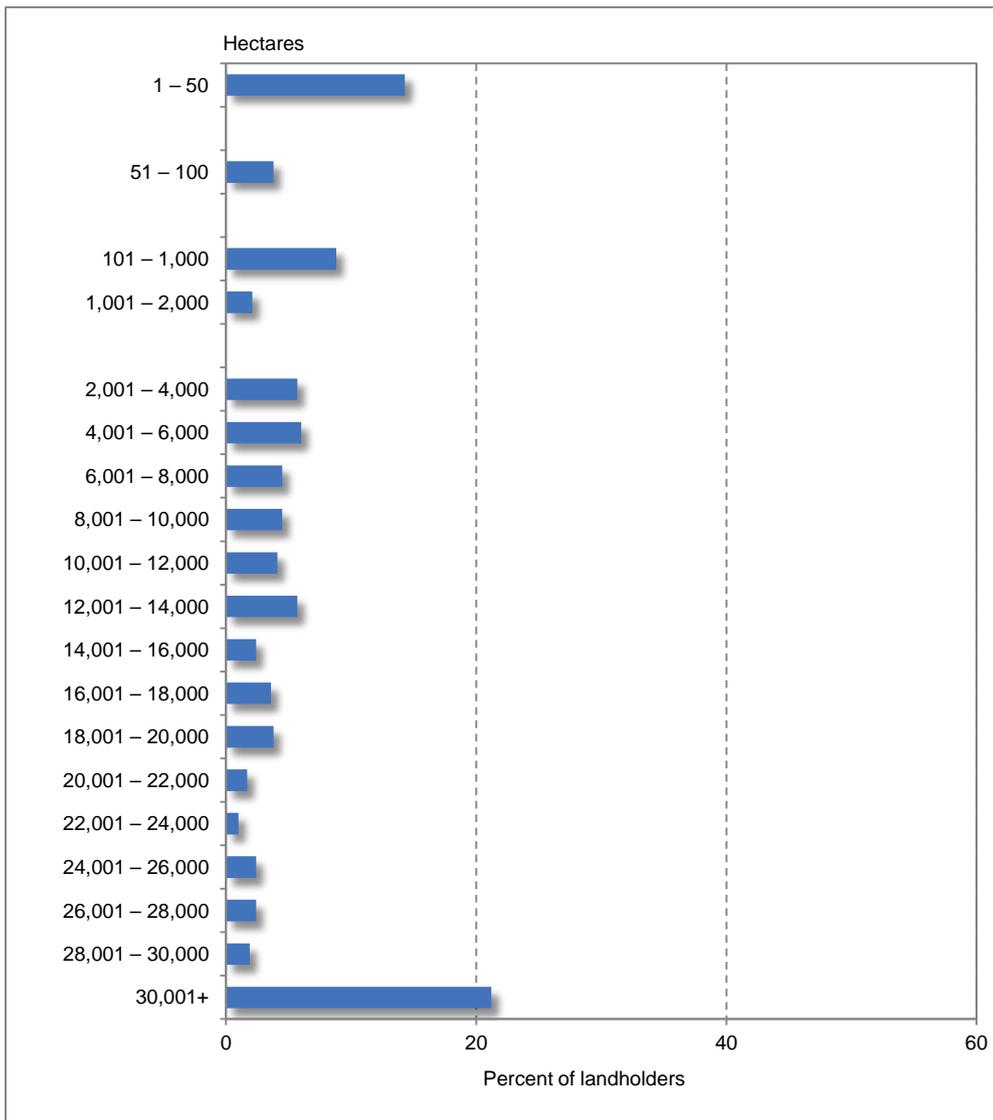
Amongst all landholders in the Western Local Land Services region, the average property size was 10,074 hectares. As shown in Table 18 and Figure 14, 27% or just over a quarter of all landholders owned or managed properties of 1,000 hectares or less and 29% owned or managed properties of 20,001 hectares or more.

Table 18: "How large is your property?"

Hectares	Count	Percent	Cumulative Percent
1 – 50	60	14.3	14.3
51 – 100	16	3.8	18.1
101 – 1,000	37	8.8	27.0
1,001 – 2,000	9	2.1	29.1
2,001 – 4,000	24	5.7	34.8
4,001 – 6,000	25	6.0	40.8
6,001 – 8,000	19	4.5	45.3
8,001 – 10,000	19	4.5	49.9
10,001 – 12,000	17	4.1	53.9
12,001 – 14,000	24	5.7	59.7
14,001 – 16,000	10	2.4	62.1
16,001 – 18,000	15	3.6	65.6
18,001 – 20,000	16	3.8	69.5
20,001 – 22,000	7	1.7	71.1
22,001 – 24,000	4	1.0	72.1
24,001 – 26,000	10	2.4	74.5
26,001 – 28,000	10	2.4	76.8
28,001 – 30,000	8	1.9	78.8
30,001+	89	21.2	100.0
Total landholders	419	100.0	
Median hectares			10,074

Source: EBC (2015).

Figure 14: "How large is your property?"



Source: EBC (2015).

Table 19 and Figure 15 show there was no significant difference in property sizes between survey periods in the Western Catchment Management Authority region.

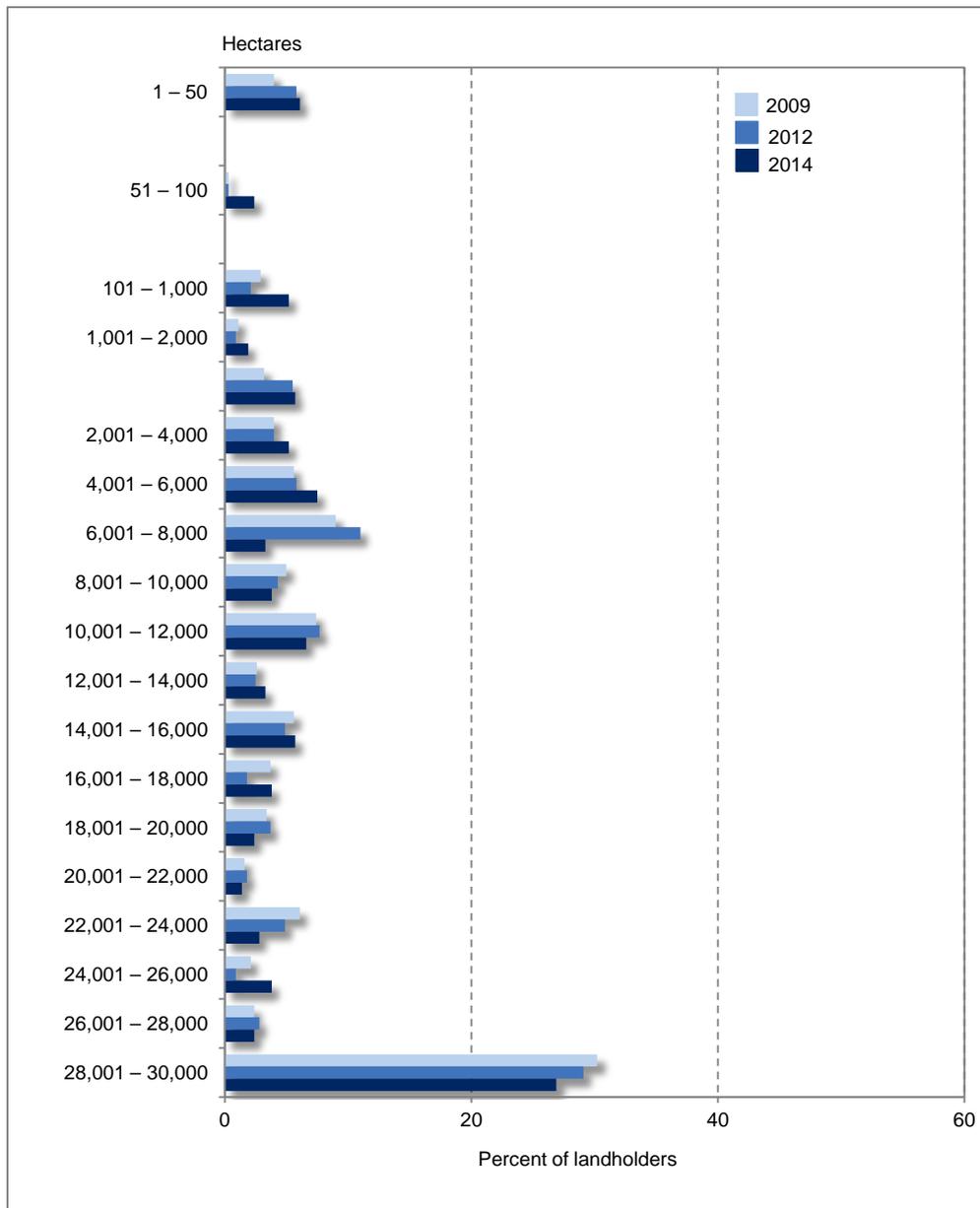
Table 19: a comparison of property size between survey periods

Hectares	2009			2012			2014		
	Count	Percent	Cum %	Count	Percent	Cum %	Count	Percent	Cum %
1 – 50	15	4.0	4.0	19	5.8	5.8	13	6.1	6.1
51 – 100	1	0.3	4.2	1	0.3	6.1	5	2.4	8.5
101 – 1,000	11	2.9	7.1	7	2.1	8.3	11	5.2	13.7
1,001 – 2,000	4	1.1	8.2	3	0.9	9.2	4	1.9	15.6
2,001 – 4,000	12	3.2	11.4	18	5.5	14.7	12	5.7	21.2
4,001 – 6,000	15	4.0	15.3	13	4.0	18.7	11	5.2	26.4
6,001 – 8,000	21	5.6	20.9	19	5.8	24.5	16	7.5	34.0
8,001 – 10,000	34	9.0	29.9	36	11.0	35.6	7	3.3	37.3
10,001 – 12,000	19	5.0	34.9	14	4.3	39.9	8	3.8	41.0
12,001 – 14,000	28	7.4	42.3	25	7.7	47.5	14	6.6	47.6
14,001 – 16,000	10	2.6	45.0	8	2.5	50.0	7	3.3	50.9
16,001 – 18,000	21	5.6	50.5	16	4.9	54.9	12	5.7	56.6
18,001 – 20,000	14	3.7	54.2	6	1.8	56.7	8	3.8	60.4
20,001 – 22,000	13	3.4	57.7	12	3.7	60.4	5	2.4	62.7
22,001 – 24,000	6	1.6	59.3	6	1.8	62.3	3	1.4	64.2
24,001 – 26,000	23	6.1	65.3	16	4.9	67.2	6	2.8	67.0
26,001 – 28,000	8	2.1	67.5	3	0.9	68.1	8	3.8	70.8
28,001 – 30,000	9	2.4	69.8	9	2.8	70.9	5	2.4	73.1
30,001+	114	30.2	100.0	95	29.1	100.0	57	26.9	100.0
Total landholders	378	100.0		326	100.0		212	100.0	
Median hectares	17,806			16,094			15,843		

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary. There was no significant difference in medians between survey periods.

Source: EBC (2015).

Figure 15: a comparison of property size between survey periods



## Property use

The three most common property uses (Table 20) were growing sheep for wool (44%), cattle (43%) and growing sheep for meat (41%). In addition, 28% of landholders harvested feral goats and a further 15% undertook dryland cropping.

Table 20: "What is your property primarily used for?"

Property use	Count	Percent
Sheep for wool	191	43.9
Cattle	184	42.3
Sheep for meat	176	40.5
Harvesting feral goats	121	27.8
Dryland cropping	64	14.7
Horticulture	48	11.0
Grapes	26	6.0
Citrus	17	3.9
Vines	4	0.9
Stone fruit	2	0.5
Dried fruit	2	0.5
Vegetables	2	0.5
Avocado	2	0.5
Other horticultural uses ( <i>frequency of one</i> )	7	1.6
Lifestyle or hobby farming	41	9.4
Irrigation cropping	35	8.0
Managed goat production	33	7.6
Recreation	28	6.4
Conservation land use	25	5.7
Aboriginal land use	4	0.9
Tourism or farm stays	3	0.7
Other uses	15	3.4
Mining	2	0.5
Aquaculture	2	0.5
No use	2	0.5
Other ( <i>frequency of one</i> )	9	2.1
<b>Total landholders</b>	<b>435</b>	<b>100.0</b>

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

A comparison of property use between survey periods (Table 21) shows that cattle and sheep production along with harvesting feral goats continue to be the most common property uses. Of note in relation to Table 21 is that dryland cropping, which was undertaken by 23% of landholders in 2009, was undertaken by only 9% of landholders in 2014.

Table 21: a comparison of the properties primary use between survey periods

Property use	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Cattle	214	75.6	179	55.4	118	54.1
Sheep for wool	-	-	186	57.6	111	50.9
Sheep for meat	-	-	187	57.9	97	44.5
Harvesting feral goats	85	30.0	73	22.6	86	39.4
Managed goat production	31	11.0	19	5.9	27	12.4
Lifestyle or hobby farming	17	6.0	42	13.0	19	8.7
Dryland cropping	64	22.6	36	11.1	18	8.3
Recreation	-	-	-	-	14	6.4
Conservation land use	2	0.7	6	1.9	8	3.7
Irrigation cropping	7	2.5	5	1.5	5	2.3
Aboriginal land use	2	0.7	0	0.0	3	1.4
Tourism or farm stays	3	1.1	6	1.9	2	0.9
Horticulture	1	0.4	1	0.3	1	0.5
Total landholders	283	100.0	323	100.0	218	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
 In 2009 only sheep production was identified and not separately sheep for wool or meat.  
 In 2009 and 2012 the term 'commercial goat breeding' was used, while in 2014 the term 'managed goat production' was used.  
 Recreation use was not identified in the 2009 and 2012 surveys.  
 The term 'Aboriginal land use' was used in the 2014 and 2012 surveys; while in the 2009 survey 'Indigenous land use' was used.  
 The term 'horticulture' was used in the 2014 and 2012 surveys; while in the 2009 survey 'orchard crops' was used.

Source: EBC (2015).

## Property ownership

Ninety-six percent of landholders indicated they were the owner of the property (Table 22).

Table 22: "Please state your role in the ownership or management of the property"

Response	Count	Percent
Owner	421	95.7
Manager	14	3.2
Other	4	0.9
Total landholders	440	100.0

Note: Other included 'leased' (2); 'environmental officer'; and 'worker'.

Source: EBC (2015).

Ninety-seven percent of landholders also indicated their property was family rather than corporate owned (Table 23).

Table 23: "Would you say your property in family owned or corporate owned"

Response	Count	Percent
Family	398	97.1
Corporate	12	2.9
Total landholders	410	100.0

Source: EBC (2015).

## Property management

Amongst those landholders who did not live on their property (Table 5), 20% had a fulltime manager living on the property, while 6% had a part-time manager for the property (Table 24).

Table 24: “Does a manger or other person who looks after the property live on the property?”

Response	Count	Percent
Yes full-time	23	20.4
Yes part-time (more than 51 days)	5	4.4
Yes part time (less than 51 days)	3	2.7
No	82	72.6
Total landholders	113	100.0

Source: EBC (2015).

## Property decision making

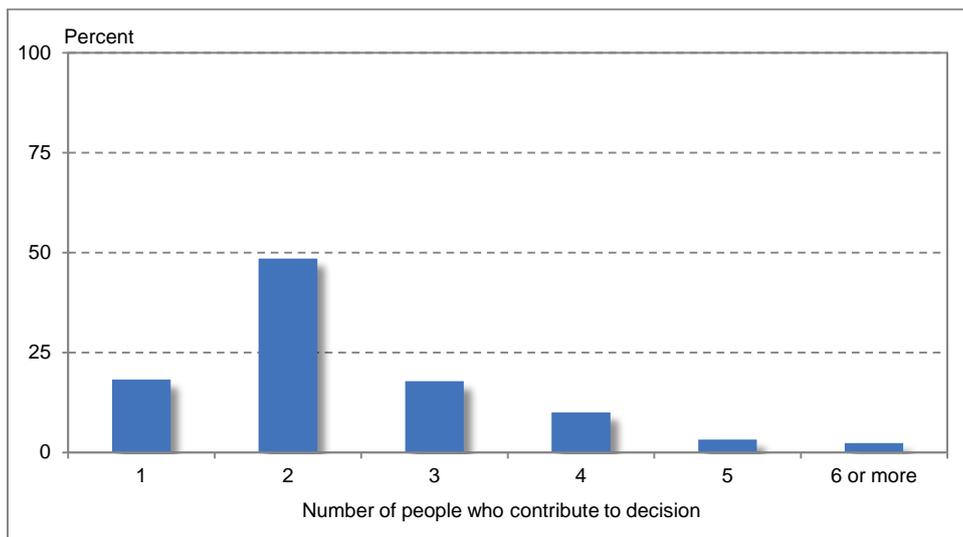
Table 25 and Figure 16 show that 49% of landholders reported that two people are usually involved in decisions made about the property.

Table 25: “How many people contribute to the decisions made on your property?”

Response	Count	Percent
1	80	18.2
2	213	48.5
3	78	17.8
4	44	10.0
5	14	3.2
6 or more	10	2.3
Total landholders	439	100.0

Source: EBC (2015).

Figure 16: number of people who contribute to decision making



Source: EBC (2015).

When two or more people make decisions about the property, 78% of the time there is 'never' or 'rarely' disagreement amongst the decision makers (Table 26).

Table 26: "How often is there disagreement amongst these people about the management of the property?"

Response	Count	Percent
Never	96	27.0
Rarely	182	51.3
Sometimes	70	19.7
Often	7	2.0
Total landholders	355	100.0

Note: Table based on those landholders who reported two or more people contribute to decisions on the property (Table 25).  
Source: EBC (2015).

## Enterprise change

A third of all landholders indicated they had changed enterprises in the past 10 years (Table 27).

Table 27: "In the last ten years, have you changed enterprises (including expanding or reducing an enterprise) in your business?"

Response	Count	Percent
Yes	136	31.6
No	294	68.4
Total landholders	430	100.0

Source: EBC (2015).

Amongst those landholders who had changed their enterprise in the last 10 years, the two most common changes (Table 28) were the introduction of new livestock breeds (55%) and the expansion, development or increase in production (24%).

Table 28: "What changes did you make?"

Response	Count	Percent
Changed or introduced new livestock breeds	74	54.8
Expanded, developed or increased production	33	24.4
Changed or introduced new crops or plantings	24	17.8
Reduced or ceased production	16	11.9
Changed or improved land management practices	9	6.7
Changed from cattle to sheep	3	2.2
Commence, improve or increase irrigation or water management	3	2.2
Sold or leased property	3	2.2
Changed from cropping to livestock production	2	1.5
Other changes ( <i>frequency of one</i> )	5	3.7
Total landholders	135	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
Source: EBC (2015).

Twenty-five percent of landholders indicated they were considering making changes to their enterprise in the next five years (Table 29).

Table 29: "Are you considering or planning to make any changes to your enterprise in the next five years?"

Response	Count	Percent
Yes	110	25.3
No	325	74.7
Total landholders	435	100.0

Source: EBC (2015).

The two most common changes being considered by landholders in the next five years (Table 30), were to change or improve their livestock or pasture management practices (31%) and to expand, develop or increase production (29%).

Table 30: "What changes are you considering or planning?"

Response	Count	Percent
Changed or improved livestock or pasture management practices	33	31.1
Expanded, developed or increased production	31	29.2
Changed or introduced new livestock breeds	19	17.9
Change or introduce new crops or plantings	14	13.2
Reduce or cease production	8	7.5
Commence, improve or increase irrigation or water management	7	6.6
Change, improve or commence natural resource management practices	6	5.7
Sell or lease property	3	2.8
Change from cattle to sheep	1	0.9
Other changes ( <i>frequency of one</i> )	12	11.3
Total landholders	106	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

There were a number of factors which landholders indicated contributed to their decision to make changes in the next five years (Table 31). The most commonly reported factors were improving profitability (69%), changing seasonal conditions (49%), improving their grazing management (40%) and reducing their labour requirements (37%).

Table 31: "Which of the following factors contributed to your decision to make these changes?"

Response	Count	Percent
Improving profitability	172	69.1
Seasonal conditions	123	49.4
Improving grazing management	99	39.8
Reducing labour requirements	91	36.5
Managing seasonal variation	83	33.3
Diversification to reduce risk	81	32.5
Markets and marketing alternatives	78	31.3
Infrastructure	50	20.1
Success of other producers	37	14.9
Land types	32	12.9
Education and training	31	12.4
Other factors ( <i>frequency of one</i> )	17	6.8
Total landholders	249	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

'Other factors' included age, retirement, reduced profitability.

Source: EBC (2015).

## Organic status

Only 4% of landholders indicated their property was organically certified, with a further 4% indicating their property had been organically certified in the past (Table 32).

Table 32: "What is your property's organic status?"

Response	Count	Percent
My property is not organically certified and never has been	399	92.1
My property has been organically certified, but is not currently	17	3.9
All or part of my property is organically certified	17	3.9
Total landholders	433	100.0

Source: EBC (2015).

Amongst the 8% of landholders who were or had been organically certified, only a third (36%) had sold organically certified products into an organic market or supply chain in the last two years (Table 33).

Table 33: "In the past two years, have you sold organic certified products into an organic market or supply chain?"

Response	Count	Percent
Yes	12	36.4
No	21	63.6
Total landholders	33	100.0

Note: Based on those properties previously or currently organically certified (Table 32)

Source: EBC (2015).

Amongst the 12 landholders who had sold organically certified products into an organic market or supply chain in the last two years, 10 or 83% had sold livestock (Table 34).

Table 34: "What organic products have you sold to an organic market or supply chain?"

Response	Count	Percent
Livestock	10	83.3
Horticultural products	1	8.3
Vegetables	0	0.0
Grains	1	8.3
Total landholders	12	100.0

Note: Based on those landholders who had sold organic products in the last two years (Table 33)

Source: EBC (2015).

In addition, amongst the 12 landholders who had sold organically certified products into an organic market or supply chain in the last two years, 8 (67%) had also sold their organic products into a conventional market (Table 35).

Table 35: "In the past two years, have you sold organic certified products into a conventional market rather than into an organic market or supply chain?"

Response	Count	Percent
Yes	8	66.7
No	4	33.3
Total landholders	12	100.0

Note: Based on those landholders who had sold organic products in the last two years (Table 33).

Source: EBC (2015).

Fifty percent of the organic products sold into a conventional market were lamb products (Table 36).

Table 36: "What organic products have you sold into a conventional market?"

Response	Count	Percent
Lambs	6	50.0
Cattle	2	16.7
Meat sheep	2	16.7
Sheep	2	16.7
Goats	1	8.3
Meat and wool	1	8.3
Total landholders	12	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
Based on those landholders who had sold organic products in the last two years (Table 33).

Source: EBC (2015).

Only 9% of all landholders indicated they were planning to gain or regain organic 'in conversion' status or certification in the next two years (Table 37).

Table 37: "Are you planning to gain or regain organic 'in conversion' status or certification in the next two years?"

Response	Count	Percent
Yes	37	8.7
No	388	91.3
Total landholders	425	100.0

Source: EBC (2015).

The main reason landholders gave for not gaining or regaining organic certification (Table 38) was that they believed there was not need or benefit in doing so (38%).

Table 38: "Why aren't you planning to gain or regain organic 'in conversion' status or certification in the next two years?"

Response	Count	Percent
No need or benefit	108	38.2
Need pesticides, herbicides, fertilisers and/or chemicals	42	14.8
No applicable, not viable or not suitable	37	13.1
Too costly expensive to establish and/or maintain	32	11.3
Lack of knowledge and understanding	13	4.6
Too much administration and paperwork	11	3.9
Lack of time	8	2.8
Too difficult	7	2.5
Already certified	3	1.1
Too restrictive	3	1.1
Drought	2	0.7
Lack of market for product	2	0.7
Don't spend sufficient time on the property	2	0.7
Other (frequency of one)	24	8.5
Total landholders	283	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
Based on those landholders who were not intending to become organic in the next two years (Table 37).

Source: EBC (2015).

## Distance to closest market for products

The average distance to the closest market for farm products was 350 kilometres (Table 39 and Figure 17).

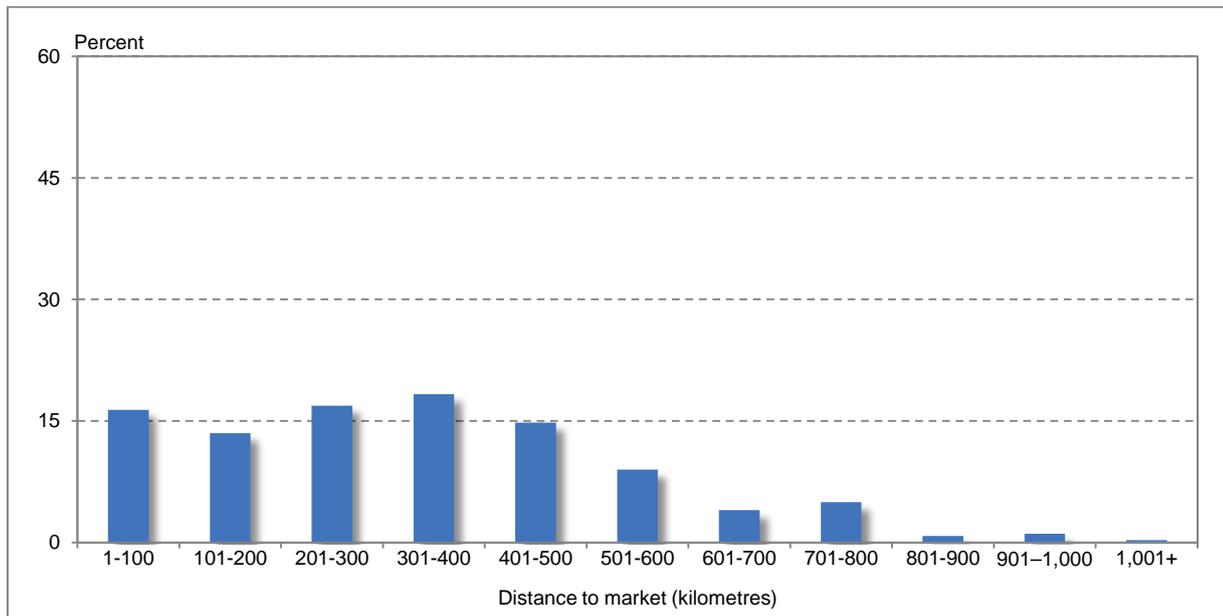
Table 39: "What is the distance to your closest market (km)?"

Kilometres to market	Count	Percent	Cumulative Percent
1-100	62	16.4	16.4
101- 200	51	13.5	29.9
201 - 300	64	16.9	46.8
301 - 400	69	18.3	65.1
401 - 500	56	14.8	79.9
501 - 600	34	9.0	88.9
601 - 700	15	4.0	92.9
701 - 800	19	5.0	97.9
801 - 900	3	0.8	98.7
901 – 1,000	4	1.1	99.7
1,001+	1	0.3	100.0
Total landholders	378	100.0	
Median kilometres			350.0

Note: Zero percentage also include three landholders who reported a negative percent.

Source: EBC (2015).

Figure 17: distance to closest market for products



Source: EBC (2015).

## Internet access

Twenty-eight percent of landholders indicated they did not have internet access on their property (Table 40).

Table 40: "Do you have access to the internet on your property?"

Response	Count	Percent
Yes	315	72.1
No	122	27.9
Total landholders	437	100.0

Source: EBC (2015).

A comparison across survey years shows a significant decline in the percentage of landholders with internet access, which has fallen from 80% in 2009 to 70% in 2014 (Table 41).

Table 41: a comparison of access to the internet between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Yes	306	80.3	251	78.4	153	69.5
No	75	19.7	69	21.6	67	30.5
Total landholders	381	100.0	320	100.0	220	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary. There was a significant difference in percentages between survey periods.

Source: EBC (2015).

While 46% of landholders indicated they had 'average' access speeds to the internet, an equal percentage (46%) also indicated they had 'slow' or 'very slow' internet access speeds (Table 42).

Table 42: "Typically, when you access the internet on your property would you say the internet speed is?"

Response	Count	Percent	Cumulative percent
Very slow	46	15.6	15.6
Slow	89	30.2	45.8
Average	136	46.1	91.9
Fast	22	7.5	99.4
Very fast	2	0.7	100.0
Total landholders	295	100.0	

Note: Based on those landholders who had internet access on their property (Table 40). This question was not asked in previous surveys.

Source: EBC (2015).

## Training and property management

This chapter provides an analysis of the training and property management characteristics of landholders within the Western Local Land Services region.

### Participation in training courses

A quarter of all landholders (25%) indicated they had undertaken agriculture, grazing or land management related courses in the past two years (Table 43).

Table 43: "Have you undertaken any agriculture, grazing or land management related courses in the past two years?"

Response	Count	Percent
Yes	109	24.7
No	332	75.3
Total landholders	441	100.0

Source: EBC (2015).

A comparison of course attendance between survey periods (Table 44) shows a significant decline in course attendance in 2014 (71%) relative to 2009 (80%) and 2012 (83%).

Table 44: a comparison of course attendance between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Yes	76	20.0	55	16.8	65	29.1
No	304	80.0	272	83.2	158	70.9
Total landholders	380	100.0	327	100.0	223	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary. There was a significant difference in percentages between survey periods.

Source: EBC (2015).

Two thirds of landholders (68%) who attended a course in the past two years had attended a chemical handling course; 26% had attended a grazing for profit course and 21% had attended a course in property planning (Table 45).

Table 45: "What courses have you undertaken?"

Courses	Count	Percent
Chemical handling	74	67.9
Grazing for profit	28	25.7
Property planning	23	21.1
Holistic resource management	19	17.4
Succession planning	15	13.8
Phoenix mapping	15	13.8
Tactical grazing management	13	11.9
Pasture to pocket	12	11.0
Whole farm planning	6	5.5
Pro-Graze	2	1.8
Other courses (frequency of one)	12	11.0
Total landholders	109	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows. Based on those landholders who had undertaken an agriculture, grazing or land management related course in the past two years (Table 43).

Other courses included cell grazing for profit;; diploma of horticulture; fencing; financial planning; growing Lucerne for profit; land and water; low stress stock handling; carbon farming; stream watch workshops; and wild dog trapping.

Source: EBC (2015).

While it is difficult to compare the type of courses attended between survey periods, as not all of the same courses were included in questionnaires used in each survey period, Table 46 indicates a decline in 'grazing for profit' courses and an increase in 'holistic resource management courses'.

Table 46: a comparison of courses undertaken between survey periods

Courses	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Chemical handling	-	-	-	-	42	68.9
Grazing for profit	27	36.5	17	37.0	17	27.9
Succession planning	-	-	12	26.1	15	24.6
Property planning	-	-	12	26.1	15	24.6
Holistic resource management	12	16.2	6	13.0	13	21.3
Phoenix mapping	-	-	14	30.4	11	18.0
Pasture to pocket	6	8.1	11	23.9	7	11.5
Tactical grazing management	5	6.8	3	6.5	6	9.8
Whole farm planning	7	9.5	13	28.3	3	4.9
Pro-Graze	-	-	6	13.0	1	1.6
Other courses (frequency of one)	35	47.3	10	19.2	7	10.8
Total landholders	74	100.0	52	100.0	65	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary.

'-' indicates the question was not asked in the survey period.

Percentages for 'whole farming planning' differed significantly between survey periods.

Source: EBC (2015).

Three quarters of all landholders (73%) indicated they changed their practices as a result of what they had learnt from the course (Table 47).

Table 47: "Did you change any of your practices as a result of what you learnt from the course?"

Response	Count	Percent
Yes	70	72.7
No	27	27.8
Total landholders	97	100.0

Note: Based on those landholders who had undertaken an agriculture, grazing or land management related course in the past two years (Table 43).

Source: EBC (2015).

A comparison of survey periods shows no significant change in practices as a result of course attendance between survey periods (Table 48).

Table 48: a comparison of practice change as a result of course attendance between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Yes	47	64.4	44	80.0	45	75.0
No	26	35.6	11	20.0	15	25.0
Total landholders	73	100.0	55	100.0	60	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary.

There was no significant difference in percentages between survey periods.

Source: EBC (2015).

Table 49 indicates the most common reason for landholders not changing practices as a result of attending courses was that they were already undertaking the practice (52%).

Table 49: "Why didn't you change any of your practices as a result of attending the course?"

Response	Count	Percent
Already undertaking the practices	11	52.4
No need or requirement	3	14.3
Too repetitive	1	4.8
Too costly or expensive	1	4.8
Refresher course	1	4.8
Don't use chemicals	1	4.8
Didn't have equipment or technology	1	4.8
Because of drought	1	4.8
Always careful and mindful of the land and others	1	4.8
Total landholders	21	100.0

Source: EBC (2015).

Twenty-four percent of all landholders were able to identify additional training needs (Table 50).

Table 50: "Are you able to identify any training you would like to receive to improve the management of your enterprise?"

Response	Count	Percent
Yes	101	23.8
No	323	76.2
Total landholders	424	100.0

Source: EBC (2015).

The most common type of additional training required (Table 51) was business management, including accounting, financial management and bookkeeping (18%).

Table 51: type of training required

Type of training	Count	Percent
Business management (inc. accounting, financial, bookkeeping)	17	17.7
Computer training	11	11.5
Soil management	11	11.5
Grazing management	10	10.4
Livestock management	10	10.4
Pasture management	9	9.4
Chemical handling and use	7	7.3
Water management (inc. irrigation)	6	6.3
Fencing	5	5.2
Pest animal management	5	5.2
Pest plant management	5	5.2
Property planning	5	5.2
Land management	4	4.2
Understanding weather	4	4.2
Property mapping	3	3.1
Holistic resource management	2	2.1
Plant identification	2	2.1
Other types of training ( <i>frequency of one</i> )	15	15.6
Total landholders	96	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Succession plans

Fifty percent of landholders indicated they had a succession plan for their property (Table 52).

Table 52: "Do you have a succession plan in place?"

Response	Count	Percent
Yes	193	49.6
No	196	50.4
Total landholders	389	100.0

Source: EBC (2015).

## Biosecurity or access policy

Only 17% of landholders reported they had a biosecurity or access policy for their property (Table 53).

Table 53: "Do you have a biosecurity or access policy for your property?"

Response	Count	Percent
Yes	72	17.0
No	352	83.0
Total landholders	424	100.0

Source: EBC (2015).

## Property management plans

Table 54 indicates that when property vegetation plans were excluded, 22% of landholders reported that they had a documented or written property management plan.

Table 54: "Do you have a documented or written property management plan (excluding a property vegetation plan)?"

Response	Count	Percent
Yes	97	22.2
No	339	77.8
Total landholders	436	100.0

Source: EBC (2015).

The percentage of landholders with a property management plan increased significantly from 66% in 2009 to 79% in 2014 (Table 55).

Table 55: a comparison of landholders with a written property plan between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Yes	128	33.6	78	23.8	46	20.7
No	253	66.4	250	76.2	176	79.3
Total landholders	381	100.0	328	100.0	222	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary.

There was a significant difference in percentages between survey periods.

In the 2012 survey the question stated "Do you have a documented or written property management plan?"

In the 2009 survey the question stated "Do you have a documented or written property management plan or map?"

Source: EBC (2015).

Property management plans were found to have been developed on average 9 years ago (Table 56), with 28% of landholders having developed their property management plan within the last five years.

Table 56: “How many years ago was the property management plan first developed?”

Years	Count	Percent
1-5	25	27.8
6-10	42	46.7
11-15	10	11.1
16-20	6	6.7
20+	7	7.8
Total landholders	90	100.0
Median years		8.5

Note: Based on those landholders who had a property management plan (Table 54).  
 Source: EBC (2015).

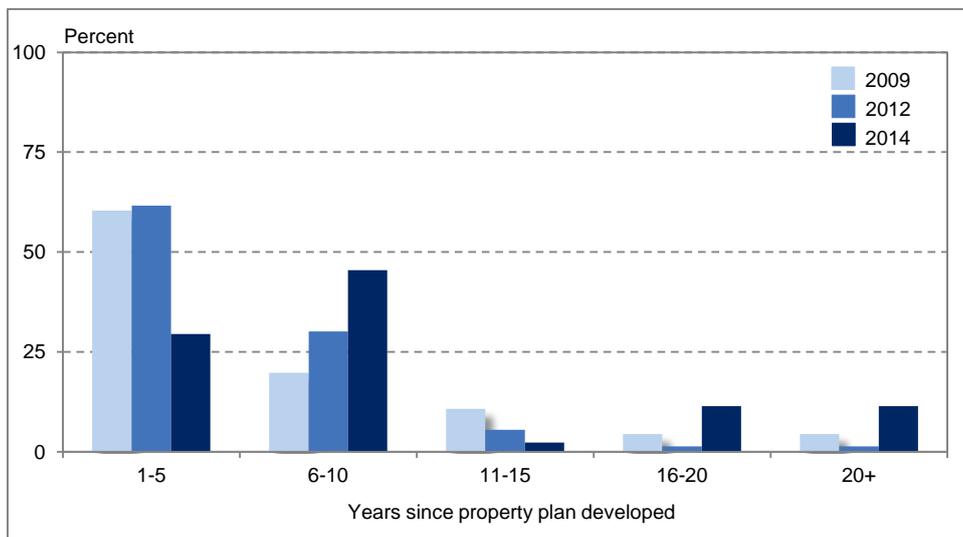
Table 57 and Figure 18 shows that in 2014 property management plans were less likely to have been developed within the previous five years (29%) while in 2009 (60%) and 2012 (62%) they were more likely to have been developed in the five years preceding the survey.

Table 57: a comparison of years since the property plan was developed between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
1-5	67	60.4	45	61.6	13	29.5
6-10	22	19.8	22	30.1	20	45.5
11-15	12	10.8	4	5.5	1	2.3
16-20	5	4.5	1	1.4	5	11.4
20+	5	4.5	1	1.4	5	11.4
Total landholders	111	100.0	73	100.0	44	100.0
Median years		4.0		5.0		8.5

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary. There was a significant difference in median between survey periods.  
 In the 2009 and 2012 surveys the question stated “How many years ago was the property management plan developed?”  
 Source: EBC (2015).

Figure 18: a comparison of years since the property plan was developed between survey periods



Source: EBC (2015).

Nearly half of all landholders (47%) indicated they updated their property management plan either 'always' or 'often' (Table 58).

Table 58: "How often do you update your management plan?"

Response	Count	Percent
Always	16	17.4
Often	27	29.3
Sometimes	19	20.7
Occasionally	20	21.7
Never	10	10.9
Total landholders	92	100.0

Note: Based on those landholders who had a property management plan (Table 54).

Source: EBC (2015).

In addition, 40% of landholders indicated they 'always' or 'often' referred to their property management plan when making decisions (Table 59).

Table 59: "How often do you refer to your property management plan when making decisions? Would it be..."

Response	Count	Percent
Always	13	14.1
Often	24	26.1
Sometimes	19	20.7
Occasionally	26	28.3
Never	10	10.9
Total landholders	92	100.0

Note: Based on those landholders who had a property management plan (Table 54).

Source: EBC (2015).

Table 60 and

Figure 19 indicate there was no significant difference in the frequency of referring to the property management plan between survey periods.

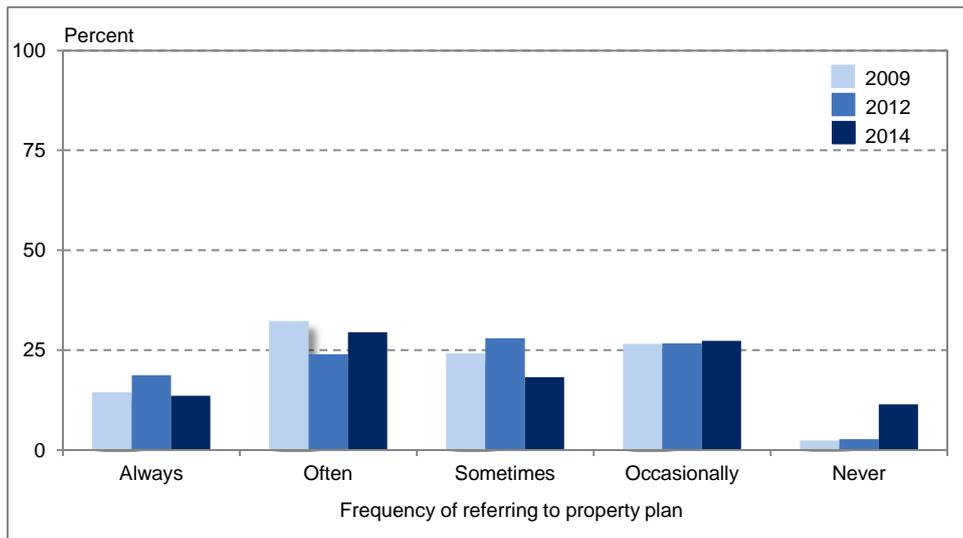
Table 60: a comparison of the frequency of referring to property management plans between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Always	18	14.5	14	18.7	6	13.6
Often	40	32.3	18	24.0	13	29.5
Sometimes	30	24.2	21	28.0	8	18.2
Occasionally	33	26.6	20	26.7	12	27.3
Never	3	2.4	2	2.7	5	11.4
Total landholders	124	100.0	75	100.0	44	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary.  
There was no significant difference in percentages between survey periods.

Source: EBC (2015).

Figure 19: a comparison of the frequency of referring to property management plans between survey periods



Source: EBC (2015).

The most common elements included in a property management plan (Table 61) were an air photo or satellite imagery mapping (86%); natural or man-made watering points (76%); fencing requirements (63%); vegetation types (58%); soil or land types (56%); and future plans or developments (51%).

Table 61: “Which of the following is included in your documented property management plan? Does it include a description or map of ...”

Response	Count	Percent
An air photo or satellite imagery mapping	74	86.0
Natural or man-made watering points	65	75.6
Fencing requirements	54	62.8
Vegetation types	50	58.1
Soil or land types	48	55.8
Future plans or developments	44	51.2
Stock or crop management	39	45.3
Pest plants or areas of invasive native scrub	37	43.0
Property vegetation plan	34	39.5
Current plantings/block identification	31	36.0
Conservation or sanctuary areas	27	31.4
Risk control plan, i.e. weeds, disease	26	30.2
Irrigation/soil capability maps	21	24.4
Total landholders	86	100.0

Note: Based on those landholders who had a property management plan (Table 54).  
 This is a multiple response table in which a respondent may be included in multiple rows.  
 Source: EBC (2015).

Table 62 indicates that 'natural or man-made watering points' and 'stock or crop management practices' were less common in property management plans in 2012 when compared to 2009.

Table 62: a comparison of frequency of referring to the property management plan between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
An air photo or satellite imagery mapping	111	86.7	62	81.6	35	85.4
Fencing requirements	105	82.0	54	71.1	34	82.9
Natural or man-made watering points*	125	97.7	48	63.2	32	78.0
Vegetation types	87	68.0	39	51.3	26	63.4
Soil or land types	89	69.5	48	63.2	23	56.1
Future plans or developments	77	60.2	44	57.9	23	56.1
Pest plants or areas of invasive native scrub	54	42.2	36	47.4	22	53.7
Stock or crop management*	83	64.8	33	43.4	21	51.2
Property vegetation plan	-	-	-	-	19	46.3
Risk control plan, i.e. weeds, disease	-	-	-	-	11	26.8
Conservation or sanctuary areas	29	22.7	21	27.6	9	22.0
Current plantings/block identification	-	-	-	-	6	14.6
Irrigation/soil capability maps	-	-	-	-	3	7.3
Total landholders	128	100.0	76	100.0	41	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary.  
 This is a multiple response table in which a respondent may be included in multiple rows.  
 - indicates the question was not asked in the survey period.  
 \* indicates a significant difference in percentages between survey periods.

Source: EBC (2015).

## Information sources and use

Neighbours and other landholders (68%) were identified as the most common sources of information that influence changes made to the property (Table 63).

Table 63: "Where do you usually get your information that influences changes you make on your property?"

Response	Count	Percent
Neighbours and other landholders	283	68.2
Government agencies and departments	171	41.2
Stock and station agents	156	37.6
Farmer and community groups (e.g. Landcare)	124	29.9
Local Government	40	9.6
Other sources (frequency of one)	102	24.6
Total landholders	415	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

In addition to the primary source of information identified in Table 63, Table 64 indicates other common sources of information to be the landholder themselves (23%); the media (20%); and the web or internet (19%).

Table 64: other sources of information that influences changes to properties

Response	Count	Percent
Individual or self (own decision)	23	22.5
Media (general - inc. books, magazines, newspapers etc)	20	19.6
Web or internet	19	18.6
Farm advisors	10	9.8
Industry bodies	8	7.8
Family	7	6.9
Markets and customers	6	5.9
Field days	5	4.9
Agricultural papers	4	3.9
Other growers	3	2.9
Other sources ( <i>frequency of one</i> )	16	15.7
Total landholders	102	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

Table 65 also shows that an additional and common source of information used by landholders was agricultural publications (75%).

Table 65: "Do you usually obtain information by..."

Response	Count	Percent
Reading agricultural publications (e.g. The Land, industry journals)	312	75.4
Researching products and systems	201	48.6
Industry newsletters	187	45.2
Industry websites	147	35.5
Conducting trials and field monitoring	94	22.7
Other responses ( <i>frequency of one</i> )	29	7.0
Total landholders	414	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Other responses included 'landholders' (9); own experience (4); media (4); web or internet (3); course or training (2) and word of mouth (2).

Source: EBC (2015).

## Livestock enterprises

Three quarters of all landholders (78%) indicated they managed livestock on their property (Table 66).

Table 66: "Do you manage livestock (including harvesting goats) on your property?"

Response	Count	Percent
Yes	340	77.8
No	97	22.2
Total landholders	437	100.0

Source: EBC (2015).

## Sheep production

Table 67 indicates that two thirds of landholders were involved in sheep production on their property.

Table 67: "Do you run sheep on your property?"

Response	Count	Percent
Yes	272	62.2
No	165	37.8
Total landholders	437	100.0

Source: EBC (2015).

Of those landholders involved in sheep production, 68% were involved in the production of Merino sheep for wool or meat, while 31% produced fleece-shedding sheep for meat (Table 68).

Table 68: "What type of sheep enterprise do you run?"

Response	Count	Percent
Merino sheep for wool and meat	181	67.5
Fleece-shedding sheep for meat	84	31.3
Other sheep for wool and meat	42	15.7
Dorper sheep	3	1.1
Adjustment	2	0.7
South African Meat Marino	2	0.7
Stud breeding	2	0.7
Suffolk Sheep (White and Marino cross)	2	0.7
Cross bred sheep	2	0.7
Breeding meat rams	1	0.4
Dohne sheep	1	0.4
Poll Merino	1	0.4
Total landholders	268	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
Based on landholders who run sheep on their property.

Source: EBC (2015).

## Cattle production

Half of all landholders (49%) indicated they produced cattle on their property (Table 69).

Table 69: "Do you run cattle on your property?"

Response	Count	Percent
Yes	214	49.1
No	222	50.9
Total landholders	436	100.0

Source: EBC (2015).

Amongst those landholders who ran cattle on their property, 86% bred cattle and 51% fattened cattle (Table 70).

Table 70: "What type of cattle enterprise do you run?"

Response	Count	Percent
Cattle for breeding	177	85.5
Cattle for fattening	106	51.2
Other cattle enterprises	11	5.3
Adjustment	6	2.9
Cattle trading	2	1.0
Beef sale markets	1	0.5
Bull sales	1	0.5
Feedlot	1	0.5
Store condition to feedlots	1	0.5
Total landholders	207	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
Based on landholders who run cattle on their property.

Source: EBC (2015).

## Goat production

Fifty-five percent of all landholders ran goats on their property (Table 71).

Table 71: "Do you run goats on your property?"

Response	Count	Percent
Yes	240	55.3
No	194	44.7
Total landholders	434	100.0

Source: EBC (2015).

The two most common goat enterprises (Table 72) were harvesting goats (75%) and having rangeland goats contained within fencing (75%).

Table 72: "What type of goat enterprise do you run?"

Response	Count	Percent
Harvesting	176	74.9
Rangeland goats (contained with fencing and low management)	96	40.9
Managed goat enterprises (fencing, animal husbandry practices)	16	6.8
Other goat enterprises	1	0.4
Total landholders	235	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
Based on landholders who ran goats on their property.  
'Other goat enterprises' included 'for meat'.

Source: EBC (2015).

The percentage of landholders with different combinations of livestock enterprises is shown in Table 73. Twenty-eight percent of landholders ran sheep, cattle and goats on their property, while 17% ran sheep and goats and a further 10% ran only sheep and cattle.

Table 73: different sheep, cattle and goat combination enterprises

Livestock enterprise			Count	Percent
Sheep	Cattle	Goats		
Yes	Yes	Yes	121	27.9
Yes	No	Yes	74	17.1
Yes	Yes	No	45	10.4
Yes	No	No	29	6.7
No	Yes	Yes	24	5.5
No	Yes	No	23	5.3
No	No	Yes	20	4.6
Total landholders			336	100.0

Note: Based on landholders with livestock on their property  
 Source: EBC (2015).

## Dryland and irrigated cropping

Twenty-percent of landholders indicated that they undertook cropping activities on their property in the last two years (Table 74).

Table 74: “Did you undertake any cropping activities in the past two years on your property?”

Response	Count	Percent
Yes	86	19.7
No	351	80.3
Total landholders	437	100.0

Source: EBC (2015).

Table 75 shows a significant decrease in the percentage of landholders undertaking cropping activities on their property from 20% in 2009 to 7% in 2014.

Table 75: landholders undertaking cropping activities between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Yes	76	19.9	64	19.6	16	7.1
No	305	80.1	263	80.4	209	92.9
Total landholders	381	100.0	327	100.0	225	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary. There was a significant difference in percentages between survey periods.

Source: EBC (2015).

The average area under cropping was 684 hectares, with just over a third of landholders (39%) cropping over 1,000 hectares (Table 76 and Figure 20).

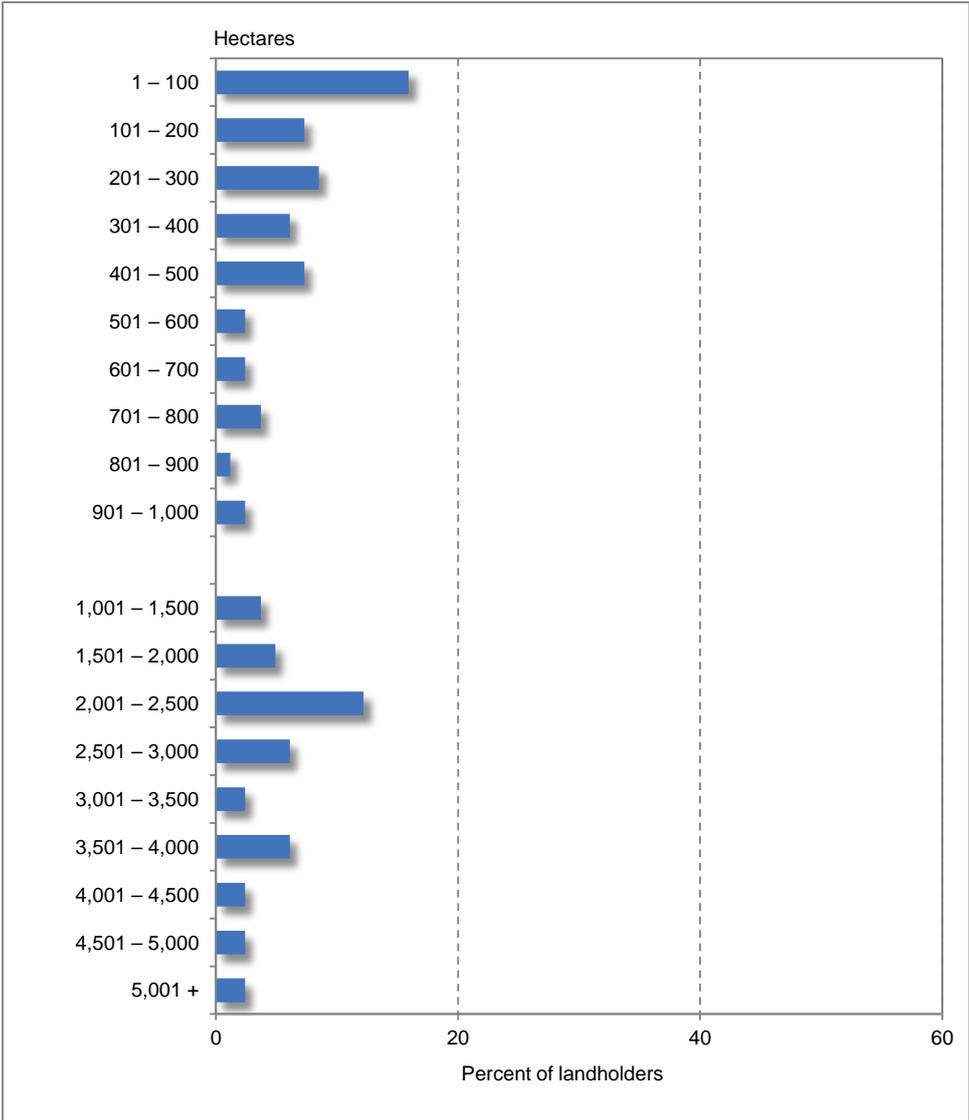
Table 76: “What area of your property was under cropping?”

Hectares	Count	Percent	Cumulative Percent
1 – 100	13	15.9	15.9
101 – 200	6	7.3	23.2
201 – 300	7	8.5	31.8
301 – 400	5	6.1	37.9
401 – 500	6	7.3	45.2
501 – 600	2	2.4	47.6
601 – 700	2	2.4	50.0
701 – 800	3	3.7	53.7
801 – 900	1	1.2	54.9
901 – 1,000	2	2.4	57.4
1,001 – 1,500	3	3.7	61.0
1,501 – 2,000	4	4.9	65.9
2,001 – 2,500	10	12.2	78.1
2,501 – 3,000	5	6.1	84.2
3,001 – 3,500	2	2.4	86.6
3,501 – 4,000	5	6.1	92.7
4,001 – 4,500	2	2.4	95.2
4,501 – 5,000	2	2.4	97.6
5,001 +	2	2.4	100.0
Total landholders	82	100	
Median hectares			683.7

Note: Based on landholders who undertook cropping activities on their property in the two years prior to the survey.

Source: EBC (2015).

Figure 20: area under cropping



Source: EBC (2015).

Although Table 77 and Figure 21 show a decline in the median area cropped between 2009 and 2014, this decline is not statistically significant.

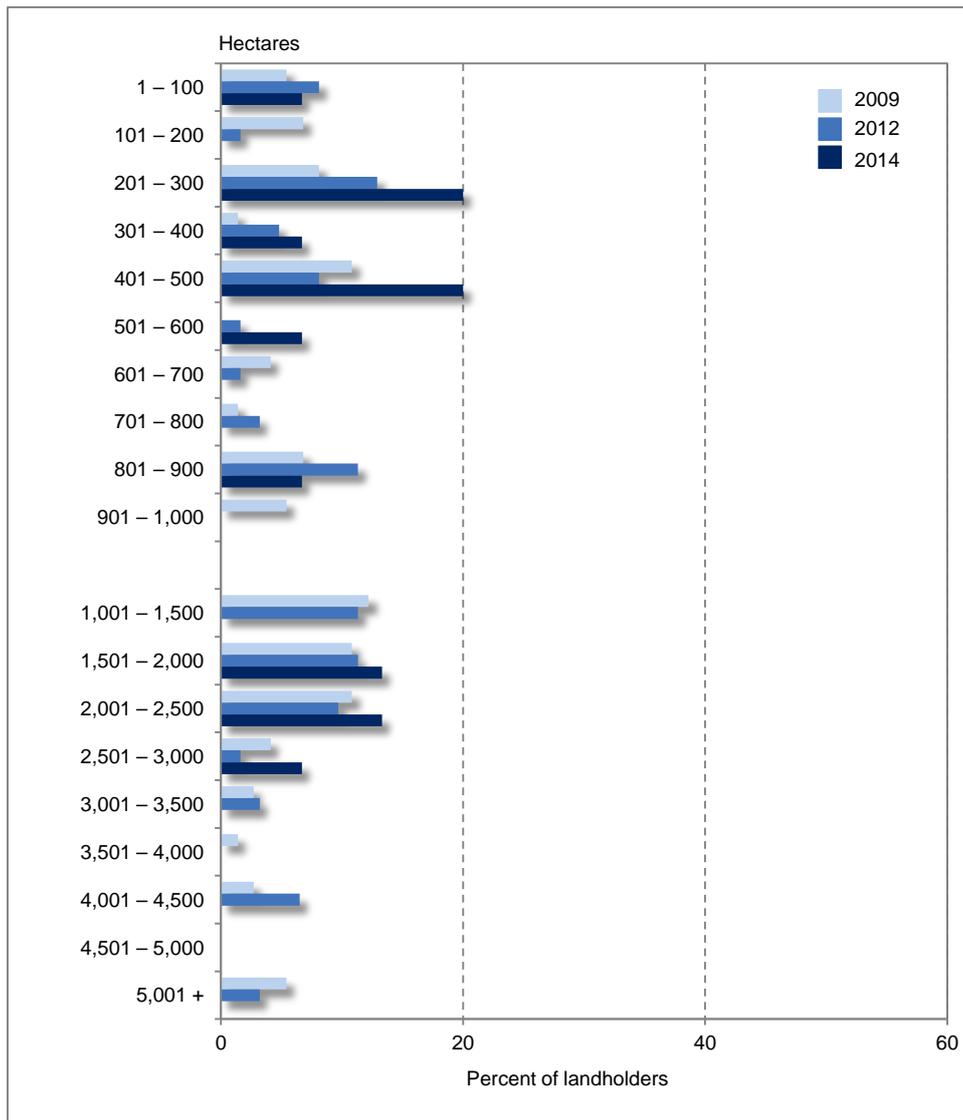
Table 77: a comparison of areas under cropping between survey periods

Hectares	2009			2012			2014		
	Count	Percent	Cum. Percent	Count	Percent	Cum. Percent	Count	Percent	Cum. Percent
1 – 100	4	5.4	5.4	5	8.1	8.1	1	6.7	6.7
101 – 200	5	6.8	12.2	1	1.6	9.7	0	0.0	6.7
201 – 300	6	8.1	20.3	8	12.9	22.6	3	20.0	26.7
301 – 400	1	1.4	21.6	3	4.8	27.5	1	6.7	33.4
401 – 500	8	10.8	32.4	5	8.1	35.5	3	20.0	53.4
501 – 600	0	0.0	32.4	1	1.6	37.1	1	6.7	60.1
601 – 700	3	4.1	36.5	1	1.6	38.7	0	0.0	60.1
701 – 800	1	1.4	37.8	2	3.2	42.0	0	0.0	60.1
801 – 900	5	6.8	44.6	7	11.3	53.3	1	6.7	66.8
901 – 1,000	4	5.4	50.0	0	0.0	53.3	0	0.0	66.8
1,001 – 1,500	9	12.2	62.2	7	11.3	64.6	0	0.0	66.8
1,501 – 2,000	8	10.8	73.0	7	11.3	75.8	2	13.3	80.1
2,001 – 2,500	8	10.8	83.8	6	9.7	85.5	2	13.3	93.4
2,501 – 3,000	3	4.1	87.8	1	1.6	87.1	1	6.7	100.0
3,001 – 3,500	2	2.7	90.5	2	3.2	90.4	0	0.0	100.0
3,501 – 4,000	1	1.4	91.9	0	0.0	90.4	0	0.0	100.0
4,001 – 4,500	2	2.7	94.6	4	6.5	96.8	0	0.0	100.0
4,501 – 5,000	0	0.0	94.6	0	0.0	96.8	0	0.0	100.0
5,001 +	4	5.4	100.0	2	3.2	100.0	0	0.0	100.0
Total landholders	74	100.0		62	100.0		15	100.0	
Median hectares			1,005.6			809.4			404.7

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary.  
Based on landholders who undertook cropping activities on their property in the two years prior to the survey.  
There was no significant difference in the medians.

Source: EBC (2015).

Figure 21: a comparison of areas under cropping between survey periods



Source: EBC (2015).

## Irrigation of crops

Amongst those landholders undertaking cropping activities in the past two years, 41% indicated they irrigated their crops (Table 78).

Table 78: “Have you irrigated crops in the past two years?”

Response	Count	Percent
Yes	34	40.5
No	50	59.9
Total landholders	84	100.0

Note: Based on landholders who undertook cropping activities on their property in the two years prior to the survey.  
 Source: EBC (2015).

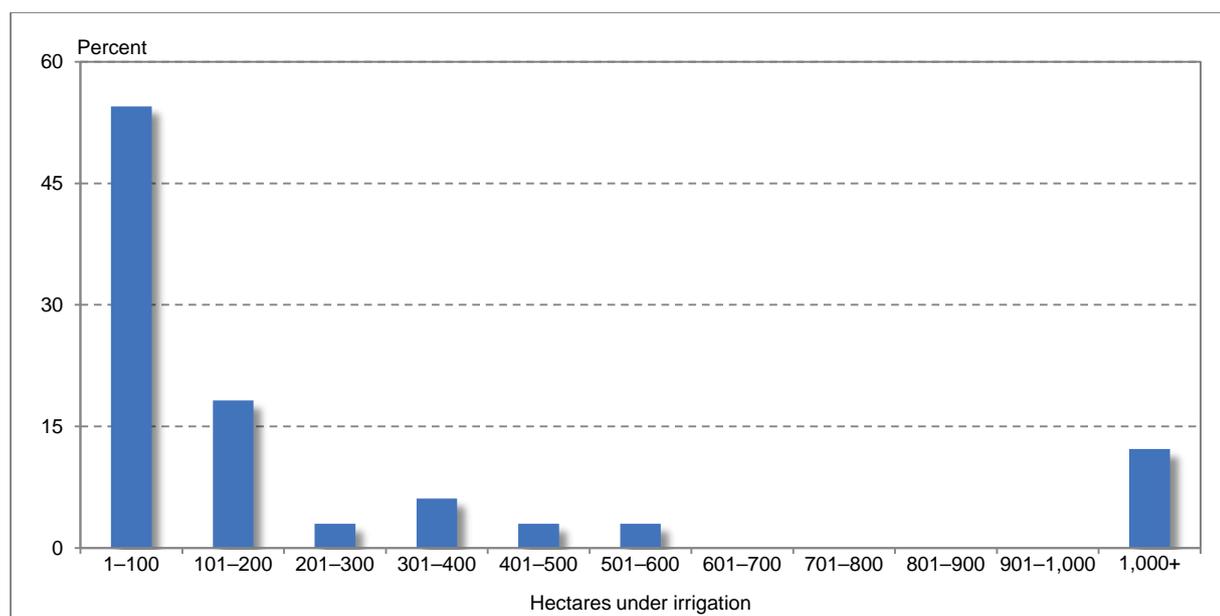
Landholders were found to irrigate an average 80 hectares of crops (Table 79 and Figure 22).

Table 79: “What area of your property did you irrigate?”

Hectares	Count	Percent	Cumulative Percent
1 – 100	18	54.5	54.5
101 – 200	6	18.2	72.7
201 – 300	1	3.0	75.7
301 – 400	2	6.1	81.8
401 – 500	1	3.0	84.8
501 – 600	1	3.0	87.8
601 – 700	0	0.0	87.8
701 – 800	0	0.0	87.8
801 – 900	0	0.0	87.8
901 – 1,000	0	0.0	87.8
1,000+	4	12.2	100.0
Total landholders	33	100.0	
Median hectares			80.0

Note: Based on landholders who undertook cropping activities on their property in the two years prior to the survey.  
 Source: EBC (2015).

Figure 22: area of property under irrigation (hectares)



Source: EBC (2015).

## Cultivation methods

The average area of cultivation under no tillage was 1,600 hectares; under minimum tillage it was 700 hectares; and under conventional tillage the average area cultivated was 200 hectares (Table 80).

Table 80: "How much of your cropping country did you cultivate using..."

Hectares	No tillage			Minimum tillage			Conventional tillage		
	Count	Percent	Cum. Percent	Count	Percent	Cum. Percent	Count	Percent	Cum. Percent
1 – 100	1	14.3	14.3	3	23.1	23.1	8	47.1	47.1
101 – 200	0	0.0	14.3	2	15.4	38.5	1	5.9	53.0
201 – 300	0	0.0	14.3	0	0.0	38.5	1	5.9	58.9
301 – 400	0	0.0	14.3	1	7.7	46.2	1	5.9	64.8
401 – 500	0	0.0	14.3	0	0.0	46.2	1	5.9	70.7
501 – 600	0	0.0	14.3	0	0.0	46.2	2	11.8	82.5
601 – 700	0	0.0	14.3	2	15.4	61.6	0	0.0	82.5
701 – 800	0	0.0	14.3	0	0.0	61.6	0	0.0	82.5
801 – 900	0	0.0	14.3	0	0.0	61.6	1	5.9	88.4
901 – 1,000	0	0.0	14.3	0	0.0	61.6	0	0.0	88.4
1,001 – 1,500	2	28.6	42.9	3	23.1	84.7	1	5.9	94.2
1,501 – 2,000	1	14.3	57.2	1	7.7	92.4	0	0.0	94.2
2,001 – 2,500	1	14.3	71.5	0	0.0	92.4	1	5.9	100.0
2,501 – 3,000	0	0.0	71.5	1	7.7	100.0	0	0.0	100.0
3,001 – 3,500	1	14.3	85.8	0	0.0	100.0	0	0.0	100.0
3,501 – 4,000	0	0.0	85.8	0	0.0	100.0	0	0.0	100.0
4,001 – 4,500	1	14.3	100.0	0	0.0	100.0	0	0.0	100.0
Total landholders	7	100.0		13	100.0		17	100.0	
Median hectares			1,600			700.0			200.0

Note: Based on landholders who undertook cropping activities on their property in the two years prior to the survey.  
 No tillage included using one pass, direct drill with disks or knife points.  
 Minimum tillage included using one cultivation plus sowing.  
 Conventional tillage included using two or more cultivations prior to sowing?

Source: EBC (2015).

In addition to the three cultivation methods of no tillage, minimum tillage and conventional tillage, 8 landholders indicated they used other cultivation methods as shown in Table 81.

Table 81: "Did you use any other cultivation methods?"

Cultivation methods	Count	Percent	Total area (hectares)
Kelly chain	1	12.5	2,023.4
Blade plough	1	12.5	1,618.7
Chemicals	1	12.5	1,000.0
Aerator	1	12.5	809.4
Mulching	1	12.5	100.0
Permanent sod	1	12.5	34.0
Ripping	2	25.0	5.0
Disking	2	25.0	2.0
Lake bed cropping	1	12.5	-
Total landholders	8	100.0	

Note: Based on landholders who undertook cropping activities on their property in the two years prior to the survey.  
 This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Cropping practices

Two cropping practices undertaken by the majority of landholders involved in cropping (Table 82) were stubble retention (69%) and crop rotation (66%).

Table 82: "Have you undertaken any of the following cropping practices in the past two years?"

Cropping practices	Count	Percent
Stubble retention	51	68.9
Crop rotation	49	66.2
Selective grazing	34	45.9
Soil testing	31	41.9
Precision farming	23	31.1
Controlled traffic	6	8.1
Total landholders	74	100.0

Note: Based on landholders who undertook cropping activities on their property in the two years prior to the survey. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

With the exception of the percentage of landholders undertaking controlled traffic cropping practices, which increased from 19% in 2009 to 31% in 2014, Table 83 and Figure 23 show no statistically significant difference between survey periods in the percentage of landholders who undertook other cropping practices.

Table 83: a comparison of cropping practices between survey periods

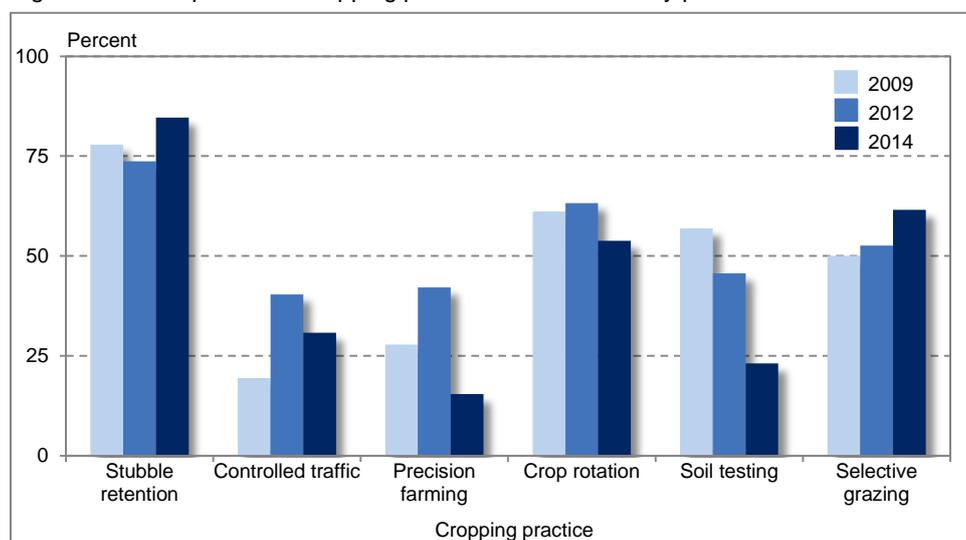
Cropping practice	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Stubble retention	56	77.8	42	73.7	11	84.6
Controlled traffic*	14	19.4	23	40.4	4	30.8
Precision farming	20	27.8	24	42.1	2	15.4
Crop rotation	44	61.1	36	63.2	7	53.8
Soil testing	41	56.9	26	45.6	3	23.1
Selective grazing	36	50.0	30	52.6	8	61.5
Total landholders	72	100.0	57	317.5	13	269.2

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary. This is a multiple response table in which a respondent may be included in multiple rows.

\* Indicates a significant difference in percentages between survey periods.

Source: EBC (2015).

Figure 23: a comparison of cropping practices between survey periods



Source: EBC (2015).

## Horticulture

Thirteen percent of landholders reported they undertook horticultural activities on their property in the two years prior to the survey (Table 84).

Table 84: “Did you undertake any horticultural activities in the past two years on your property?”

Response	Count	Percent
Yes	57	13.1
No	379	86.9
Total landholders	436	100.0

Source: EBC (2015).

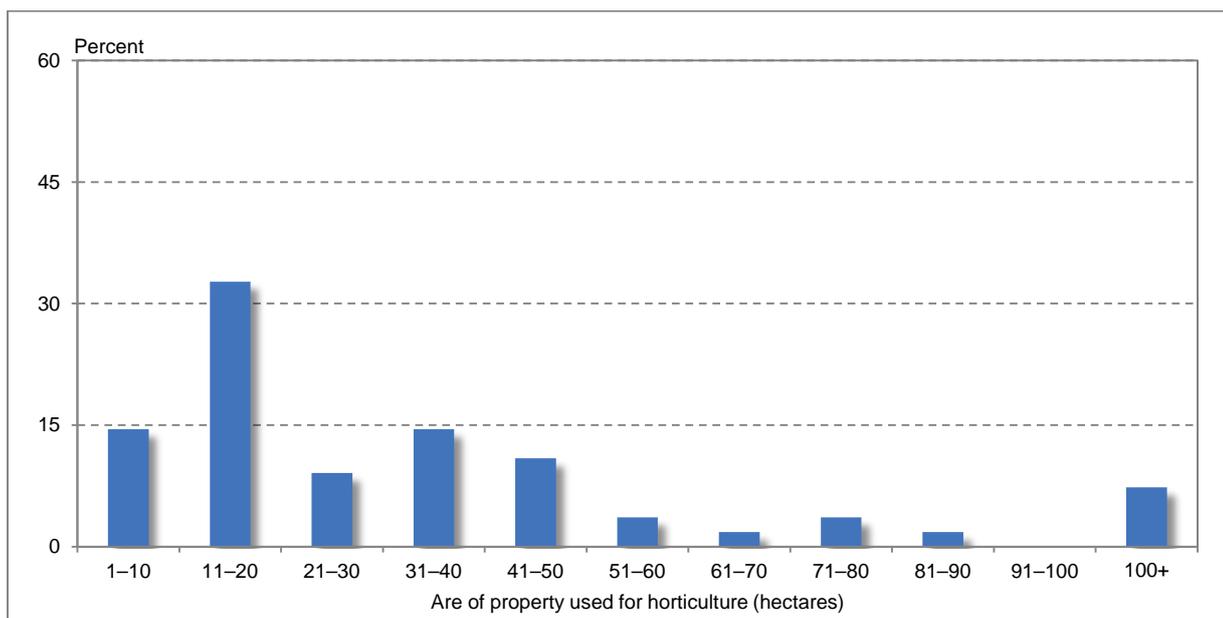
Table 85 and Figure 24 show that an average of 25 hectares was used for horticultural production.

Table 85: “What area of your property is used for horticultural production?”

Hectares	Count	Percent	Cumulative Percent
1 – 10	8	14.5	14.5
11 – 20	18	32.7	47.2
21 – 30	5	9.1	56.3
31 – 40	8	14.5	70.9
41 – 50	6	10.9	81.8
51 – 60	2	3.6	85.4
61 – 70	1	1.8	87.2
71 – 80	2	3.6	90.9
81 – 90	1	1.8	92.7
91 – 100	0	0.0	92.7
100+	4	7.3	100.0
Total landholders	55	100.0	
Median hectares			25.0

Note: Based on landholders who undertook horticultural activities on their property in the two years prior to the survey.  
 Source: EBC (2015).

Figure 24: area of the property used for horticultural production (hectares)



Source: EBC (2015).

## Horticultural practices

One of the most common orchard management practices (Table 86) was chemical control and slashing (88%).

Table 86: "What do you use in your orchard?"

Response	Count	Percent
Chemical control and slashing	42	87.5
A traditional cover crop	15	31.2
Cultivation	12	25.0
Compost	10	20.8
Other ( <i>frequency of one</i> )	2	4.2
Total landholders	48	100.0

Note: Based on landholders who undertook horticultural activities on their property in the two years prior to the survey.  
This is a multiple response table in which a respondent may be included in multiple rows.  
'Other' included 'sheep grazing' and 'stock'.

Source: EBC (2015).

Sixty-seven percent of landholders who undertook horticultural activities on their property also indicated they used soil amendments (Table 87).

Table 87: "Have you used soil amendments?"

Response	Count	Percent
Yes	36	66.7
No	18	33.3
Total landholders	54	100.0

Note: Based on landholders who undertook horticultural activities on their property in the two years prior to the survey.

Source: EBC (2015).

The majority of those landholders using soil amendments (72%) used animal manure to condition their soil (Table 88).

Table 88: "What type of soil amendments have you used?"

Soil amendments	Count	Percent
Animal manure	26	72.2
Gypsum	17	47.2
Compost	16	44.4
Cut cover crop from mid row	16	44.4
Total landholders	36	100.0

Note: Based on landholders who used soil amendments (Table 87).  
This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

Forty-four percent of landholders using soil amendments indicated the application was undertaken once a year (Table 89).

Table 89: "In a typical year, how often would you apply soil amendments?"

Frequency of application	Count	Percent
Once	16	44.4
Twice	8	22.2
Three times	0	0.0
As required	12	33.3
Total landholders	36	100.0

Note: Based on landholders who used soil amendments (Table 87).  
This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015)

## Water allocations

Amongst those landholders who undertook horticultural activities, 95% also indicated that they had a water allocation that they had used in the last two years (Table 90).

Table 90: “Do you have a water allocation that you have used in the last two years?”

Response	Count	Percent
Yes	53	94.6
No	3	5.4
Total landholders	56	100.0

Note: Based on landholders who undertook horticultural activities on their property in the two years prior to the survey.  
 Source: EBC (2015).

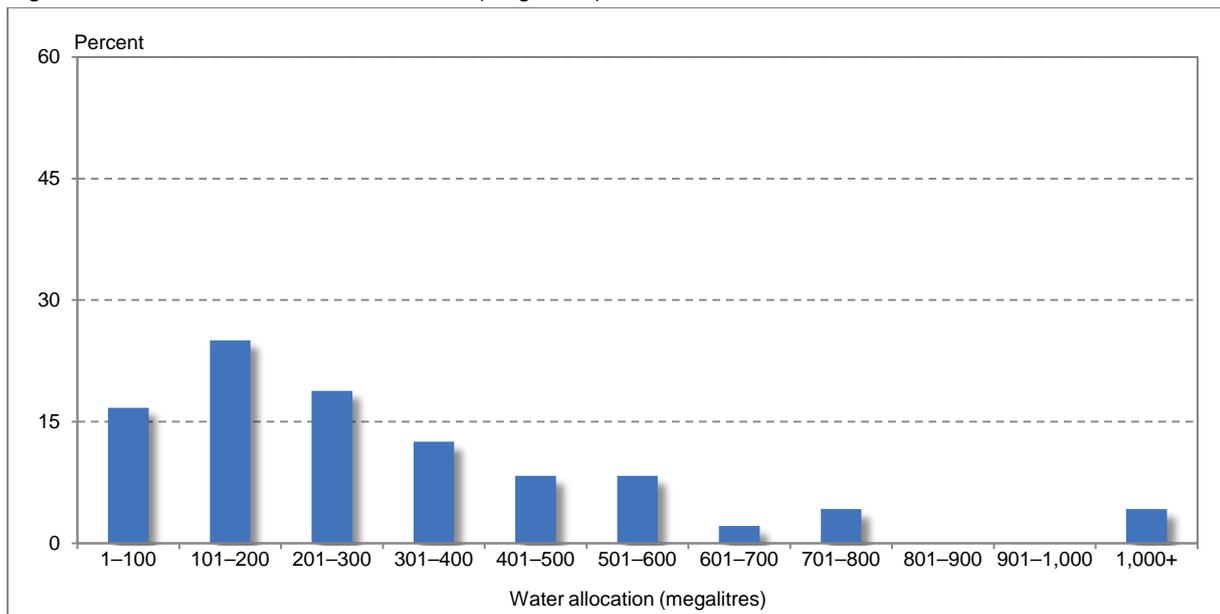
Table 91 and Figure 25 indicate the average current water allocation amongst horticulturalists was 249 megalitres.

Table 91: “What is your current water allocation?”

Megalitres	Count	Percent	Cumulative Percent
1 – 100	8	16.7	16.7
101 – 200	12	25.0	41.7
201 – 300	9	18.8	60.5
301 – 400	6	12.5	73.0
401 – 500	4	8.3	81.3
501 – 600	4	8.3	89.6
601 – 700	1	2.1	91.7
701 – 800	2	4.2	95.9
801 – 900	0	0.0	95.9
901 – 1,000	0	0.0	95.9
1,000+	2	4.2	100.0
Total landholders	48	100.0	
Median megalitres			248.5

Note: Based on landholders who undertook horticultural activities on their property in the two years prior to the survey and who also indicated they had a current water allocation.  
 Source: EBC (2015).

Figure 25: current water allocation volumes (megalitres)



Source: EBC (2015).

Of those landholders who had a water allocation, a third (33%) indicated they needed to increase their allocation (Table 92).

Table 92: “Do you see a need to increase your water allocation?”

Response	Count	Percent
Yes	17	32.7
No	35	67.3
Total landholders	52	100.0

Note: Based on landholders who undertook horticultural activities on their property in the two years prior to the survey and who also indicated they had a current water allocation.

Source: EBC (2015).

The average increase in allocation required by each landholder was 3 megalitres per hectare (Table 93).

Table 93: “By how much would you increase your water allocation?”

Megalitres per hectare	Count	Percent	Cumulative Percent
1.0 – 2.0	6	35.3	35.3
2.1 – 3.0	6	35.3	70.6
3.1 – 4.0	4	23.5	94.1
4.1 – 5.0	1	5.9	100.0
Total landholders	17	100.0	
Median megalitres per hectare			3.0

Note: Based on landholders who undertook horticultural activities on their property in the two years prior to the survey and who also indicated they had a current water allocation.

Source: EBC (2015).

The reasons for requiring an increase in water allocations was varied (Table 94), with several landholders (27%) indicating the increase in allocation was needed to address times in which conditions were dryer or there was drought.

Table 94: “Why do you need to increase your water allocation?”

Response	Count	Percent
Dry conditions and drought	4	26.7
Need more water	2	13.3
Planted greater area	1	6.7
Asset building	1	6.7
Increase production	1	6.7
Not enough - forced to sell through low prices	1	6.7
To grow other crops to be more viable	1	6.7
To have permanent water to match planting area	1	6.7
Trees growing	1	6.7
We are decreasing wine grape production and planting trees that require more water	1	6.7
Young plantings getting older	1	6.7
Total landholders	15	100.0

Note: Based on landholders who undertook horticultural activities on their property in the two years prior to the survey and who also indicated they had a current water allocation.

Source: EBC (2015).

## Irrigation methods

Sixty-three percent of horticultural production was irrigated through drip irrigation, 22% was irrigated with micro-sprinklers and 15% through overhead irrigation (Table 95).

Table 95: "What percentage of your horticultural production is irrigated with..."

Percentage	Drip			Micro sprinklers			Overheads		
	Count	Percent	Cum. Percent	Count	Percent	Cum. Percent	Count	Percent	Cum. Percent
0	11	22.0	22.0	33	66.0	66.0	41	82.0	82.0
1 – 10	4	8.0	30.0	0	0.0	66.0	0	0.0	82.0
11 – 20	0	0.0	30.0	3	6.0	72.0	0	0.0	82.0
21 – 30	1	2.0	32.0	3	6.0	78.0	0	0.0	82.0
31 – 40	1	2.0	34.0	1	2.0	80.0	0	0.0	82.0
41 – 50	1	2.0	36.0	1	2.0	82.0	1	2.0	84.0
51 – 60	1	2.0	38.0	0	0.0	82.0	1	2.0	86.0
61 – 70	2	4.0	42.0	0	0.0	82.0	1	2.0	88.0
71 – 80	3	6.0	48.0	0	0.0	82.0	1	2.0	90.0
81 – 90	1	2.0	50.0	2	4.0	86.0	1	2.0	92.0
91 – 100	25	50.0	100.0	7	14.0	100.0	4	8.0	100.0
Total landholders	50	100.0		50	100.0		50	100.0	
Mean percent			63.5			21.7			14.8

Note: Based on all landholders who undertook horticultural activities on their property in the two years prior to the survey and who also indicated they had a current water allocation.

Two other irrigation methods were identified which included 'furrow' (100%) and 'lake bed flooding' (100%).

Source: EBC (2015)

## Grazing for production

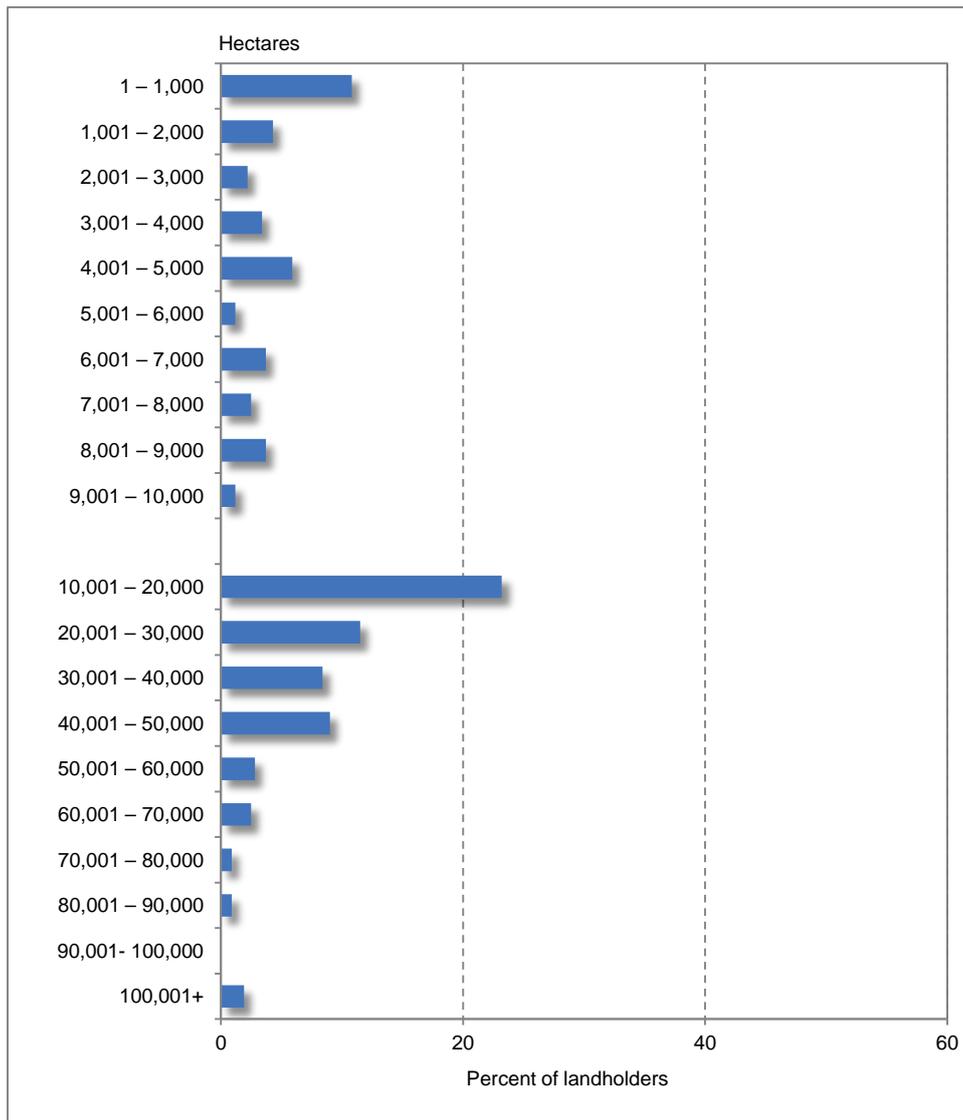
Seventy-nine percent of landholders indicated their property was used to graze livestock (Table 96) with livestock being grazed on an average of 14,480 hectares. In addition, 45% of landholders had a grazing area of between 10,000 and 30,000 hectares (Table 96 and Figure 26).

Table 96: "What area of your property is grazed by stock?"

Hectares	Count	Percent	Cumulative Percent
1 – 1,000	35	10.8	10.8
1,001 – 2,000	14	4.3	15.2
2,001 – 3,000	7	2.2	17.3
3,001 – 4,000	11	3.4	20.7
4,001 – 5,000	19	5.9	26.6
5,001 – 6,000	4	1.2	27.9
6,001 – 7,000	12	3.7	31.6
7,001 – 8,000	8	2.5	34.1
8,001 – 9,000	12	3.7	37.8
9,001 – 10,000	4	1.2	39.0
10,001 – 20,000	75	23.2	62.2
20,001 – 30,000	37	11.5	73.7
30,001 – 40,000	27	8.4	82.0
40,001 – 50,000	29	9.0	91.0
50,001 – 60,000	9	2.8	93.8
60,001 – 70,000	8	2.5	96.3
70,001 – 80,000	3	0.9	97.2
80,001 – 90,000	3	0.9	98.1
90,001- 100,000	0	0.0	98.1
100,001+	6	1.9	100.0
Total landholders grazing stock	323	78.8	
Total landholders not grazing stock	87	21.2	
Total landholders	410	100.0	
Median hectares grazed			14,480

Source: EBC (2015).

Figure 26: area of property grazed by stock



Source: EBC (2015).

Although there was no significant difference between survey periods in the percentage of landholders who grazed stock, there was however a change in the median hectares that were grazed (Table 97 and Figure 27). As shown in Table 97, the area of land grazed by stock in 2012 was significantly less than the area of land grazed in both 2009 and 2014.

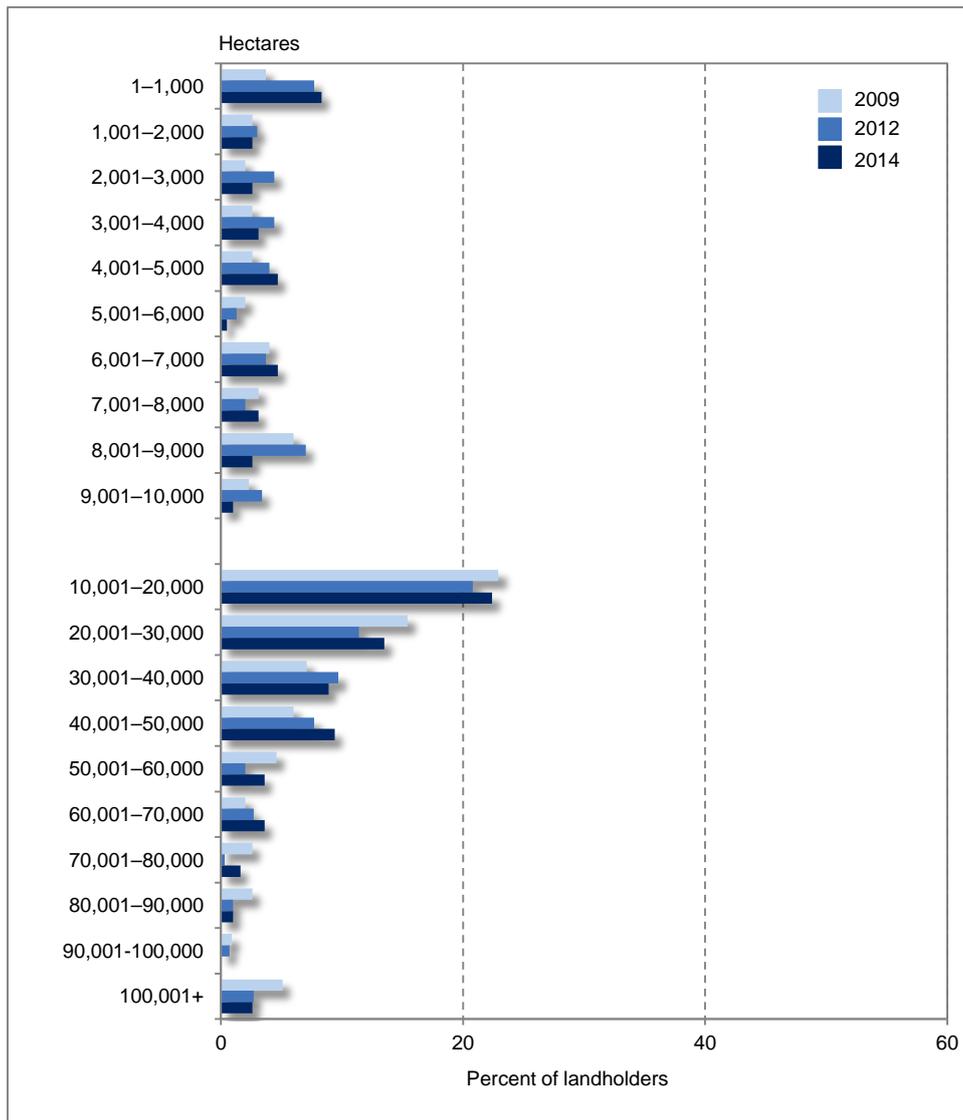
Table 97: a comparison of area grazed by stock between survey periods

Hectares	2009			2012			2014		
	Count	Percent	Cum. Percent	Count	Percent	Cum. Percent	Count	Percent	Cum. Percent
1 – 1,000	13	3.7	3.7	23	7.7	7.7	16	8.3	8.3
1,001 – 2,000	9	2.6	6.3	9	3.0	10.7	5	2.6	10.9
2,001 – 3,000	7	2.0	8.3	13	4.4	15.1	5	2.6	13.5
3,001 – 4,000	9	2.6	10.8	13	4.4	19.5	6	3.1	16.7
4,001 – 5,000	9	2.6	13.4	12	4.0	23.5	9	4.7	21.4
5,001 – 6,000	7	2.0	15.4	4	1.3	24.8	1	0.5	21.9
6,001 – 7,000	14	4.0	19.4	11	3.7	28.5	9	4.7	26.6
7,001 – 8,000	11	3.1	22.6	6	2.0	30.5	6	3.1	29.7
8,001 – 9,000	21	6.0	28.6	21	7.0	37.6	5	2.6	32.3
9,001 – 10,000	8	2.3	30.8	10	3.4	40.9	2	1.0	33.3
10,001 – 20,000	80	22.9	53.7	62	20.8	61.7	43	22.4	55.7
20,001 – 30,000	54	15.4	69.1	34	11.4	73.2	26	13.5	69.3
30,001 – 40,000	25	7.1	76.3	29	9.7	82.9	17	8.9	78.1
40,001 – 50,000	21	6.0	82.3	23	7.7	90.6	18	9.4	87.5
50,001 – 60,000	16	4.6	86.8	6	2.0	92.6	7	3.6	91.1
60,001 – 70,000	7	2.0	88.8	8	2.7	95.3	7	3.6	94.8
70,001 – 80,000	9	2.6	91.4	1	0.3	95.6	3	1.6	96.4
80,001 – 90,000	9	2.6	94.0	3	1.0	96.6	2	1.0	97.4
90,001- 100,000	3	0.9	94.8	2	0.7	97.3	0	0.0	97.4
100,001+	18	5.1	100.0	8	2.7	100.0	5	2.6	100.0
Grazing stock	350	93.3		298	91.7		192	89.3	
Not grazing stock	25	6.7		27	8.3		23	10.7	
Total landholders	375	100.0		325	100.0		215	100.0	
Median hectares			17,903			13,177			16,948

Note: There was a significant difference in the median hectares grazed between survey years.

Source: EBC (2015).

Figure 27: a comparison of area grazed by stock between survey periods



Source: EBC (2015).

## Pasture management practices during drought

In times of drought, 84% of landholders indicated they would reduce the number of stock they had to a core herd and 53% indicated they would provide supplementary feed (Table 98 and Figure 28).

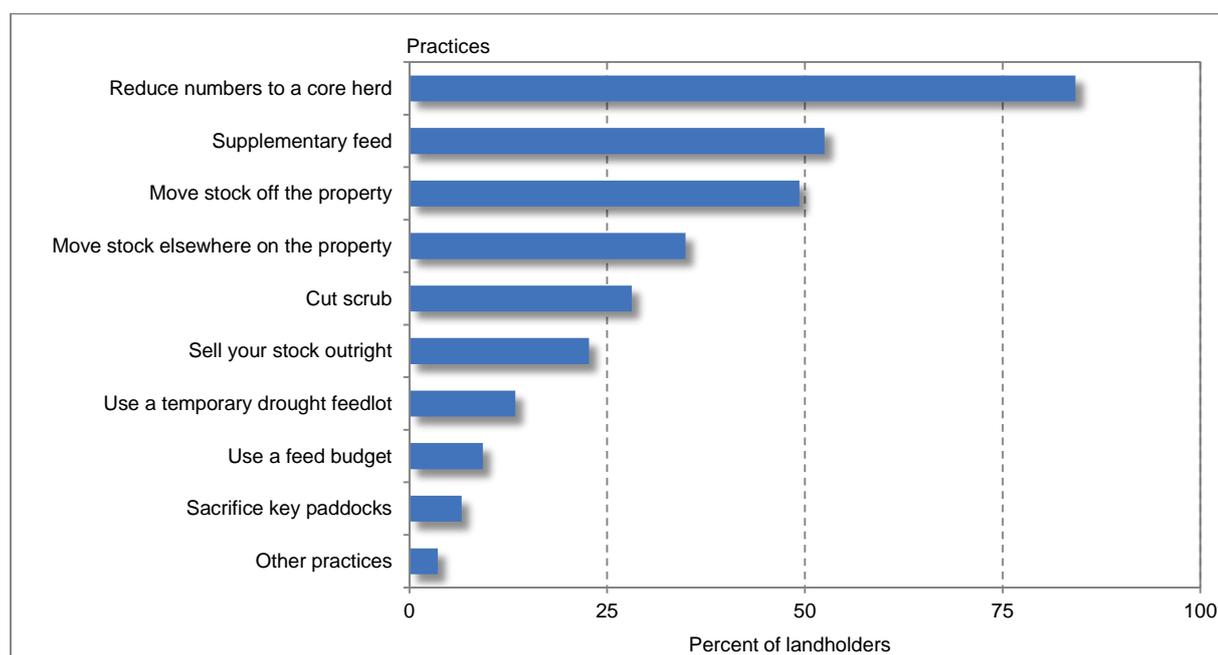
Table 98: “How would you manage your pastures in times of drought? Would you..”

Practices	Count	Percent
Reduce numbers to a core herd	282	84.2
Supplementary feed	176	52.5
Move stock off the property	165	49.3
Move stock elsewhere on the property	117	34.9
Cut scrub	94	28.1
Sell your stock outright	76	22.7
Use a temporary drought feedlot	45	13.4
Use a feed budget	31	9.3
Sacrifice key paddocks	22	6.6
Other practices( <i>frequency of one</i> )	12	3.6
Total landholders	335	304.5

Note: Based on landholders grazing stock on their property  
 This is a multiple response table in which a respondent may be included in multiple rows.  
 ‘Other practices’ include cell graze with minimum numbers, chain scrub, conservatively stock, gradually sell off stock early, have a drought plan, invest in bores, irrigate pastures, rotational graze, shoot excess smaller goats, understock in good times to protect feed, manage in stages depending on severity.

Source: EBC (2015).

Figure 28: practices used in managing pastures in time of drought



Source: EBC (2015).

A comparison of pasture management practices during drought across each of the three survey periods showed that in 2012 and relative to 2009 and 2014, landholders were significantly more likely to ‘move stock elsewhere on the property’ and ‘sacrifice key paddocks’ (Table 99 and Figure 29). In addition, in 2014 the number of landholders who indicated they would use temporary drought feedlots was significantly lower than in 2009 or 2012.

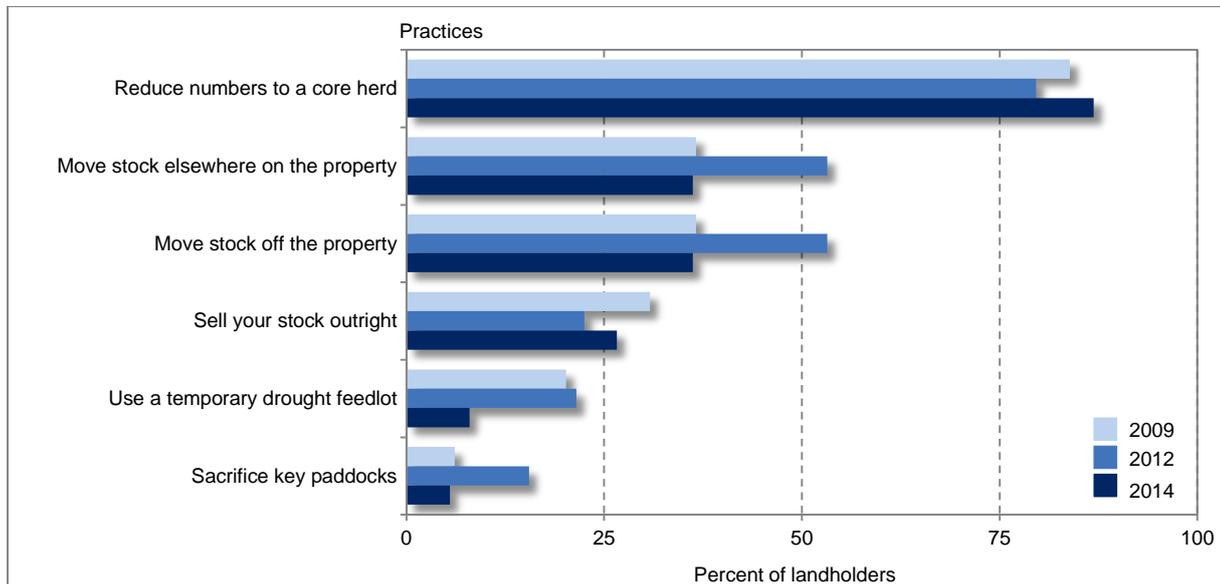
Table 99: a comparison of pasture management practices in times of drought between survey periods

Practices	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Reduce numbers to a core herd	291	83.9	226	79.6	173	86.9
Move stock elsewhere on the property*	127	36.6	151	53.2	72	36.2
Move stock off the property	127	36.6	151	53.2	72	36.2
Sell your stock outright	107	30.8	64	22.5	53	26.6
Use a temporary drought feedlot*	70	20.2	61	21.5	16	8.0
Sacrifice key paddocks*	21	6.1	44	15.5	11	5.5
Supplementary feed	-	-	-	-	108	54.3
Use a feed budget	-	-	-	-	22	11.1
Cut scrub	-	-	-	-	65	32.7
Total landholders	347	100.0	284	100.0	199	100.0

Note: Based on landholders grazing stock on their property  
 Comparisons between survey periods based landholders within the previous Western CMA boundary.  
 This is a multiple response table in which a respondent may be included in multiple rows.  
 ‘-’ question was not asked in the survey year.  
 \* indicates a significant difference in percentages between survey periods.

Source: EBC (2015).

Figure 29: a comparison of pasture management practices in times of drought between survey periods



Source: EBC (2015).

## Stock and pasture management

Two thirds of landholders (65%) indicated that in managing stock on their property they regularly moved stock between paddocks (Table 100).

Table 100: "In managing your property do you regularly move your stock between different paddocks to allow rest?"

Response	Count	Percent
Regularly move stock between paddocks	216	65.3
Don't move them	115	34.7
Total landholders	331	100.0

Note: Based on landholders grazing stock on their property  
Source: EBC (2015).

A comparison of pasture management practices in times of drought between survey periods shows the percentage of landholders who would regularly moved stock between paddocks declined significantly between 2012 (81%) an 2014 (65%), while landholders who didn't move their stock increased from 19% in 2012 to 35% in 2014 (Table 101).

Table 101: a comparison of pasture management practices in times of drought between survey periods

Responses	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Regularly move stock between paddocks	253	71.3	240	81.1	126	64.6
Don't move them	102	28.7	56	18.9	69	35.4
Total landholders	355	100.0	296	100.0	195	100.0

Note: Based on landholders grazing stock on their property  
Comparisons between survey periods based landholders within the previous Western CMA boundary.  
There was a significant difference in percentages between survey periods.  
Source: EBC (2015).

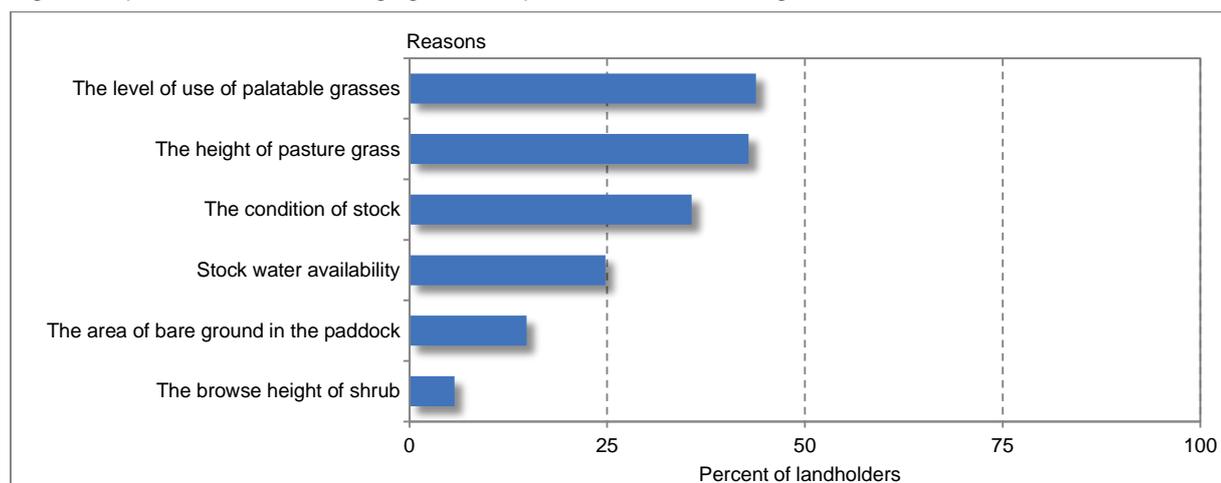
Two of the most commonly reported reasons for deciding on when to move stock between paddocks (Table 102 and Figure 30) were the level of use of palatable grasses (44%) and the height of pasture grasses (43%).

Table 102: "When making decisions about moving stock between paddocks on your property which of the following best describes your reasons to move stock?"

Reasons for moving stock	Count	Percent
The level of use of palatable grasses	92	43.8
The height of pasture grass	90	42.9
The condition of stock	75	35.7
Stock water availability	52	24.8
The area of bare ground in the paddock	31	14.8
The browse height of shrub	12	5.7
Total landholders	210	100.0

Note: Based on landholders who indicated they regularly move stock between paddocks.  
This is a multiple response table in which a respondent may be included in multiple rows.  
Source: EBC (2015).

Figure 30: practices used in managing stock on pastures in time of drought



Source: EBC (2015).

The reasons landholders gave for deciding on when to move stock between paddocks changed significantly between 2012 and 2014. In 2014 relative to 2012 significantly more landholders reported the 'level of use of palatable grasses' as a reason for moving stock, while significantly fewer landholders reported 'the condition of stock', 'stock water availability' and the 'area of bare ground in the paddock' (Table 103 and Figure 31).

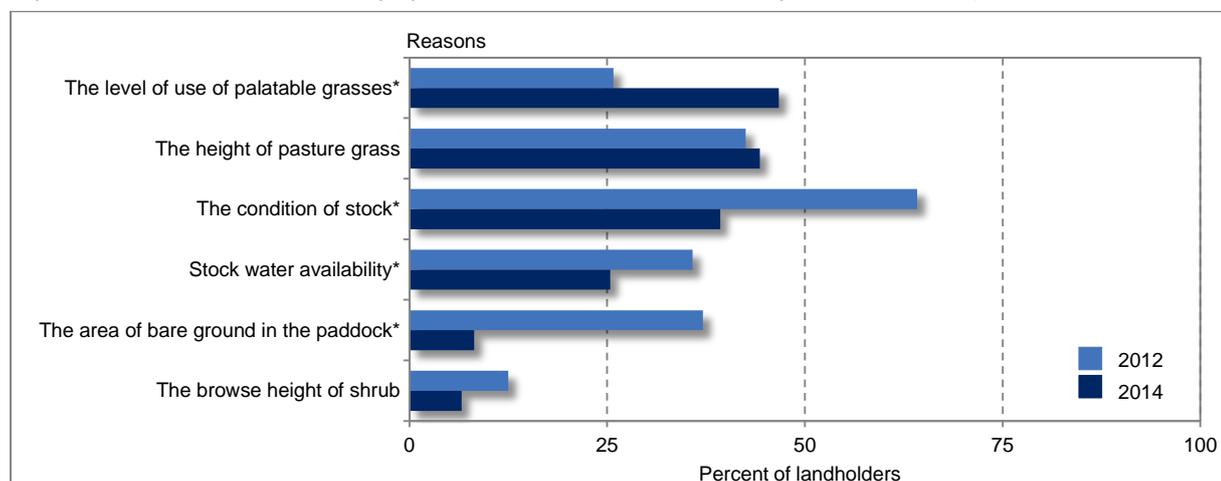
Table 103: a comparison of practices used in managing stock on pastures in time of drought between survey periods

Reasons for moving stock	2012		2014	
	Count	Percent	Count	Percent
The level of use of palatable grasses*	62	25.8	57	46.7
The height of pasture grass	102	42.5	54	44.3
The condition of stock*	154	64.2	48	39.3
Stock water availability*	86	35.8	31	25.4
The area of bare ground in the paddock*	89	37.1	10	8.2
The browse height of shrub	30	12.5	8	6.6
Total landholders	240	100.0	122	170.5

Note: Based on landholders who indicated they regularly move stock between paddocks. This is a multiple response table in which a respondent may be included in multiple rows. This question was not asked in the 2009 survey. \* indicates a significant difference between survey periods.

Source: EBC (2015).

Figure 31: practices used in managing stock on pastures in time of drought between survey periods



Source: EBC (2015).

## Stock access to watering points

The majority of landholders (54%) indicated they managed or controlled stock access to watering points (Table 104).

Table 104: "Do you manage or control stock access to watering points as part of your management of domestic or feral stock, through for example, fencing off watering points or turning tanks on or off?"

Response	Count	Percent
Control stock access to watering points	179	54.4
Don't control stock access to watering points	150	45.6
Total landholders	329	100.0

Note: Based on landholders grazing stock on their property

Source: EBC (2015).

As shown in Table 105, the management or control of stock access to watering points was significantly more common in 2009 (65%) and 2014 (61%) when compared to 2012 (43%).

Table 105: a comparison of controlling stock access to water points by survey periods

Responses	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Control stock access to watering points	232	65.2	129	43.3	118	60.8
Don't control stock access to watering points	124	34.8	169	56.7	76	39.2
Total landholders	356	100.0	298	100.0	194	100.0

Note: Based on landholders grazing stock on their property

Comparisons between survey periods based landholders within the previous Western CMA boundary.

There was a significant difference in percentages between survey periods.

Source: EBC (2015).

Two of the most commonly reported reasons for controlling stock access to watering points (Table 106 and Figure 32) were to trap feral goats (65%) and to control domestic stock movements (55%).

Table 106: "What are your main reasons for controlling stock access to watering points?"

Response	Count	Percent
Trap feral goats	114	64.8
Control domestic stock movements	96	54.5
Preserving available pasture	76	43.2
Exclude feral or native animals	71	40.3
Stock health	70	39.8
Prevent erosion	28	15.9
Preserve creek banks	18	10.2
Other reasons (frequency of one)	2	1.1
Total landholders	176	100.0

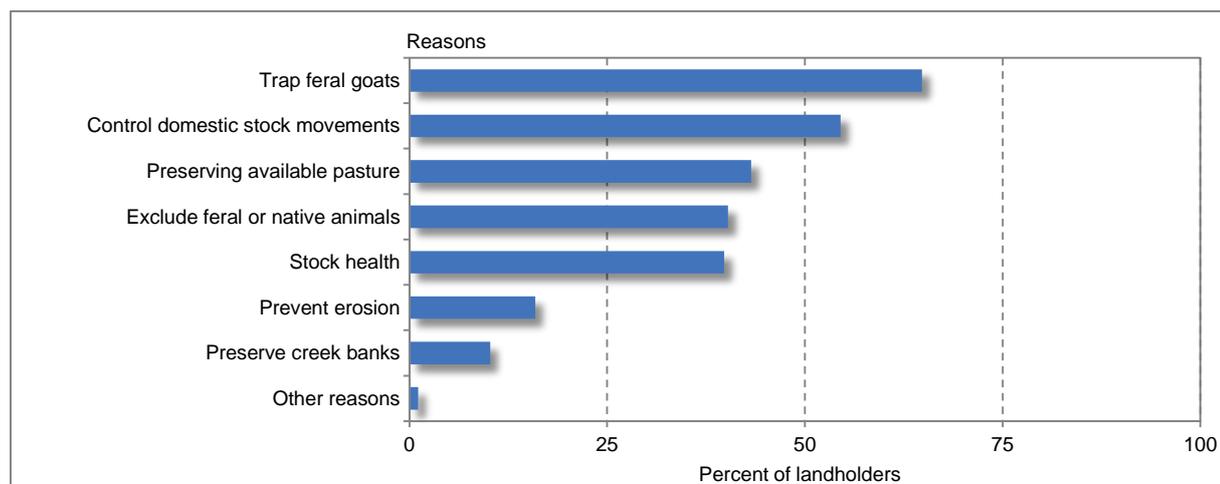
Note: This is a multiple response table in which a respondent may be included in multiple rows.

Based on those landholders with stock on their property and who controlled stock access to watering points.

'Other reason' included 'increasing or maintaining ground cover' and 'no stock, have to go more than 2kms to water'.

Source: EBC (2015).

Figure 32: main reasons for controlling stock access to watering points



Source: EBC (2015).

Relative to 2012, a significantly greater percentage of landholders in 2014 controlled stock access to watering points in order to trap feral goats, control domestic stock movements and exclude feral or native animals (Table 107 and Figure 33). In contrast fewer landholders in 2014 relative to 2012, controlled stock access to watering points because of stock health, to prevent erosion or preserve creek banks.

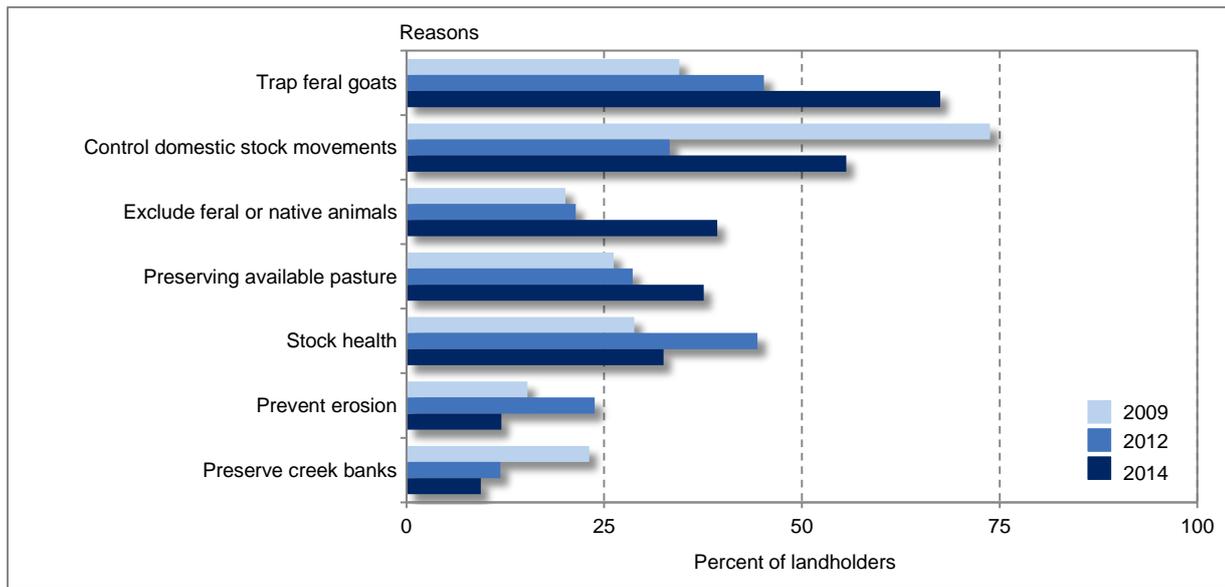
Table 107: a comparison of reasons for controlling stock access to water points by survey periods

Responses	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Trap feral goats*	79	34.5	57	45.2	79	67.5
Control domestic stock movements*	169	73.8	42	33.3	65	55.6
Exclude feral or native animals*	46	20.1	27	21.4	46	39.3
Preserving available pasture	60	26.2	36	28.6	44	37.6
Stock health*	66	28.8	56	44.4	38	32.5
Prevent erosion*	35	15.3	30	23.8	14	12.0
Preserve creek banks*	53	23.1	15	11.9	11	9.4
Total landholders	229	100.0	126	100.0	117	100.0

Note: Based on those landholders with stock on their property and who controlled stock access to watering points. Comparisons between survey periods based landholders within the previous Western CMA boundary. This is a multiple response table in which a respondent may be included in multiple rows. \* indicates a significant difference between survey periods.

Source: EBC (2015).

Figure 33: a comparison of reasons for controlling stock access to water points by survey periods



Source: EBC (2015).

### Total grazing pressure

Two thirds of landholders (63%) who grazed stock on their property indicated they would consider incorporating total grazing pressure fencing or multi-species exclusion fencing technologies on their property (Table 108).

Table 108: "Would you consider incorporating Total Grazing Pressure (TGP) fencing or multi-species exclusion fencing technologies on your property?"

Response	Count	Percent
Yes	203	62.7
No	121	37.3
Total landholders	324	100.0

Note: Based on landholders grazing stock on their property  
 TGP excludes kangaroos and goats. Multi-species excludes goats, kangaroos, wild dogs and pigs.

Source: EBC (2015).

When landholders were asked what percentage of groundcover they tried to maintain in their paddocks throughout the year, 58% reported 'whatever I can' (Table 109 and Figure 34). However, amongst those landholders who reported the percentage of groundcover they tried to maintain in paddocks, the average percent of groundcover maintained was 60%.

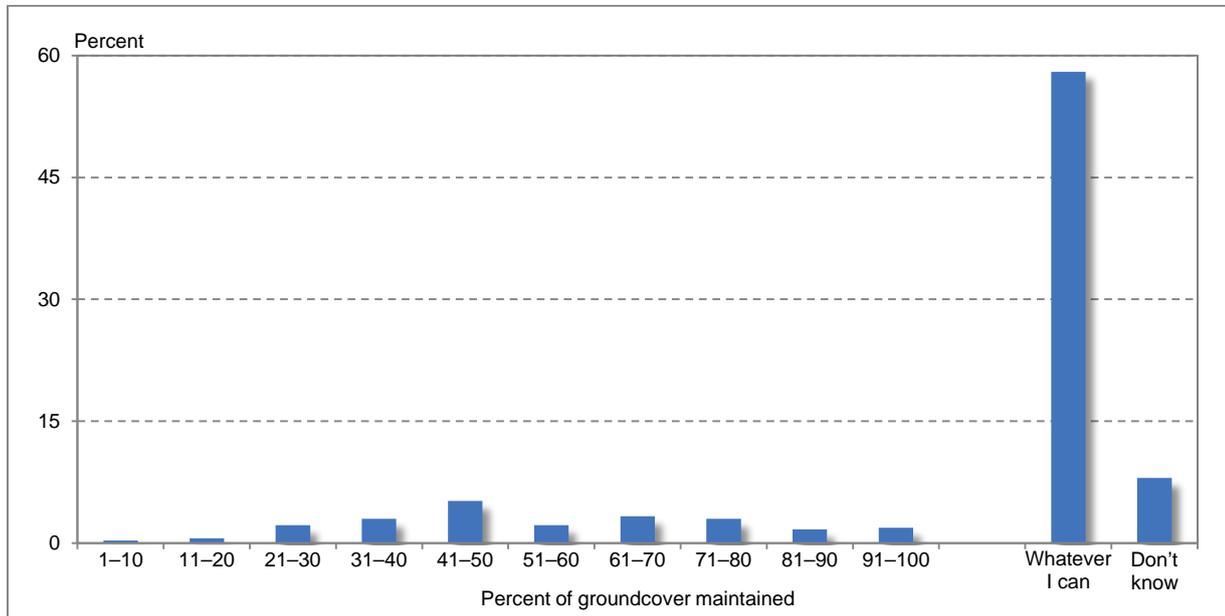
Table 109: "What percentage of groundcover do you try to maintain in the majority of your paddocks throughout the year?"

Percent of groundcover	Count	Percent
1 – 10	1	0.3
11 – 20	2	0.6
21 – 30	8	2.2
31 – 40	11	3.0
41 – 50	19	5.2
51 – 60	8	2.2
61 – 70	12	3.3
71 – 80	11	3.0
81 – 90	6	1.7
91 – 100	7	1.9
Whatever I can	210	58.0
Don't know	29	8.0
Total landholders	362	100.0
Median percent of groundcover		60.0

Note: Based on landholders grazing stock on their property  
 Groundcover was defined as 'any live or dead vegetation, rock or other protective cover that has the capacity to break or stop raindrops making contact with the soil.'

Source: EBC (2015).

Figure 34: percentage of groundcover maintained in paddocks throughout the year



Source: EBC (2015).

Table 110 and Figure 35 show no significant difference between survey periods in the average percentage of groundcover landholders tried to maintain in paddocks.

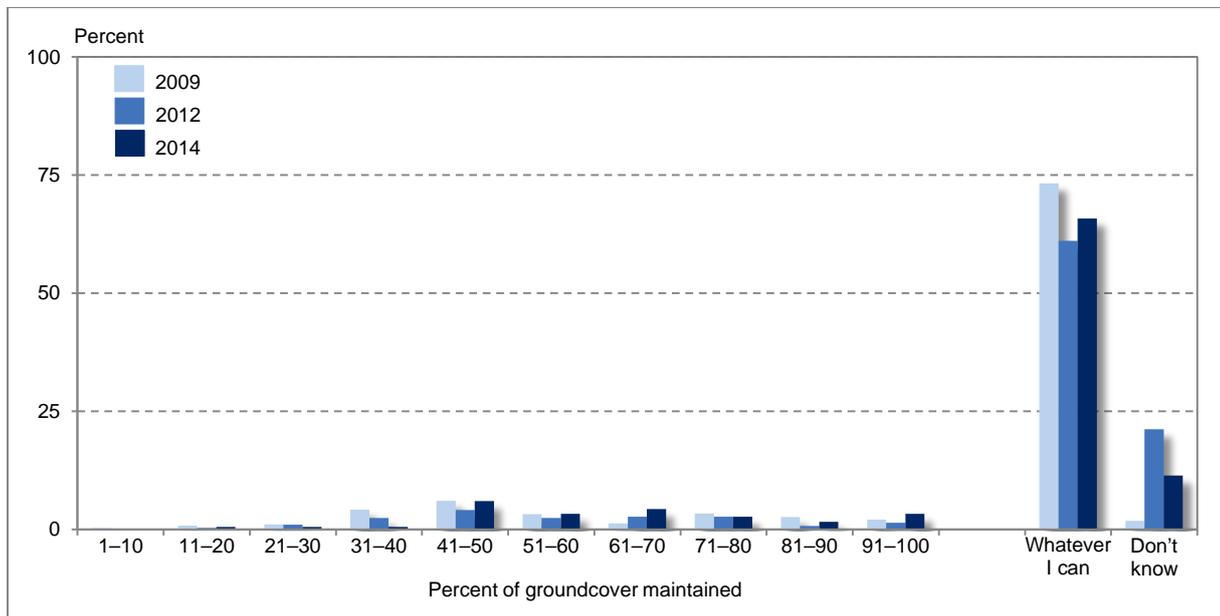
Table 110: a comparison of the percentage of groundcover maintained by survey periods

Percent of groundcover	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
1 – 10	1	0.3	0	0.0	0	0.0
11 – 20	3	0.8	1	0.3	1	0.5
21 – 30	4	1.1	3	1.0	1	0.5
31 – 40	16	4.2	7	2.4	1	0.5
41 – 50	23	6.1	12	4.1	11	6.0
51 – 60	12	3.2	7	2.4	6	3.3
61 – 70	5	1.3	8	2.7	8	4.3
71 – 80	13	3.4	8	2.7	5	2.7
81 – 90	10	2.6	2	0.7	3	1.6
91 – 100	8	2.1	4	1.4	6	3.3
Whatever I can	278	73.2	179	61.1	121	65.8
Don't know	7	1.8	62	21.2	21	11.4
Total landholders	380	100.0	293	100.0	184	100.0
Median percent of groundcover		55.0		60.0		60.0

Note: Groundcover was defined as 'any live or dead vegetation, rock or other protective cover that has the capacity to break or stop raindrops making contact with the soil.'  
 Comparisons between survey periods based landholders within the previous Western CMA boundary.  
 There was no significant difference in the medians between survey periods.

Source: EBC (2015).

Figure 35: a comparison of the percentage of groundcover maintained in paddocks between survey periods



Source: EBC (2015).

## Enterprise production and profitability

Thirty-eight percent of landholders indicated that in the last five years they had tried to increase production in their enterprise (Table 111).

Table 111: "In the last five years have you increased production in your enterprise(s) irrespective of seasonal conditions?"

Response	Count	Percent
Yes	161	38.4
No	258	61.6
Total landholders	419	100.0

Source: EBC (2015).

Amongst those landholders with livestock, 54% increased production of meat mass per hectare and 52% increased reproduction rates (Table 112); while amongst landholders involved in horticulture, 77% increased their crop yield and 43% had quality improvements.

Table 112: "In which of the following areas have you increased production?"

Response	Count	Percent
<b>Livestock</b>		
Meat mass (kg) produced per hectare	71	54.2
Reproduction rates	68	51.9
Wool cut per head	52	41.2
Growth rates	41	31.3
Wool (kg) produced per hectare	26	20.6
Other areas ( <i>frequency of one</i> )	5	3.8
Total landholders	131	100.0
<b>Horticulture</b>		
Yield (either per hectare or per crop)	27	77.1
Quality improvements (1st, 2nds etc.)	15	42.9
Protein content	3	8.6
Grow times	3	8.6
Other areas ( <i>frequency of one</i> )	3	8.6
Total landholders	35	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

The percentage base is all landholders who indicated they had increased production in the last five years

Source: EBC (2015).

Amongst landholders involved in livestock production (Table 113) the reasons underpinning an increase in production were improved 'grazing management' (48%); 'genetics' (43%) and 'control of predators' (43%). Amongst landholders involved in horticulture (Table 113) improved production was related to a number of factors, including for example adjustments to nutrition (9%), improvements to infrastructure (9%) and an increase in production area (9%).

Table 113: "What have been the main reasons that have led to these production increases?"

Response	Count	Percent
Managing seasonal variation	72	44.7
Enterprise change	37	23.0
Education and training	30	18.6
Technology	28	17.4
Improved disease/parasite management	20	12.4
External service provider engagement	12	7.5
Other reasons ( <i>frequency of one</i> )	19	11.8
<b>Livestock</b>		
Grazing management	78	48.4
Genetics	69	42.9
Control of predators	60	37.3
Infrastructure development	57	35.4
Reduced competition from feral animals	51	31.7
Animal husbandry	46	28.6
Stocking rate increase	28	17.4
Nutrition	28	17.4
Stoking rate decrease	20	12.4
Rangeland rehabilitation	16	9.9
<b>Horticulture</b>		
Adjustments to nutrition program (fertilisers)	15	9.3
Improvements to infrastructure I.e., irrigation systems)	15	9.3
Increase in production area	14	8.7
Other technology introductions	10	6.2
Adjustments to pest or disease management programs	10	6.2
Variety selection (genetics)	8	5.0
Growing different or additional lines	8	5.0
Increasing or adjusting planting densities	3	1.9
Total landholders	161	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
 The percentage base is all landholders who indicated they had increased production in the last five years  
 "Other reasons" included hard work, having the resources, management skill, more fertiliser, more trees, new varieties, seasons, self-learning, self-management, stocked the property

Source: EBC (2015).

Nearly a third (60%) of all landholders believed they would improve their production over the next five years (Table 114).

Table 114: "Do you think you will improve production over the next five years?"

Response	Count	Percent
Yes	252	60.0
No	167	39.8
Total landholders	420	100.0

Source: EBC (2015).

Amongst landholders involved in livestock production (Table 115) the main reasons for improved production were an improvement in the control of predators (58%), improved nutrition (45%) and an increase in stocking rates (42%). Amongst those landholders involved in horticulture (Table 115), there were a number of reasons underlying an improvement in production including for example an increase in the area of production (7%), improved variety selection (6%) and increasing or adjusting planting densities (6%).

Table 115: "What do you think will be the main reasons for any improvement in production in the next five years?"

Response	Count	Percent
Technology	113	44.8
Managing seasonal variation	54	21.4
Improved disease/parasite management	46	18.3
Education and training	41	16.3
External service provider engagement	37	14.7
Enterprise change	18	7.1
Other reasons ( <i>frequency of one</i> )	52	20.6
<b>Livestock</b>		
Control of predators	145	57.5
Nutrition	109	43.3
Stocking rate increase	105	41.7
Genetics	91	36.1
Infrastructure development	88	34.9
Grazing management	82	32.5
Animal husbandry	68	27.0
Stoking rate decrease	49	19.4
Rangeland rehabilitation	36	14.3
Reduced competition from feral animals	21	8.3
<b>Horticulture</b>		
Increase in production area	18	7.1
Variety selection (genetics)	16	6.3
Increasing or adjusting planting densities	15	6.0
Improvements to infrastructure i.e., irrigation systems)	14	5.6
Adjustments to nutrition program (fertilisers)	12	4.8
Growing different or additional lines	10	4.0
Other technology introductions	7	2.8
Adjustments to pest or disease management programs	3	1.2
Total landholders	252	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
The percentage base is all landholders who indicated they would improve production in the next five years

Source: EBC (2015).

In addition to the predefined reasons underpinning improvements in production (Table 115), landholders also reported additional reasons for a future improvement in production (Table 116), which included specifically an improvement in the seasons.

Table 116: Other reasons for improvement in production in the next five years

Response	Count	Percent
Improved seasons	16	30.8
Improved farm or property management	3	5.8
Improvements in water use and efficiency	3	5.8
Young plantings	3	5.8
Clearing of land	2	3.8
Fencing	2	3.8
Improve flock and herd quality	2	3.8
Increasing land area	2	3.8
Soil improvement	2	3.8
Trees approaching maturity	2	3.8
Other reasons ( <i>frequency of one</i> )	18	34.6
Total landholders	52	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Use of fire

Only 19% of landholders indicated they purposefully used fire to improve the condition of their land (Table 117), with the majority of these landholders (15%) using fire for this purpose at least three times a year or more.

Table 117: "In the past 2 years how often have you purposefully used fire to improve the condition of your land?"

Response	Count	Percent
None	351	80.5
Once	23	5.3
2-3 times	42	9.6
4-6 times	10	2.3
More than 7 times	10	2.3
Total landholders	436	100.0

Source: EBC (2015).

## Invasive native scrub

Slightly more than half (55%) of all landholders indicated that during the time they had been on their property, invasive native scrub had been a problem (Table 118).

Table 118: "During the time you have been on your property has invasive native scrub ever been a problem?"

Response	Count	Percent
Yes	237	54.5
No	198	45.5
Total landholders	435	100.0

Source: EBC (2015).

Although Table 119 shows in 2014 a significant increase in the percentage of landholders reporting invasive native scrub as a problem, this may also be due to differences in the wording of the question between survey periods. In 2014 the question asked whether invasive native scrub had been a problem during the time the landholder had been on the property, while in 2009 and 2012 the question asked whether invasive native scrub was a problem.

Table 119: a comparison of invasive native scrub as a problem between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Yes	250	65.6	185	56.4	157	70.1
No	131	34.4	143	43.6	67	29.9
Total landholders	381	100.0	328	100.0	224	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary. There was a significant difference in the percentages between survey periods.

In 2009 and 2012 the question was "do you have a problem with invasive native scrub or woody weeds on your property?"

Source: EBC (2015).

Forty-three percent of landholders indicated invasive native scrub to be a major problem on their property (Table 120).

Table 120: "In your opinion, would you say invasive native scrub on your property is a..."

Response	Count	Percent
Minor problem (1)	48	20.4
Moderate problem	87	37.0
Major problem (3)	100	42.6
Total landholders	235	100.0
Mean score		2.22

Note: Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.

Source: EBC (2015).

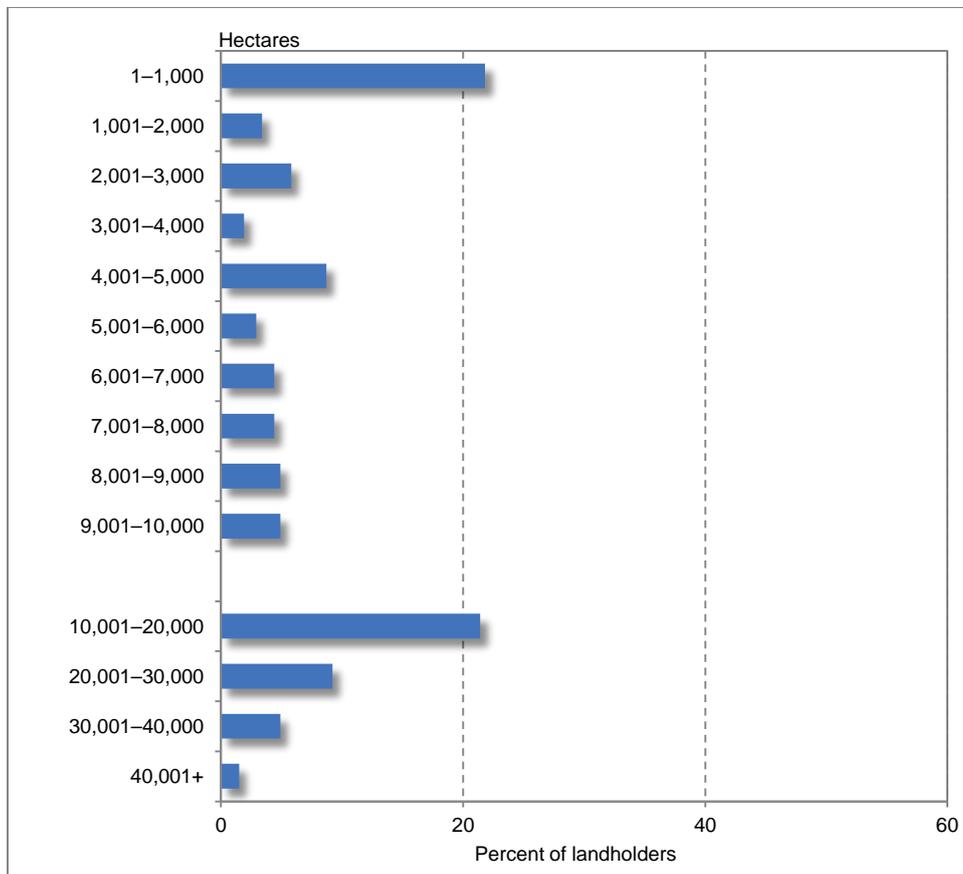
Table 121 and Figure 36 show that invasive native scrub was a problem over an average 7,183 hectares of property.

Table 121: "Over what area of your property is invasive native scrub a problem?"

Hectares	Count	Percent	Cumulative Percent
1 – 1,000	45	21.8	21.8
1,001 – 2,000	7	3.4	25.2
2,001 – 3,000	12	5.8	31.1
3,001 – 4,000	4	1.9	33.0
4,001 – 5,000	18	8.7	41.7
5,001 – 6,000	6	2.9	44.7
6,001 – 7,000	9	4.4	49.0
7,001 – 8,000	9	4.4	53.4
8,001 – 9,000	10	4.9	58.3
9,001 – 10,000	10	4.9	63.1
10,001 – 20,000	44	21.4	84.5
20,001 – 30,000	19	9.2	93.7
30,001 – 40,000	10	4.9	98.5
40,001 +	3	1.5	100.0
Total landholders	206	100.0	
Median hectares			7,183

Note: Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.  
 Source: EBC (2015).

Figure 36: area of property with invasive native scrub



Source: EBC (2015).

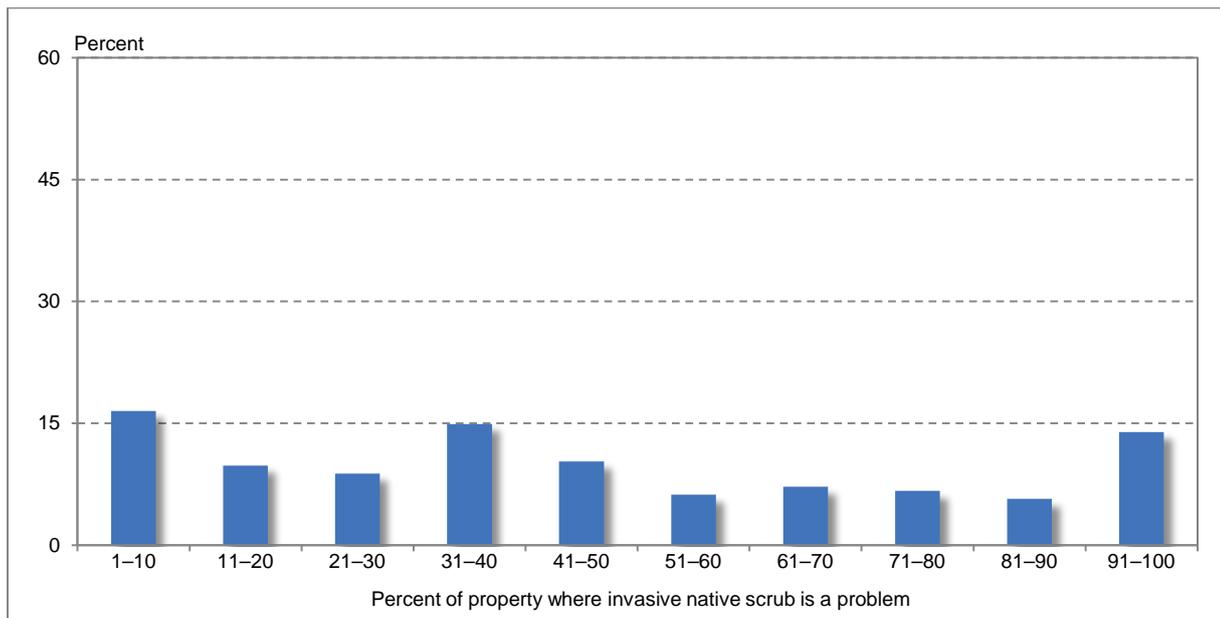
The area of the property over which invasive native scrub was a problem relative to total property size, indicates that invasive native scrub was a problem over an average of 40% of properties (Table 122 and Figure 37).

Table 122: percent of total property where invasive native scrub is a problem

Percent	Count	Percent	Cumulative Percent
1 – 10	32	16.5	16.5
11 – 20	19	9.8	26.3
21 – 30	17	8.8	35.1
31 – 40	29	14.9	50.0
41 – 50	20	10.3	60.3
51 – 60	12	6.2	66.5
61 – 70	14	7.2	73.7
71 – 80	13	6.7	80.4
81 – 90	11	5.7	86.1
91 – 100	27	13.9	100.0
Total landholders	194	100.0	
Median percent			40.2

Note: Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.  
 Source: EBC (2015).

Figure 37: percent of property where invasive native scrub was a problem



Source: EBC (2015).

## Management of invasive native scrub

Nearly two-thirds (61%) of landholders who reported that invasive native scrub was or had been a problem on their property also indicated they had actively managed the problem in the last two years (Table 123).

Table 123: "In the last 2 years have you actively managed invasive native scrub on your property?"

Response	Count	Percent
Yes	137	60.9
No	91	39.1
Total landholders	225	100.0

Note: Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.  
 Source: EBC (2015).

The two most common methods used in controlling invasive native scrub (Table 124) were herbicide control (53%) and mechanical methods such as ploughing, grubbing, chaining (44%).

Table 124: "Which of the following methods have you used to control invasive native scrub?"

Methods	Count	Percent
Chemicals	72	52.6
Ploughing, grubbing, chaining or other mechanical methods	60	43.8
Grazing goats	37	27.0
Fire	31	22.6
Cultivation such as cropping	30	21.9
Controlling stocking rates and total amount of grazing	26	19.0
Other methods	1	0.7
Total landholders	137	100.0

Note: Percentages based on landholders who had actively managed invasive native scrub on their property in the last two years.  
 This is a multiple response table in which a respondent may be included in multiple rows.  
 Source: EBC (2015).

A comparison of methods used to control invasive native scrub between survey periods (Table 125) showed that only the use of chemicals changed between survey periods, with landholders more likely to use chemicals in 2012 (66%) relative to 2009 (53%) and 2014 (50%).

Table 125: a comparison of methods used to control invasive native scrub between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Chemicals*	72	52.6	79	65.8	45	49.5
Blade ploughing, grubbing or other mechanical	79	57.7	55	45.8	42	46.2
Grazing goats	36	26.3	36	30.0	31	34.1
Fire	25	18.2	33	27.5	24	26.4
Controlling stocking rates and total amount of grazing	39	28.5	37	30.8	20	22.0
Cultivation such as cropping	16	11.7	15	12.5	12	13.2
Total landholders	137	100.0	120	100.0	91	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary.  
 This is a multiple response table in which a respondent may be included in multiple rows.  
 \* Indicates there was a significant difference in the percentages between survey periods.  
 Source: EBC (2015).

A third of all landholders (36%) who had experienced invasive native scrub as a problem indicated they had been able to successfully manage the problem on their property (Table 126).

Table 126: "Have you been able to successfully manage the invasive native scrub?"

Response	Count	Percent
Yes	85	36.2
No	150	63.8
Total landholders	235	100.0

Note: Percentages based on landholders who reported invasive native scrub was or had been a problem on their property.  
Source: EBC (2015).

The two most commonly reported methods of successfully managing invasive native scrub (Table 127) were herbicide control (40%) and mechanical control through ploughing, ripping, crocodiling or chaining (30%).

Table 127: "What was the main thing you did to successfully manage the invasive native scrub?"

Practices	Count	Percent
Herbicide control	29	39.7
Ploughing, ripping, crocodiling or chaining	27	30.0
Cultivation and cropping	9	12.3
Grazing management	9	12.3
Fire management	7	9.6
Clearing (general)	6	8.2
Use of goats	4	5.5
Pulling	4	5.5
Fencing	3	4.1
Increase ground cover	3	4.1
Management of new growth	2	2.7
Other practices( <i>frequency of one</i> )	5	6.8
Total landholders	73	100.0

Note: Percentages based on those landholders who had been able to successfully manage invasive native scrub.  
This is a multiple response table in which a respondent may be included in multiple rows.  
Source: EBC (2015).

The majority of landholders (71%) indicated they controlled invasive native scrub through multiple follow up treatments (Table 128).

Table 128: "Do you control invasive native scrub with one treatment or multiple follow up treatments?"

Response	Count	Percent
One treatment	51	29.1
Multiple follow up treatments	124	70.9
Total landholders	175	100.0

Note: Percentages based on landholders who had actively managed invasive native scrub on their property in the last two years.  
Source: EBC (2015).

A comparison of treatment frequencies used to control invasive native scrub between survey periods (Table 129) showed a significant decline in the use of multiple follow up treatments in 2014 (72%) relative to 2012 (94%).

Table 129: a comparison of treatment frequencies used to control invasive native scrub between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
One treatment	16	11.6	7	5.8	30	27.8
Multiple follow up treatments	122	88.4	114	94.2	78	72.2
Total landholders	138	100.0	121	100.0	108	100.0

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary. There was a significant difference in the percentages between survey periods.

Source: EBC (2015).

### Capacity to manage invasive native scrub

Table 130 shows that favourable climate and seasonal conditions (48%), good markets and income for products (46%) and favourable land and water conditions (45%) were resources most landholders had available to manage invasive native scrub. On the other hand, fewer landholders had the practical skills to address the issue (9%), the support from neighbours or formal groups (9%) and support from businesses and contactors (4%).

Table 130: "In managing invasive native scrub on your property do you currently have...?"

Resources	Count	Percent
Favourable climate and seasonal conditions	87	48.1
Good markets and income for your products	84	46.4
Favourable land and water conditions on your property	82	45.3
Optimism about addressing the issue	68	37.6
Good health so as to undertake the work	58	32.0
Equipment, machinery and materials to address the issue	57	31.5
A property able to support change	46	25.4
Time available to do the work	43	23.8
Access to credit and funds to undertake the work	35	19.3
People to help do the work	35	19.3
Support from friends and family	32	17.7
A belief that you could address the issue	24	13.3
The knowledge of how to address the issue	21	11.6
Practical skills to address the issue	17	9.4
Support from neighbours or formal group	16	8.8
Support from businesses and contactors	8	4.4
Total landholders	181	100.0

Note: Percentages based on landholders who had actively managed invasive native scrub on their property in the last two years. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

Categorising the items presented in Table 130 into the six forms of capital (Table 131 and Figure 38) shows that in the control of invasive native scrub, landholders are most likely to have the physical capital available (equipment, machinery and materials), but least likely to have the financial, natural and social capital available to manage invasive native scrub.

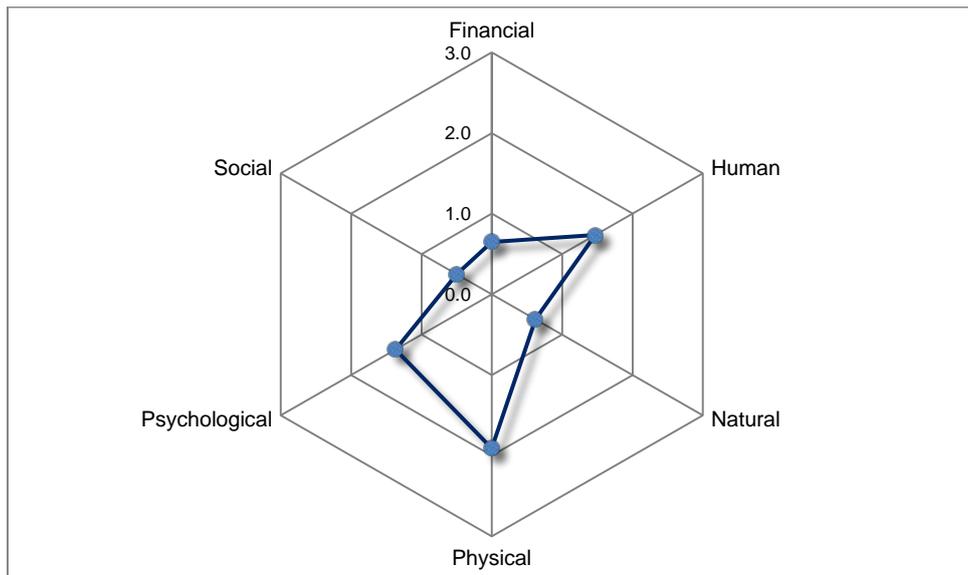
Table 131: resources available to manage invasive native scrub

Capital	Mean score	Sample size
Physical	1.91	182
Human	1.47	182
Psychological	1.37	182
Financial	0.65	182
Natural	0.62	182
Social	0.50	181

Note: Means based on landholders who had actively managed invasive native scrub on their property in the last two years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources) The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 38: resources available to manage invasive native scrub



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Landholder’s ability to address invasive native scrub was relatively mixed (Table 132), with 43% indicating they had low or very low ability and 22% indicating they had high or very high ability to manage invasive native scrub.

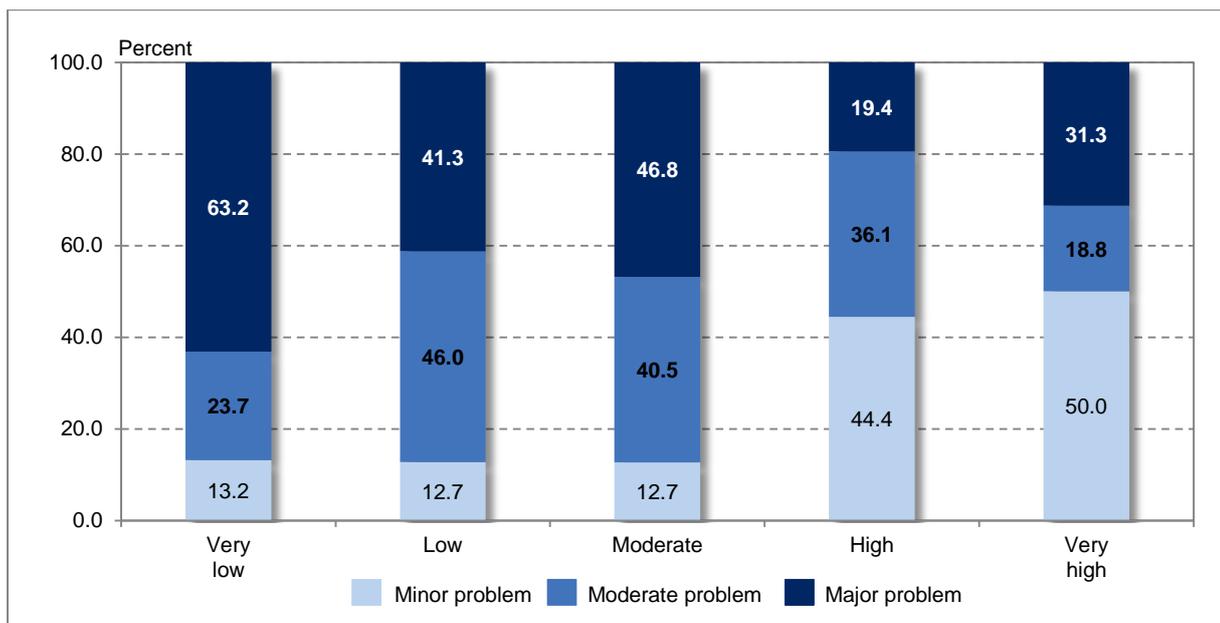
Table 132: “Would you say your ability to address invasive native scrub is...”

Ability to address issue	Count	Percent
Very low (1)	38	16.3
Low	63	27.0
Moderate	80	34.3
High	36	15.5
Very high (5)	16	6.9
Total landholders	233	100.0
Mean score		2.70

Note: Percentages based on landholders who had actively managed invasive native scrub on their property in the last two years.  
 Source: EBC (2015).

Figure 39 shows that landholders who report lower ability to manage invasive native scrub are also more likely to report invasive native scrub as more of a problem on their property. Conversely, landholders who have higher ability to manage invasive native scrub are also more likely to report it as only a minor problem on their property.

Figure 39: extent of problem and ability to address invasive native scrub



Source: EBC (2015).

The main reasons landholders reported low to moderate ability in managing invasive native scrub (Table 133) was the 'lack of money' (65%), regulations or legislation (44%) and lack of time (39%).

Table 133: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Lack of money	115	65.3
Regulations or legislation	78	44.3
Lack of time	69	39.2
Lack of machinery, equipment or materials	55	31.3
Lack of labour and help	55	31.3
Seasons and climate	53	30.1
Lack of knowledge	31	17.6
Don't live on the property	20	11.4
Too old	13	7.4
Cannot be fixed	12	6.8
Topography of my land	11	6.3
My poor health	11	6.3
Poor land condition	10	5.7
No help or support from neighbours	7	4.0
No need to address issue	6	3.4
Other reasons ( <i>frequency of one</i> )	6	3.4
Total landholders	176	100.0

Note: Based on those landholders who reported their ability to address invasive native scrub was very low, low or moderate. This is a multiple response table in which a respondent may be included in multiple rows.

## Introduced weeds

Forty-one percent of all landholders indicated that during the time they had been on their property introduced weeds had been a problem (Table 134).

Table 134: "During the time you have been on your property have introduced weeds ever been a problem?"

Response	Count	Percent
Yes	179	41.1
No	256	58.9
Total landholders	435	100.0

Source: EBC (2015).

Only 10% of landholders with introduced weeds indicated introduced weeds to be a major problem, with 35% indicating it to be a moderate problem and 56% indicating it was a minor problem (Table 135).

Table 135: "In your opinion, would you say weeds on your property are a...."

Response	Count	Percent
Minor problem (1)	100	55.9
Moderate problem	62	34.6
Major problem (3)	17	9.5
Total landholders	179	100.0
Mean score		1.54

Note: Percentages based on landholders who reported weeds were or had been a problem on their property.

Source: EBC (2015).

## Management of introduced weeds

Two-thirds (67%) of landholders who reported introduced weeds as a problem also indicated they had actively managed the problem in the last two years (Table 136).

Table 136: "In the last 2 years have you actively managed weeds on your property?"

Response	Count	Percent
Yes	119	66.9
No	59	33.1
Total landholders	178	100.0

Note: Percentages based on landholders who reported weeds were or had been a problem on their property.

Source: EBC (2015).

In addition, two-thirds (63%) of landholders who reported introduced weeds as a problem also indicated they had successfully managed the problem (Table 137).

Table 137: "Have you been able to successfully manage introduced weeds on your property?"

Response	Count	Percent
Yes	110	62.9
No	65	37.1
Total landholders	175	100.0

Note: Percentages based on landholders who reported weeds were or had been a problem on their property.

Source: EBC (2015).

Table 138 indicates for the majority of landholders (69%) the most successful method in controlling introduced weeds was herbicide control.

Table 138: "What was the main thing you did to successfully manage introduced weeds?"

Response	Count	Percent
Herbicide control	70	68.6
Mechanical control	14	13.7
Manual removal	12	11.8
Cultivation	8	7.8
Removed weeds (general)	6	5.9
Fire and burning	5	4.9
Changed grazing management	5	4.9
Monitored growth of weeds	3	2.9
Goat management	2	2.0
Other practices ( <i>frequency of one</i> )	6	5.9
Total landholders	102	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
Source: EBC (2015).

## Capacity to manage introduced weeds

Table 139 shows that favourable land and water conditions (64%), favourable climate and seasonal conditions (61%), good markets and income for products (59%) were resources most landholders had available to manage introduced weeds. On the other hand, few landholders had the practical skills to address the issue (9%), the support from neighbours or formal groups (9%) and support from businesses and contactors (4%).

Table 139: "In managing introduced weeds on your property do you currently have...?"

Resources	Count	Percent
Favourable land and water conditions on your property	76	64.4
Favourable climate and seasonal conditions	72	61.0
Good markets and income for your products	70	59.3
Optimism about addressing the issue	57	48.3
Good health so as to undertake the work	38	32.2
Equipment, machinery and materials to address the issue	37	31.4
Time available to do the work	29	24.6
People to help do the work	24	20.3
Access to credit and funds to undertake the work	22	18.6
A property able to support change	21	17.8
Support from friends and family	18	15.3
A belief that you could address the issue	15	12.7
The knowledge of how to address the issue	13	11.0
Practical skills to address the issue	10	8.5
Support from neighbours or formal group	6	5.1
Support from businesses and contactors	5	4.2
Total landholders	118	100.0

Note: Percentages based on those landholders who have actively managed weeds on their property in the last two years.  
This is a multiple response table in which a respondent may be included in multiple rows.  
Source: EBC (2015).

Categorising the items presented in Table 139 into the six forms of capital (Table 140 and Figure 40) shows that in the control of introduced weeds, landholders are most likely to have the physical capital available (equipment, machinery and materials), but least likely to have the financial, natural and social capital available to manage introduced weeds.

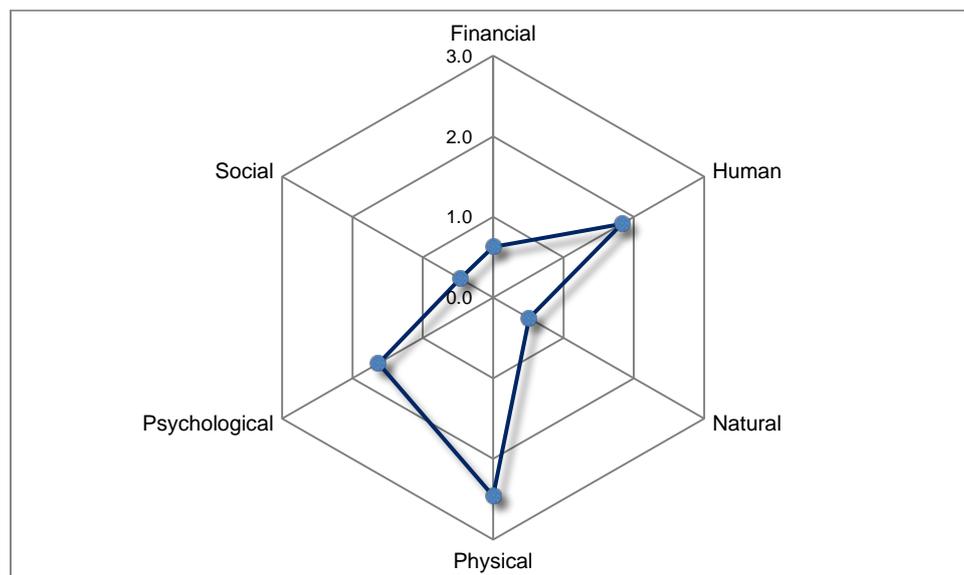
Table 140: resources available to manage introduced weeds

Capital	Mean score	Sample size
Physical	2.46	112
Human	1.83	112
Psychological	1.63	112
Financial	0.63	112
Natural	0.51	112
Social	0.47	112

Note: Means based on those landholders who have actively managed weeds on their property in the last two years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 40: resources available to manage introduced weeds



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Twenty-one percent of landholders indicated they low ability to address introduced weeds, while 47% of landholders indicated they had high ability (Table 141).

Table 141: "Would you say your ability to address introduced weeds..."

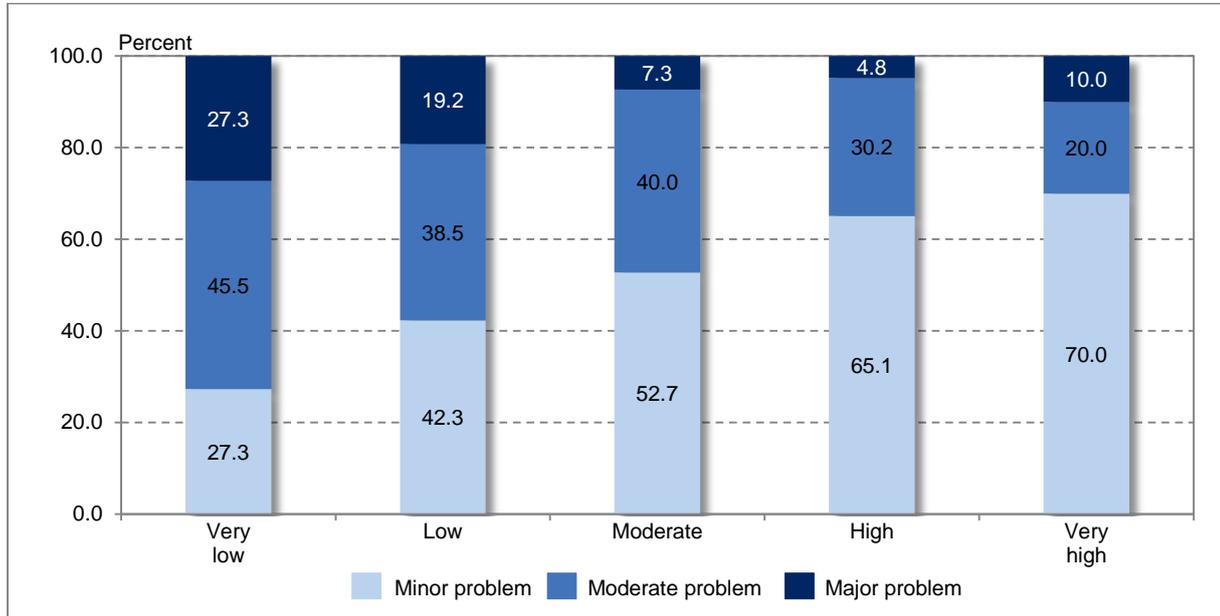
Ability to address issue	Count	Percent
Very low (1)	11	6.3
Low	26	14.9
Moderate	55	31.4
High	63	36.0
Very high (5)	20	11.4
Total landholders	175	100.0
Mean score		3.31

Note: Percentages based on landholders who reported weeds were or had been a problem on their property.

Source: EBC (2015).

Figure 41 clearly shows that landholders who report lower ability to manage introduced weeds are also more likely to report introduced weeds as more of a problem on their property. Conversely, landholders who have higher ability to manage introduced weeds are also more likely to report it as only a minor problem on their property.

Figure 41: extent of problem and ability to address introduced weeds



Source: EBC (2015).

The main reasons landholders reported low to moderate ability in managing introduced weeds (Table 142) was the ‘lack of money’ (52%), lack of time (48%) and lack of labour and help (37%).

Table 142: “Why do you say your ability to address this issue is low to moderate?”

Reasons	Count	Percent
Lack of money	47	52.2
Lack of time	43	47.8
Lack of labour and help	33	36.7
Seasons and climate	30	33.3
Lack of machinery, equipment or materials	20	22.2
Regulations or legislation	13	14.4
Lack of knowledge	12	13.3
No help or support from neighbours	10	11.1
Don't live on the property	9	10.0
No need to address issue	5	5.6
My poor health	5	5.6
Poor land condition	4	4.4
Too old	4	4.4
Topography of my land	4	4.4
Cannot be fixed	1	1.1
Other reasons (frequency of one)	11	12.2
<b>Total landholders</b>	<b>90</b>	<b>100.0</b>

Note: Based on those landholders who reported their ability to address weeds was very low, low or moderate. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Low Groundcover

Groundcover was defined as “any live or dead vegetation, rock or other protective cover that has the capacity to break or stop raindrops making contact with the soil” (Appendix A).

During the time landholders had been on their property, 53% of landholders had experienced a problem with low groundcover (Table 143).

Table 143: “During the time you have been on your property has low groundcover, that is less than 50% vegetation on the ground ever been a problem?”

Response	Count	Percent
Yes	232	53.2
No	204	46.8
Total landholders	436	100.0

Source: EBC (2015).

Although the majority of landholders had experienced a problem with low ground cover, 43% considered it to be a minor problem and 22% considered it to be a major problem (Table 144).

Table 144: “In your opinion, would you say low groundcover on your property is a...”

Response	Count	Percent
Minor problem (1)	96	43.0
Moderate problem	79	35.4
Major problem (3)	48	21.5
Total landholders	223	100.0
Mean score		1.78

Note: Percentages based on landholders who reported low groundcover was or had been a problem on their property.

Source: EBC (2015).

## Management of low groundcover

Two thirds of landholders (65%) indicated they had actively managed low groundcover on their property in the last two years (Table 145).

Table 145: “In the last 2 years have you actively managed low groundcover on your property?”

Response	Count	Percent
Yes	146	64.6
No	80	35.4
Total landholders	226	100.0

Note: Percentages based on landholders who reported low groundcover was or had been a problem on their property.

Source: EBC (2015).

Table 146 shows that 70% of landholders had been able to successfully manage low groundcover on their property.

Table 146: “Have you been able to successfully manage the low groundcover on your property?”

Response	Count	Percent
Yes	156	69.9
No	68	30.4
Total landholders	224	100.0

Note: Percentages based on landholders who reported low groundcover was or had been a problem on their property.

Source: EBC (2015).

The most common approach to managing low groundcover, which was identified by nearly two-thirds of landholders (61%), was to 'destock or reduce the number of livestock' (Table 147).

Table 147: "What was the main thing you did to successfully manage low groundcover?"

Response	Count	Percent
Destock or reduce the number of livestock	89	61.0
Control total grazing pressure	14	9.6
Wait for rain or improvement to seasons or climate	13	8.9
Rotational graze stock	10	6.8
Control feral animals	9	6.2
Rest paddocks	8	5.5
Improve stock access to water	7	4.8
Cultivate or improve soil condition	5	3.4
Move stock	5	3.4
Change grazing practices (general)	4	2.7
Spread stock over larger areas	2	1.4
Adopt stubble retention or minimum/zero till farming practices	2	1.4
Supplementary feed stock	2	1.4
Other ( <i>frequency of one</i> )	10	6.8
Total landholders	146	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Capacity to manage low groundcover

Table 148 shows that good markets and income for products (58%), optimism about addressing the issue (56%) and favourable land and water conditions (50%), were resources most landholders had available to manage low groundcover. On the other hand, few landholders had access to credit and funds to undertake the work (13%), the support from neighbours or formal groups (9%) and support from businesses and contactors (2%).

Table 148: "In managing low groundcover on your property do you currently have...?"

Resources	Count	Percent
Good markets and income for your products	80	58.0
Optimism about addressing the issue	77	55.8
Favourable land and water conditions on your property	69	50.0
Equipment, machinery and materials to address the issue	67	48.6
Favourable climate and seasonal conditions	52	37.7
Good health so as to undertake the work	51	37.0
A property able to support change	43	31.2
The knowledge of how to address the issue	38	27.5
A belief that you could address the issue	36	26.1
Practical skills to address the issue	34	24.6
Time available to do the work	32	23.2
Support from friends and family	26	18.8
People to help do the work	20	14.5
Access to credit and funds to undertake the work	18	13.0
Support from neighbours or formal group	13	9.4
Support from businesses and contactors	3	2.2
Total landholders	138	100.0

Note: Percentages based on those landholders who have actively managed low groundcover on their property in the last two years.

This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

A summary of the capital resources available to manage low groundcover (Table 149 and Figure 42) shows landholders had the psychological capacity (optimisms and a belief they could address the issue) to address the issue, but limited financial and social capital to address the issue.

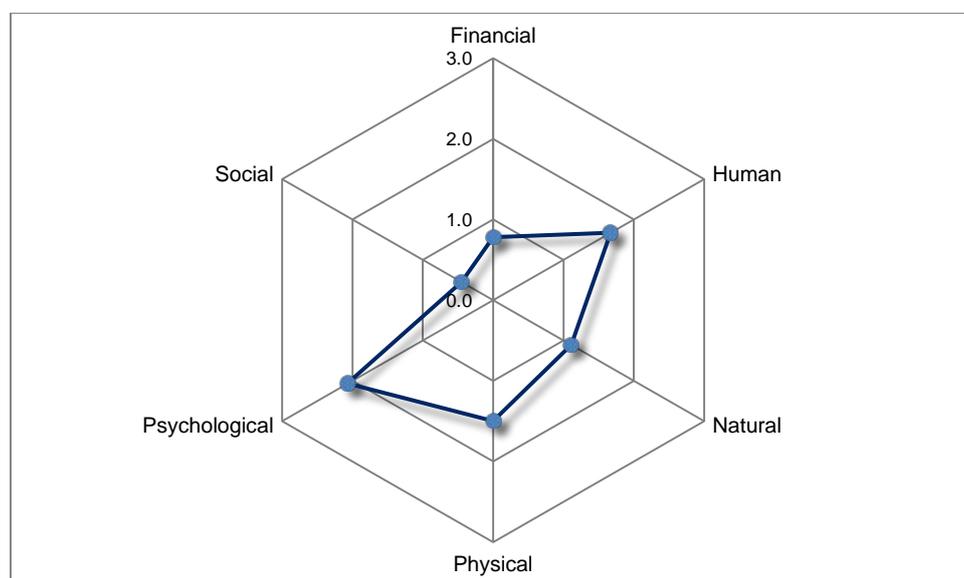
Table 149: resources available to manage low groundcover

Capital	Mean score	Sample size
Psychological	2.07	139
Human	1.67	139
Physical	1.50	139
Natural	1.11	139
Financial	0.78	139
Social	0.45	137

Note: Means based on those landholders who have actively managed low groundcover on their property in the last two years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 42: resources available to manage low groundcover



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Seventy-five percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with low groundcover (Table 150).

Table 150: "Would you say your ability to address low groundcover is..."

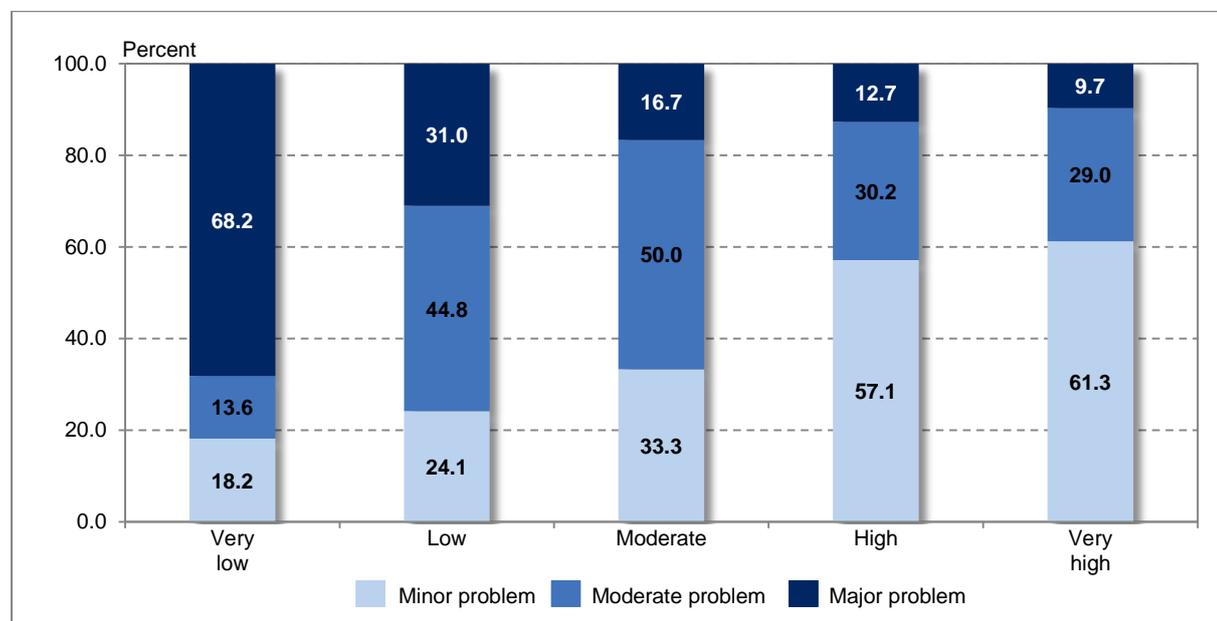
Ability to address issue	Count	Percent
Very low (1)	22	10.6
Low	31	14.9
Moderate	60	28.8
High	63	30.3
Very high (5)	32	15.4
Total landholders	208	100.0
Mean score		3.25

Note: Percentages based on landholders who reported low groundcover was or had been a problem on their property.

Source: EBC (2015).

Figure 43 shows a very clear relationship between low groundcover and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address low groundcover also tend report low groundcover as a major problem; while the majority of landholders with the ability to address low groundcover report low groundcover as only a minor problem.

Figure 43: extent of problem and ability to address low groundcover



Source: EBC (2015).

The two most common reasons for landholders reporting their ability to address low groundcover as low to moderate was the effects of 'seasons and climate' (64%) and the 'lack of money' (39%) to address the issue (Table 151).

Table 151: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Seasons and climate	85	63.9
Lack of money	52	39.1
Lack of labour and help	28	21.1
Lack of machinery, equipment or materials	23	17.3
Lack of time	22	16.5
Regulations or legislation	22	16.5
Don't live on the property	19	14.3
No need to address issue	11	8.3
Poor land condition	10	7.5
Topography of my land	10	7.5
Lack of knowledge	10	7.5
Too old	9	6.8
My poor health	6	4.5
No help or support from neighbours	4	3.0
Cannot be fixed	1	0.8
Other reasons ( <i>frequency of one</i> )	9	6.8
<b>Total landholders</b>	<b>133</b>	<b>100.0</b>

Note: Based on those landholders who reported their ability to address low groundcover was very low, low or moderate. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Soil health

Soil health was defined as including "soil composition and structure, including for example soil compaction, permeability and microbial activity" (Appendix A).

Only a quarter of all landholders (25%) reported that during the time they had been on their property, poor soil health had been a problem (Table 152).

Table 152: "During the time you have been on your property has poor soil health ever been a problem?"

Response	Count	Percent
Yes	111	25.4
No	326	74.6
Total landholders	437	100.0

Source: EBC (2015).

Of those landholders who reported poor soil health as a problem, 39% reported it as a minor problem and 22% reported it as a major problem (Table 153).

Table 153: "In your opinion, would you say poor soil health on your property is a...."

Response	Count	Percent
Minor problem (1)	42	39.3
Moderate problem	41	38.3
Major problem (3)	24	22.4
Total landholders	107	100.0
Mean score		1.83

Note: Percentages based on landholders who reported soil health was or had been a problem on their property.

Source: EBC (2015).

## Management of soil health

Fifty-five percent of landholders who reported soil health was or had been a problem on their property had also actively managed the health of their soil in the last two years (Table 154).

Table 154: "In the last 2 years have you actively managed soil health on your property?"

Response	Count	Percent
Yes	59	55.1
No	48	44.9
Total landholders	107	100.0

Note: Percentages based on landholders who reported soil health was or had been a problem on their property.

Source: EBC (2015).

Table 155 shows that 61% of landholders had been able to successfully manage the health of the soil on their property.

Table 155: "Have you been able to successfully manage poor soil health on your property?"

Response	Count	Percent
Yes	66	61.1
No	42	38.9
Total landholders	108	100.0

Note: Percentages based on landholders who reported soil health was or had been a problem on their property.

Source: EBC (2015).

The most common response amongst landholders to managing poor soil health (Table 156) was to add 'gypsum, lime, compost, mulch or organic matter' (36%).

Table 156: "What was the main thing you did to successfully manage poor soil health?"

Response	Count	Percent
Added gypsum, lime, compost, mulch or organic matter	22	36.1
Added fertiliser	10	16.4
Destocked	9	14.8
Water ponding	6	9.8
Changed grazing practices	5	8.2
Change irrigation practices	3	4.9
Grow legumes	3	4.9
Waited for rain	3	4.9
Rotational grazing	3	4.9
Cultivation	2	3.3
Other practices ( <i>frequency of one</i> )	8	13.1
Total landholders	61	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Capacity to manage soil health

Table 157 shows that good markets and income for products (69%), favourable land and water conditions (65%) and optimism about addressing the issue (61%) were resources most landholders had available to manage soil health. On the other hand, fewer landholders had the practical skills to address the issue (12%), the support from neighbours or formal groups (8%) and support from businesses and contactors (6%).

Table 157: "In managing soil health on your property do you currently have...?"

Resources	Count	Percent
Good markets and income for your products	35	68.6
Favourable land and water conditions on your property	33	64.7
Optimism about addressing the issue	31	60.8
Favourable climate and seasonal conditions	29	56.9
Equipment, machinery and materials to address the issue	25	49.0
Good health so as to undertake the work	21	41.2
A property able to support change	20	39.2
Time available to do the work	15	29.4
Access to credit and funds to undertake the work	14	27.5
Support from friends and family	9	17.6
People to help do the work	8	15.7
A belief that you could address the issue	7	13.7
The knowledge of how to address the issue	6	11.8
Practical skills to address the issue	6	11.8
Support from neighbours or formal group	4	7.8
Support from businesses and contactors	3	5.9
Total landholders	51	100.0

Note: Percentages based on landholders who have actively managed soil health on their property in the last two years. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

A summary of the capital resources available to manage low groundcover (Table 158 and Figure 44) shows landholders had the physical capacity (equipment, machinery and materials to address the issue) to address the issue, but limited financial and social capital..

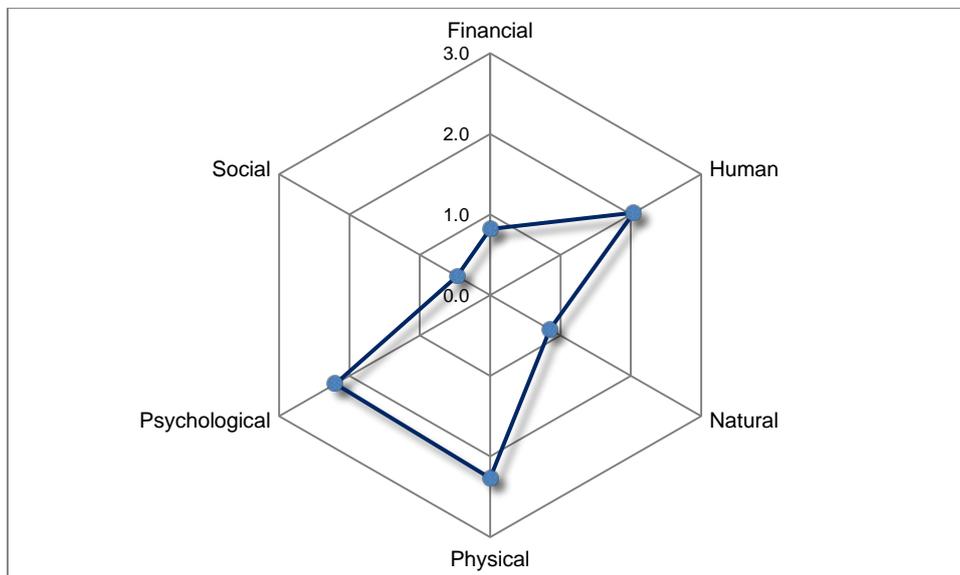
Table 158: resources available to manage poor soil health

Capital	Mean score	Sample size
Physical	2.27	51
Psychological	2.20	51
Human	2.04	51
Natural	0.85	51
Financial	0.82	51
Social	0.47	51

Note: Means based on landholders who have actively managed soil health on their property in the last two years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 44: resources available to manage poor soil health



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Seventy-three percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with poor soil health (Table 159).

Table 159: "Would you say your ability to address poor soil health is..."

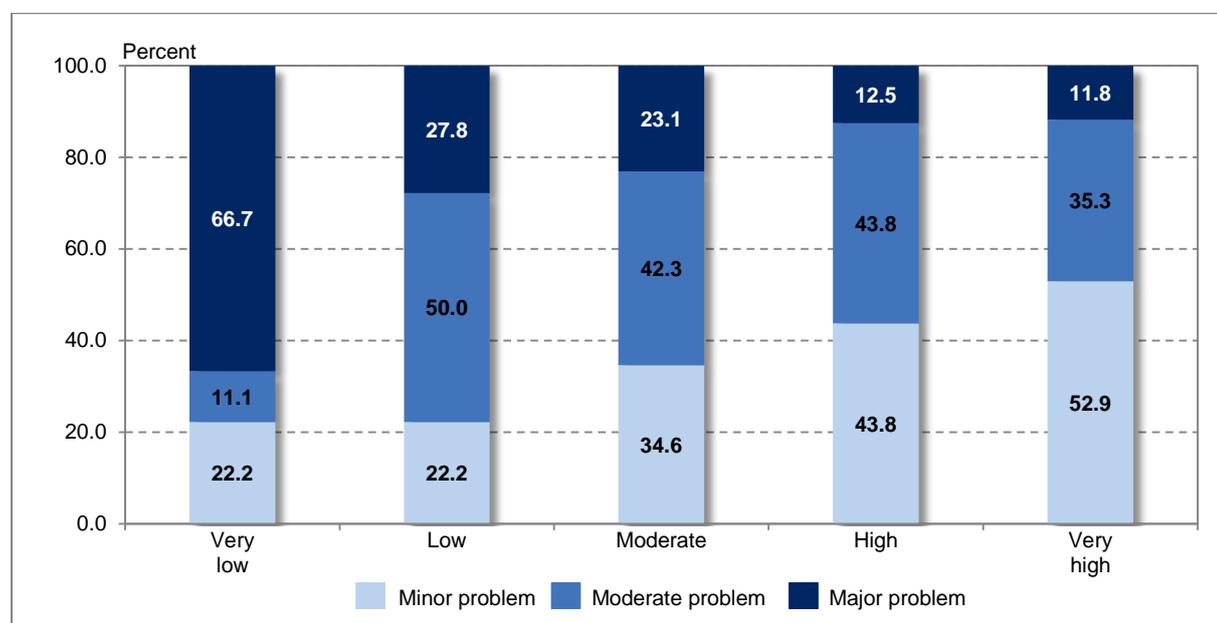
Ability to address issue	Count	Percent
Very low (1)	9	8.7
Low	19	18.4
Moderate	26	25.2
High	32	31.1
Very high (5)	17	16.5
Total landholders	103	100.0
Mean score		3.28

Note: Percentages based on landholders who reported soil health was or had been a problem on their property.

Source: EBC (2015).

Figure 45 shows a very clear relationship between problems with poor soil health and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address soil health also tend to report poor soil health as a major problem; while the majority of landholders with the ability to address soil health report poor soil health as only a minor problem.

Figure 45: extent of problem and ability to address poor soil health



Source: EBC (2015).

Two of the most common reasons for landholders reporting low to moderate ability to address poor soil health (Table 160) were the 'lack of money' (57%) and 'seasonal and climatic' conditions (52%).

Table 160: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Lack of money	31	57.4
Seasons and climate	28	51.9
Poor land condition	17	31.5
Lack of machinery, equipment or materials	14	25.9
Regulations or legislation	12	22.2
Lack of labour and help	10	18.5
Lack of time	10	18.5
Lack of knowledge	9	16.7
Topography of my land	6	11.1
Too old	4	7.4
Don't live on the property	3	5.6
Cannot be fixed	3	5.6
No need to address issue	2	3.7
My poor health	2	3.7
No help or support from neighbours	2	3.7
Other reasons ( <i>frequency of one</i> )	3	5.6
Total landholders	54	100.0

Note: Based on those landholders who reported their ability to address soil health was very low, low or moderate. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Soil erosion to river banks

Fourteen percent of landholders reported that during the time they had been on their property, soil erosion to river banks had been a problem (Table 161).

Table 161: "During the time you have been on your property has soil erosion to river banks ever been a problem?"

Response	Count	Percent
Yes	59	13.6
No	376	86.4
Total landholders	435	100.0

Source: EBC (2015).

Of those landholders who reported a problem with soil erosion to riverbanks on their property, 43% reported it to be a minor problem and 23% reported it as a major problem (Table 162).

Table 162: "In your opinion, would you say soil erosion to river banks on your property is a...."

Response	Count	Percent
Minor problem (1)	24	42.9
Moderate problem	19	33.9
Major problem (3)	13	23.2
Total landholders	56	100.0
Mean score		1.80

Note: Percentages based on landholders who reported soil erosion to river banks was or had been a problem on their property.

Source: EBC (2015).

## Management of soil erosion to river banks

Thirty-six percent of landholders who reported a problem with soil erosion to river banks indicated they had actively managed this problem in the last two years (Table 163).

Table 163: "In the last 2 years have you actively managed soil erosion to river banks on your property?"

Response	Count	Percent
Yes	21	36.2
No	37	63.8
Total landholders	58	100.0

Note: Percentages based on landholders who reported soil erosion to river banks was or had been a problem on their property.

Source: EBC (2015).

Of those landholders reporting a problem with soil erosion to river banks, only 38% indicated they had been successful in managing the problem (Table 164).

Table 164: "Were you able to successfully manage the soil erosion to river banks?"

Response	Count	Percent
Yes	22	37.9
No	36	62.1
Total landholders	58	100.0

Note: Percentages based on landholders who reported soil erosion to river banks was or had been a problem on their property.

Source: EBC (2015).

The most common method of addressing soil erosion to river banks was to 'fence off river access to livestock' (Table 165).

Table 165: "What was the main thing you did to successfully manage the soil erosion to river banks?"

Response	Count	Percent
Fence off river access to livestock	8	34.8
Water ponding and contour banks	5	21.7
Control grazing	3	13.0
Added plant matter to slow down river flow	2	8.7
Destock area near river	2	8.7
Rest paddocks	2	8.7
Other practices ( <i>frequency of one</i> )	7	30.4
Total landholders	23	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Capacity to manage soil erosion to river banks

Table 166 shows that favourable land and water conditions (73%), optimism about addressing the issue (36%) and favourable climate and seasonal conditions (36%) were resources most landholders had available to manage soil erosion to river banks. On the other hand, fewer landholders had support from neighbours or formal groups (9%), a belief that the issue could be addressed (0%) and support from businesses and contactors (0%).

Table 166: "In managing soil erosion to river banks on your property do you currently have...?"

Resources	Count	Percent
Favourable land and water conditions on your property	16	72.7
Optimism about addressing the issue	8	36.4
Favourable climate and seasonal conditions	8	36.4
Equipment, machinery and materials to address the issue	7	31.8
Good markets and income for your products	7	31.8
Time available to do the work	7	31.8
Good health so as to undertake the work	7	31.8
A property able to support change	4	18.2
People to help do the work	4	18.2
Access to credit and funds to undertake the work	3	13.6
Practical skills to address the issue	3	13.6
Support from friends and family	3	13.6
The knowledge of how to address the issue	2	9.1
Support from neighbours or formal group	2	9.1
A belief that you could address the issue	0	0.0
Support from businesses and contactors	0	0.0
Total landholders	22	100.0

Note: Percentages based on those landholders who have actively managed soil erosion to river banks in the last two years.

This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

Resources available to manage soil erosion to river banks included primarily human capital (knowledge and skills), with limited social and financial resources being available to address the issue (Table 167 and Figure 46).

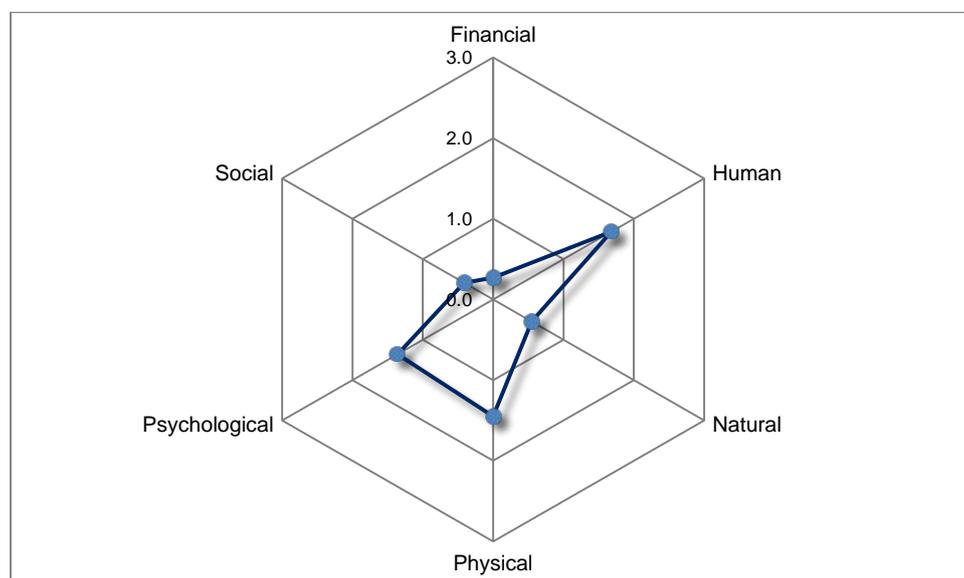
Table 167: resources available to manage soil erosion to river banks

Capital	Mean score	Sample size
Human	1.68	22
Physical	1.45	22
Psychological	1.36	22
Natural	0.55	22
Social	0.41	22
Financial	0.27	22

Note: Means based on those landholders who have actively managed soil erosion to river banks on their property in the last two years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 46: resources available to manage soil erosion to river banks



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Fifty-three percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with soil erosion to river banks (Table 168).

Table 168: "Would you say your ability to address soil erosion to river banks is..."

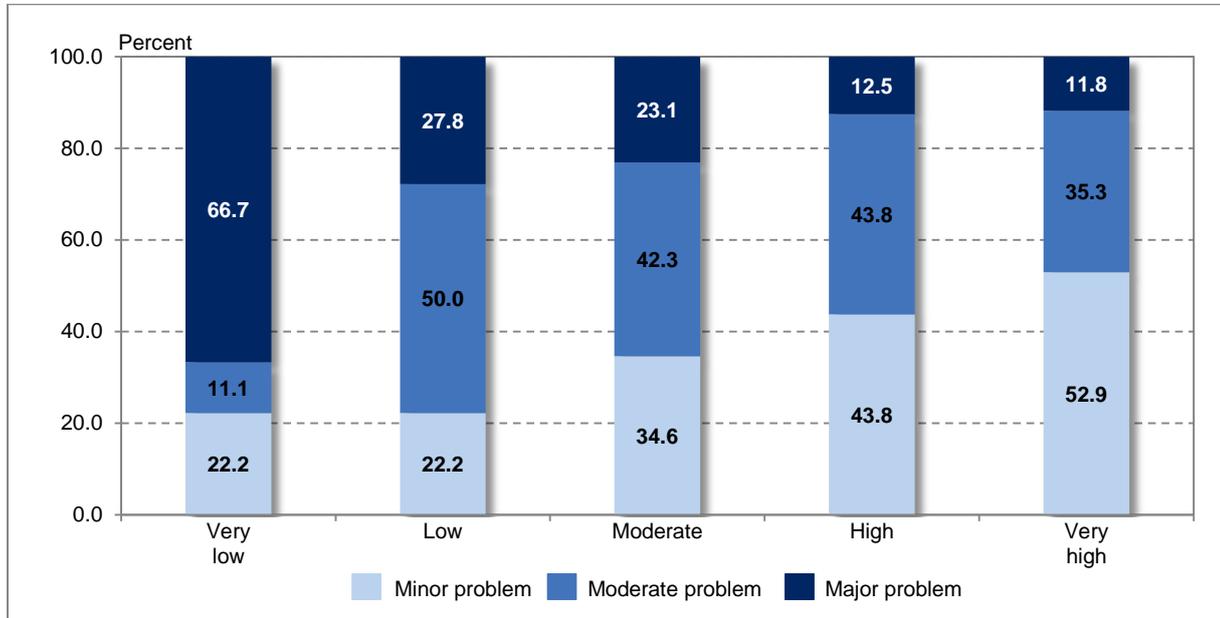
Ability to address issue	Count	Percent
Very low (1)	16	28.1
Low	11	19.3
Moderate	14	24.6
High	13	22.8
Very high (5)	3	5.3
Total landholders	57	100.0
Mean score		2.58

Note: Percentages based on landholders who reported soil erosion to river banks was or had been a problem on their property.

Source: EBC (2015).

Figure 47 shows a very clear relationship between problems with soil erosion to river banks and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address soil erosion to river banks also tend to report soil erosion to river banks as a major problem; while the majority of landholders with the ability to address soil erosion to river banks also reported this issue as only a minor problem.

Figure 47: extent of problem and ability to address soil erosion to river banks



Source: EBC (2015).

Two of the most common reasons for landholders reporting a low to moderate ability to address soil erosion to river banks (Table 169) were the 'lack of money' (47%) and 'seasonal and climatic' conditions (31%).

Table 169: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Lack of money	17	47.2
Seasons and climate	11	30.6
Lack of labour and help	10	27.8
Lack of machinery, equipment or materials	10	27.8
Lack of time	9	25.0
Regulations or legislation	9	25.0
Topography of my land	7	19.4
Don't live on the property	6	16.7
Lack of knowledge	6	16.7
Poor land condition	5	13.9
Cannot be fixed	4	11.1
Too old	4	11.1
No help or support from neighbours	3	8.3
No need to address issue	1	2.8
My poor health	1	2.8
Other reasons (frequency of one)	9	25.0
Total landholders	36	100.0

Note: Based on those landholders who reported their ability to address soil erosion to river banks was very low, low or moderate. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Soil erosion

Soil erosion was defined as "sheet, rill or gull erosion e.g., along fence lines and tracks".

Twenty-nine percent of landholders reported that during the time they had been on their property soil erosion had been a problem (Table 170).

Table 170: "During the time you have been on your property has soil erosion ever been a problem?"

Response	Count	Percent
Yes	125	28.6
No	312	71.4
Total landholders	437	100.0

Source: EBC (2015).

Of those landholders who reported a problem with soil erosion on their property, 57% reported it to be a minor problem and only 5% reported it as a major problem (Table 171).

Table 171: "In your opinion, would you say soil erosion on your property is a...."

Response	Count	Percent
Minor problem (1)	71	57.3
Moderate problem	47	37.9
Major problem (3)	6	4.8
Total landholders	124	100.0
Mean score		1.48

Note: Percentages based on landholders who reported soil erosion was or had been a problem on their property.

Source: EBC (2015).

## Management of soil erosion

Thirty-five percent of landholders who reported a problem with soil erosion indicated they had actively managed this problem in the last two years (Table 172).

Table 172: "In the last 2 years have you actively managed soil erosion on your property?"

Response	Count	Percent
Yes	43	35.0
No	80	65.0
Total landholders	123	100.0

Note: Percentages based on landholders who reported soil erosion was or had been a problem on their property.

Source: EBC (2015).

Of those landholders reporting a problem with soil erosion, 53% indicated they had been successful in managing this problem (Table 173).

Table 173: "Were you able to successfully manage the soil erosion?"

Response	Count	Percent
Yes	64	52.5
No	58	47.5
Total landholders	122	100.0

Note: Percentages based on landholders who reported soil erosion was or had been a problem on their property.

Source: EBC (2015).

The three most common methods of successfully managing soil erosion (Table 174) were to 'use machinery to create diversions, drains and fills' (22%), 'destock' (7%) and 'increase ground cover' (17%).

Table 174: "What was the main thing you did to successfully manage the soil erosion?"

Response	Count	Percent
Used machinery to create diversions, drains and fills	13	21.7
Destocking	10	16.7
Increased ground cover	10	16.7
Contour banks	8	13.3
Stubble retention, no till and disc pitting	6	10.0
Reduced grazing pressure	6	10.0
Water ponding	6	10.0
Change cropping practices	3	5.0
Fence area	3	5.0
Changed grazing practice	2	3.3
Other practices ( <i>frequency of one</i> )	7	11.7
Total landholders	60	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Capacity to manage soil erosion

Table 175 shows that optimism about addressing the issue (64%), good markets and income for products (64%) and favourable land and water conditions (62%), were resources most landholders had available to manage soil erosion. On the other hand, fewer landholders had support from neighbours or formal groups (10%), a belief that the issue could be addressed (7%) and support from businesses and contactors (2%).

Table 175: "In managing soil erosion on your property do you currently have...?"

Resources	Count	Percent
Optimism about addressing the issue	27	64.3
Good markets and income for your products	27	64.3
Favourable land and water conditions on your property	26	61.9
Favourable climate and seasonal conditions	24	57.1
Equipment, machinery and materials to address the issue	19	45.2
Good health so as to undertake the work	18	42.9
Time available to do the work	14	33.3
A property able to support change	12	28.6
Practical skills to address the issue	9	21.4
Support from friends and family	9	21.4
Access to credit and funds to undertake the work	8	19.0
The knowledge of how to address the issue	7	16.7
People to help do the work	7	16.7
Support from neighbours or formal group	4	9.5
A belief that you could address the issue	3	7.1
Support from businesses and contactors	1	2.4
Total landholders	42	100.0

Note: Percentages based on landholders who have actively managed soil erosion on their property in the last two years.

This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

A summary of the capital resources available to manage soil erosion (Table 176 and Figure 48) shows landholders had the physical (equipment, machinery and materials) and psychological capital to address the issue, but limited financial and social capital.

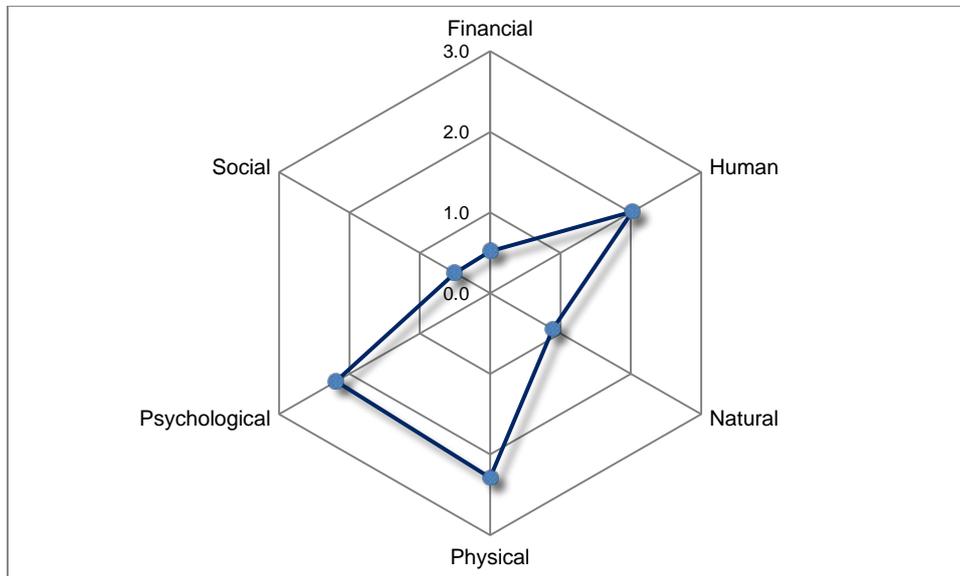
Table 176: resources available to manage soil erosion

Capital	Mean score	Sample size
Physical	2.29	42
Psychological	2.19	42
Human	2.02	42
Natural	0.89	42
Financial	0.52	42
Social	0.50	42

Note: Means based on landholders who have actively managed soil erosion on their property in the last two years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 48: resources available to manage soil erosion



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Sixty-eight percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with soil erosion (Table 177).

Table 177: "Would you say your ability to address soil erosion is..."

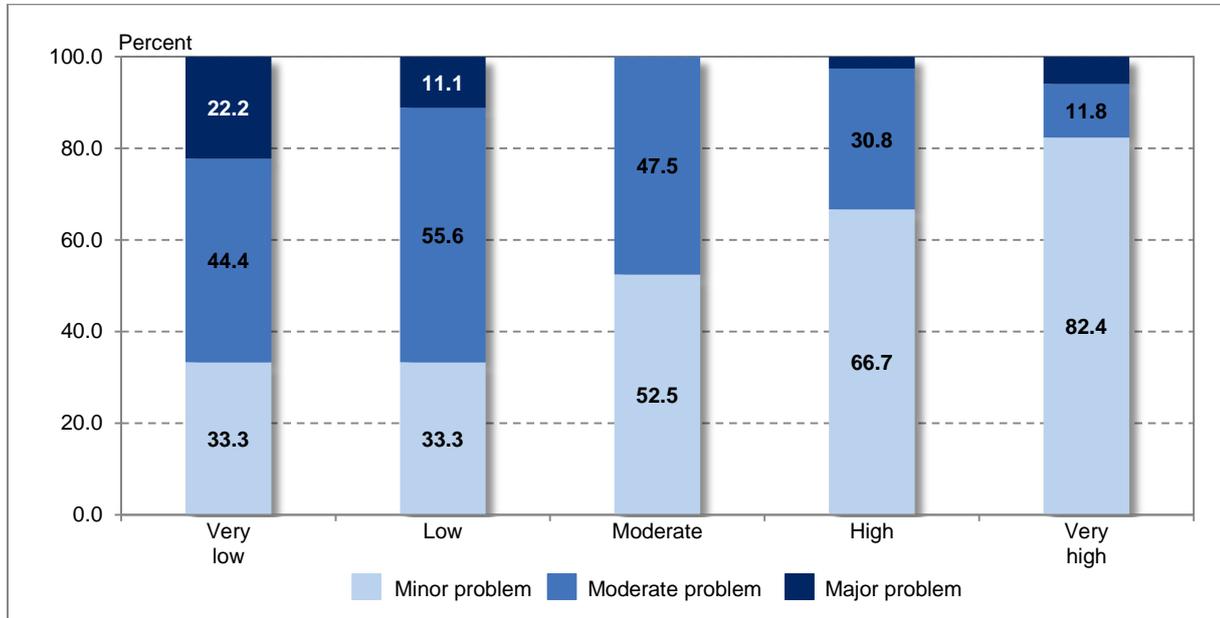
Ability to address issue	Count	Percent
Very low (1)	9	7.3
Low	18	14.6
Moderate	40	32.5
High	39	31.7
Very high (5)	17	13.8
Total landholders	123	100.0
Mean score		3.30

Note: Percentages based on landholders who reported soil erosion was or had been a problem on their property.

Source: EBC (2015).

Figure 49 shows a very clear relationship between problems with soil erosion and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address soil erosion also tend to report soil erosion as a major problem; while the majority of landholders with the ability to address soil erosion also reported this issue as only a minor problem.

Figure 49: extent of problem and ability to address soil erosion



Source: EBC (2015).

Two of the most common reasons for landholders reporting a low to moderate ability to address soil erosion (Table 178) were the 'lack of money' (52%) and 'seasonal and climatic' conditions (47%).

Table 178: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Lack of money	33	51.6
Seasons and climate	30	46.9
Topography of my land	20	31.3
Lack of machinery, equipment or materials	20	31.3
Lack of labour and help	17	26.6
Regulations or legislation	15	23.4
Lack of time	14	21.9
Poor land condition	11	17.2
Lack of knowledge	9	14.1
Don't live on the property	8	12.5
Too old	5	7.8
No need to address issue	3	4.7
No help or support from neighbours	3	4.7
My poor health	2	3.1
Cannot be fixed	1	1.6
Other reasons (frequency of one)	4	6.3
Total landholders	64	100.0

Note: Based on those landholders who reported their ability to address soil erosion was very low, low or moderate. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Wild dogs

Approximately one third of all landholders (30%) reported that during the time they had been on the property wild dogs had been a problem (Table 179).

Table 179: "During the time you have been on your property have wild dogs ever been a problem?"

Response	Count	Percent
Yes	131	30.0
No	306	70.0
Total landholders	437	100.0

Source: EBC (2015).

A comparison between survey periods indicates that relatively fewer landholders reported problems with wild dogs in 2009; while in 2012 and 2014 relatively more landholders reported problems with wild dogs (Table 180).

Table 180: a comparison wild dog problem between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Yes	86	24.2	161	49.4	100	44.4
No	270	75.8	165	50.6	125	55.6
Total landholders	356	100.0	326	100.0	225	269.2

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary. There was a significant difference in percentages between survey periods.

Source: EBC (2015)

Of those landholders who reported a problem with wild dogs, 54% reported wild dogs to be a minor problem and 18% reported them as a major problem (Table 181).

Table 181: "In your opinion, would you say wild dogs on your property are a...."

Response	Count	Percent
Minor problem (1)	70	53.8
Moderate problem	37	28.5
Major problem (3)	23	17.7
Total landholders	130	100.0
Mean score		1.64

Note: Percentages based on landholders who reported wild dogs were or had been a problem on their property.

Source: EBC (2015).

## Management of wild dogs

Eighty-three percent of landholders who reported a problem with wild dogs indicated they had actively managed this problem in the last two years (Table 182).

Table 182: "In the last 2 years have you actively managed wild dogs on your property?"

Response	Count	Percent
Yes	108	83.1
No	22	16.9
Total landholders	130	100.0

Note: Percentages based on landholders who reported wild dogs were or had been a problem on their property.

Source: EBC (2015).

Of those landholders reporting a problem with wild dogs, 76% indicated they had been successful in managing the problem with wild dogs (Table 183).

Table 183: "Were you able to successfully manage wild dogs?"

Response	Count	Percent
Yes	98	76.0
No	31	24.0
Total landholders	129	100.0

Note: Percentages based on landholders who reported wild dogs were or had been a problem on their property.  
Source: EBC (2015).

The three most commonly reported methods of managing wild dogs (Table 184) were baiting (65%), shooting (58%) and trapping (20%).

Table 184: "What was the main thing you did to successfully manage wild dogs?"

Response	Count	Percent
Baiting	64	65.3
Shooting	57	58.2
Trapping	20	20.4
Destroy dogs (general)	3	3.1
Keep aware of problem	2	2.0
Monitor where dogs are located	2	2.0
Education and training	2	2.0
Other practices (frequency of one)	3	3.1
Total landholders	98	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
Source: EBC (2015).

## Capacity to manage wild dogs

Table 185 shows that good markets and income for products (69%) and favourable land and water conditions (61%) were resources most landholders had available to manage wild dogs. On the other hand, fewer landholders had the knowledge to address the issue (9%) a belief that the issue could be addressed (8%) and support from businesses and contactors (6%).

Table 185: "In managing wild dogs on your property do you currently have...?"

Resources	Count	Percent
Good markets and income for your products	67	69.1
Favourable land and water conditions on your property	59	60.8
Optimism about addressing the issue	47	48.5
Support from neighbours or formal group	47	48.5
Equipment, machinery and materials to address the issue	37	38.1
Support from friends and family	33	34.0
Good health so as to undertake the work	33	34.0
Favourable climate and seasonal conditions	31	32.0
Time available to do the work	29	29.9
Access to credit and funds to undertake the work	25	25.8
People to help do the work	20	20.6
A property able to support change	19	19.6
Practical skills to address the issue	11	11.3
The knowledge of how to address the issue	9	9.3
A belief that you could address the issue	8	8.2
Support from businesses and contactors	6	6.2
Total landholders	97	100.0

Note: Percentages based on landholders who have actively managed wild dogs on their property in the last two years. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

A summary of the capital resources available to manage wild dogs (Table 186 and Figure 50) shows landholders had the human capacity (health and skills) to address the issue, but limited financial and natural capital to address the issue.

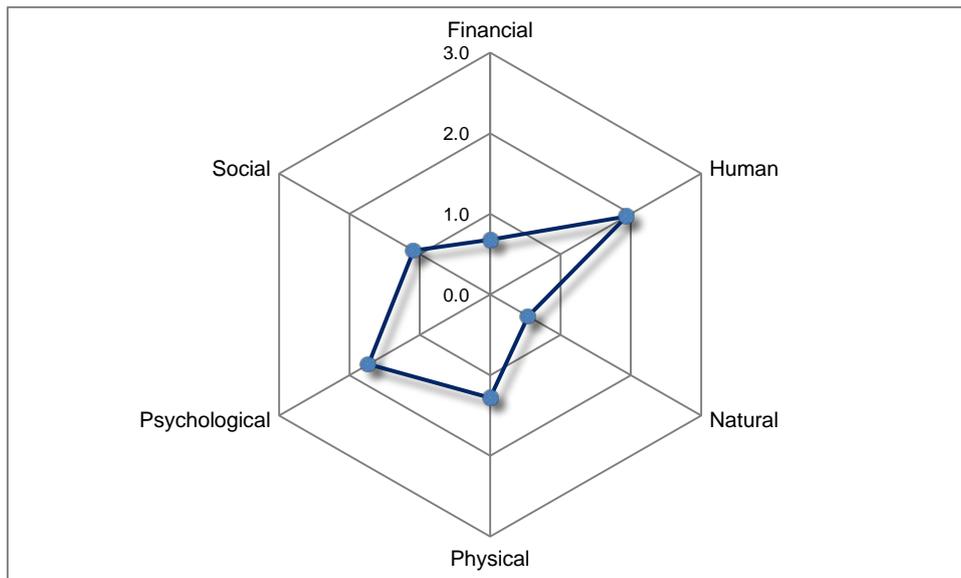
Table 186: resources available to manage wild dogs

Capital	Mean score	Sample size
Human	1.94	97
Psychological	1.73	97
Physical	1.28	97
Social	1.09	97
Financial	0.68	97
Natural	0.54	96

Note: Means based on landholders who have actively managed soil health on their property in the last two years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 50: resources available to manage wild dogs



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Eighty-nine percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with wild dogs (Table 187).

Table 187: "Would you say your ability to address this issue is..."

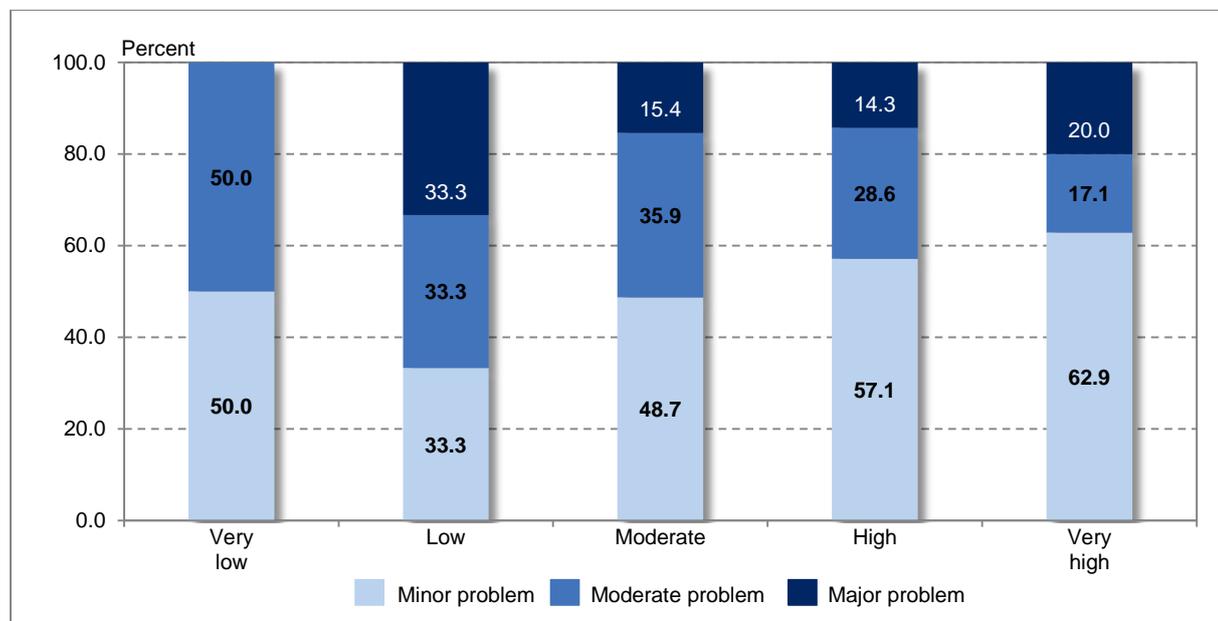
Ability to address issue	Count	Percent
Very low (1)	2	1.5
Low	12	9.2
Moderate	39	30.0
High	42	32.3
Very high (5)	35	26.9
Total landholders	130	100.0
Mean score		3.74

Note: Percentages based on landholders who reported wild dogs were or had been a problem on their property.

Source: EBC (2015).

The relationship between the extent of the problem with wild dogs and landholder ability to address the issue is not as significant as was observed in the context of other natural resource management issues. Nevertheless, the majority of landholders with limited ability to address wild dogs also tend to report wild dogs as a moderate problem; while the majority of landholders with the ability to address wild dogs also reported this issue as only a minor problem.

Figure 51: extent of problem and ability to address problems with wild dogs



Source: EBC (2015).

'Lack of money' (36%), 'lack of labour and help' (30%) and 'the lack of time' (26%) were the primary reasons landholders gave for reporting a low to moderate ability to address problems with wild dogs (Table 188).

Table 188: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Lack of money	17	36.2
Lack of labour and help	14	29.8
Lack of time	12	25.5
Topography of my land	10	21.3
No help or support from neighbours	8	17.0
Regulations or legislation	8	17.0
Seasons and climate	6	12.8
Don't live on the property	5	10.6
No need to address issue	3	6.4
Cannot be fixed	3	6.4
Too old	3	6.4
Lack of knowledge	2	4.3
Poor land condition	1	2.1
My poor health	1	2.1
Lack of machinery, equipment or materials	0	0.0
Other reasons ( <i>frequency of one</i> )	12	25.5
<b>Total landholders</b>	<b>47</b>	<b>100.0</b>

Note: Based on those landholders who reported their ability to address wild dogs was very low, low or moderate.

This is a multiple response table in which a respondent may be included in multiple rows.

'Other reasons' included lack of access to baits, wandering town dogs, poaches who lose their dogs, large scale baiting not practical, lack of participation of neighbours and others and lack of enforcement

Source: EBC (2015).

## Other pest animals

'Other pest animals' excluded unmanaged goats and wild dogs (Appendix A). Eighty-five percent of landholders reported that during the time they had been on their property 'other pest animals' had been a problem (Table 189).

Table 189: "During the time you have been on your property have 'other pest animals' ever been a problem?"

Response	Count	Percent
Yes	375	85.2
No	65	14.8
Total landholders	440	100.0

Source: EBC (2015).

The most common 'other pest animals' that landholders experienced as a problem (Table 190) were kangaroos (80%), foxes (78%), pigs (65%) and rabbits (57%).

Table 190: "During the time you have been on your property have any of the following pest animals been a problem?"

Response	Count	Percent
Kangaroos	295	79.7
Foxes	290	78.4
Pigs	240	64.9
Rabbits	211	57.0
Emus	186	50.3
Cats	150	40.5
Locusts	137	37.0
Carp	82	22.2
Camels	5	1.4
Wild horses	5	1.4
Donkeys	4	1.1
Other pest animals ( <i>frequency of one</i> )	10	2.7
Total landholders	370	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.  
Other pest animals included crows (3), eagles (2), domestic dogs (2), cormorants (1), snakes (1) and echidnas (1)

Source: EBC (2015).

A comparison of problem pest animals between survey periods (Table 191) shows that foxes were reported by significantly fewer landholders as a problem in 2014 (77%) when compared to 2009 (88%) and 2012 (87%). In contrast significantly more landholders reported kangaroos as a problem in 2014 (85%) when compared to 2012 (68%).

Table 191: a comparison of 'other pest animals' between survey periods

Response	2009		2012		2014	
	Count	Percent	Count	Percent	Count	Percent
Foxes*	305	88.2	272	86.9	154	77.4
Rabbits	179	51.7	166	53.0	84	42.2
Pigs	289	83.5	273	87.2	152	76.4
Kangaroos*	309	89.3	213	68.1	169	84.9
Total landholders	346	100.0	313	317.5	199	269.2

Note: Comparisons between survey periods based landholders within the previous Western CMA boundary.  
This is a multiple response table in which a respondent may be included in multiple rows.

\* Indicates a significant difference in percentages between survey periods.

Source: EBC (2015)

Of those landholders who reported 'other pest animals' as a problem, 30% reported them as a minor problem and 28% reported them as a major problem (Table 192).

Table 192: "In your opinion, would you say 'other pest animals' on your property are a...."

Response	Count	Percent
Minor problem (1)	108	29.8
Moderate problem	152	42.0
Major problem (3)	102	28.2
Total landholders	362	100.0
Mean score		1.98

Note: Percentages based on landholders who reported 'other pest animals' were or had been a problem on their property.  
Source: EBC (2015).

## Management of other pest animals

Sixty-five percent of landholders who reported a problem with 'other pest animals' indicated they had actively managed this problem in the last two years (Table 193).

Table 193: "In the last 2 years have you actively managed other pest animals on your property?"

Response	Count	Percent
Yes	231	64.5
No	127	35.5
Total landholders	358	100.0

Note: Percentages based on landholders who reported 'other pest animals' were or had been a problem on their property.  
Source: EBC (2015).

Of those landholders reporting a problem with 'other pest animals', 56% indicated they had been successful in managing the problem with 'other pest animals' (Table 194).

Table 194: "Were you able to successfully manage 'other pest animals?'"

Response	Count	Percent
Yes	203	55.9
No	160	44.1
Total landholders	363	100.0

Note: Percentages based on landholders who reported 'other pest animals' were or had been a problem on their property.  
Source: EBC (2015).

The three most commonly reported methods of managing 'other pest animals' (Table 195) were baiting (60%), shooting (54%) and trapping (21%).

Table 195: "What was the main thing you did to successfully manage other pest animals?"

Response	Count	Percent
Baiting	117	60.0
Shooting	105	53.8
Trapping	41	21.0
Rabbit warren ripping	22	11.3
Spraying	19	9.7
Extermination (general)	18	9.2
Fencing	11	5.6
Commercial shooter	9	4.6
Allow access by hunters and shooters	7	3.6
Control watering points	5	2.6
Virus introduction for rabbits	5	2.6
Dry climatic conditions	4	2.1
Scare devices	2	1.0
Other practices ( <i>frequency of one</i> )	15	7.7
Total landholders	195	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Capacity to manage other pest animals

Table 196 shows that good markets and income for products (68%) and favourable land and water conditions (58%) were resources most landholders had available to manage 'other pest animals'. On the other hand, fewer landholders had a property able to support change (13%), a belief that the issue could be addressed (9%) and support from businesses and contactors (7%).

Table 196: "In managing other pest animals on your property do you currently have...?"

Resources	Count	Percent
Good markets and income for your products	147	68.1
Favourable land and water conditions on your property	125	57.9
Favourable climate and seasonal conditions	98	45.4
Optimism about addressing the issue	96	44.4
Equipment, machinery and materials to address the issue	84	38.9
Good health so as to undertake the work	75	34.7
Support from friends and family	62	28.7
Time available to do the work	62	28.7
People to help do the work	50	23.1
Support from neighbours or formal group	45	20.8
Access to credit and funds to undertake the work	41	19.0
The knowledge of how to address the issue	33	15.3
Practical skills to address the issue	31	14.4
A property able to support change	28	13.0
A belief that you could address the issue	19	8.8
Support from businesses and contactors	14	6.5
Total landholders	216	100.0

Note: Percentages based on landholders who have actively managed 'other pest animals' on their property in the last two years.

This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

A summary of the capital resources available to manage 'other pest animals' (Table 197 and Figure 52) shows landholders had the human (health and skills) and physical (equipment, machinery and materials) capital to address the issue, but limited natural and financial capital.

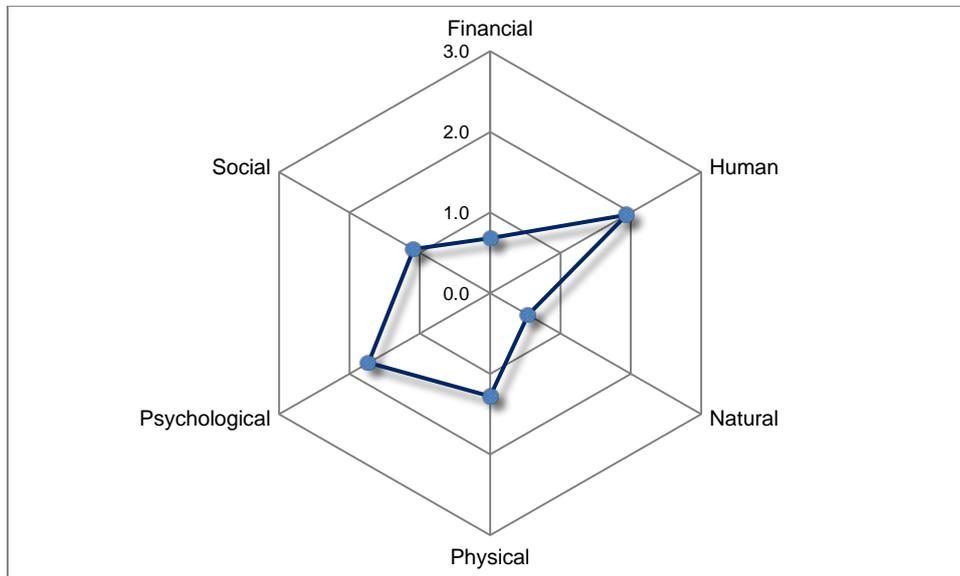
Table 197: resources available to manage other pest animals

Capital	Mean score	Sample size
Human	1.89	216
Physical	1.81	214
Psychological	1.67	216
Social	0.80	216
Natural	0.57	216
Financial	0.56	216

Note: Means based on landholders who have actively managed 'other pest animals' on their property in the last two years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 52: resources available to manage 'other pest animals'



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Seventy-eight percent of landholders indicated they had 'moderate' to 'very high' ability to address problems with 'other pest animals' (Table 198).

Table 198: "Would you say your ability to address this issue is..."

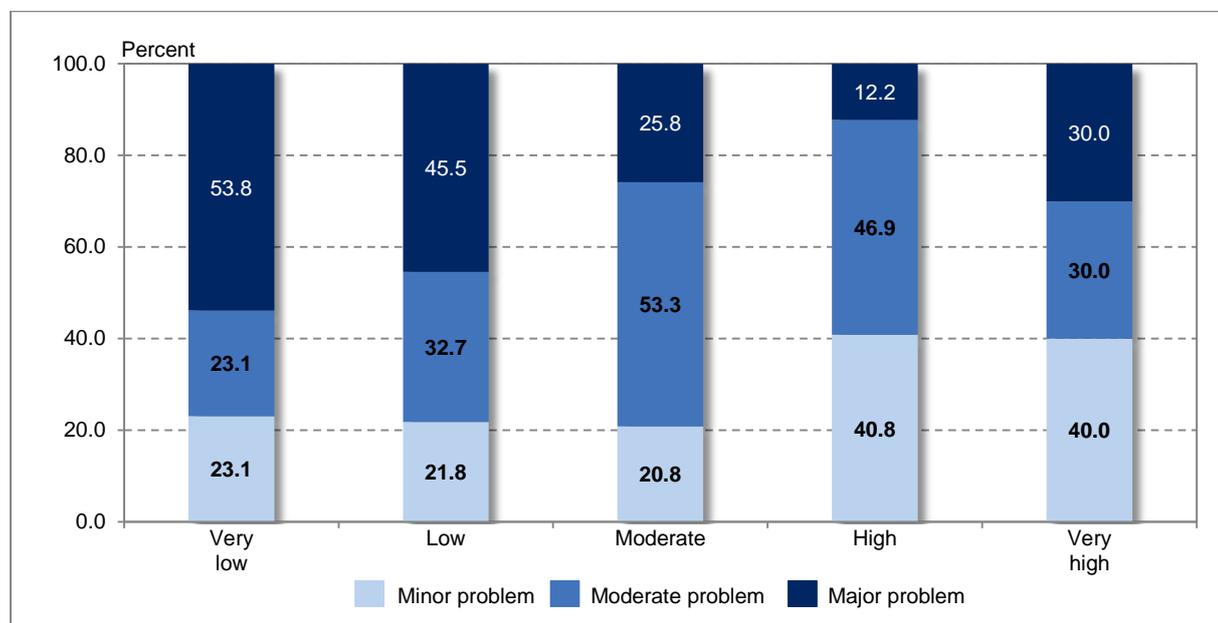
Ability to address issue	Count	Percent
Very low (1)	26	7.2
Low	55	15.2
Moderate	120	33.2
High	99	27.4
Very high (5)	61	16.9
Total landholders	361	100.0
Mean score		3.32

Note: Percentages based on landholders who reported 'other pest animals' were or had been a problem on their property.

Source: EBC (2015).

Figure 53 shows a very clear relationship between problems with 'other pest animals' and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address 'other pest animals' also tend to report 'other pest animals' as a major problem; while the majority of landholders with the ability to address 'other pest animals' reported this issue as minor or moderate problem.

Figure 53: extent of problem and ability to address problems with 'other pest animals'



Source: EBC (2015).

'Regulations or legislation' (40%), 'lack of time' (37%) and 'lack of money' (34%) were the primary reasons landholders gave for reporting a low to moderate ability to address problems with 'other pest animals' (Table 199).

Table 199: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Regulations or legislation	73	39.9
Lack of time	68	37.2
Lack of money	63	34.4
Lack of labour and help	53	29.0
Seasons and climate	50	27.3
Don't live on the property	31	16.9
No help or support from neighbours	24	13.1
Lack of machinery, equipment or materials	20	10.9
Cannot be fixed	15	8.2
Topography of my land	15	8.2
Too old	12	6.6
No need to address issue	10	5.5
Lack of knowledge	10	5.5
Poor land condition	7	3.8
My poor health	2	1.1
Other reasons ( <i>frequency of one</i> )	10	5.5
Total landholders	183	100.0

Note: Based on those landholders who reported their ability to address 'other pest animals' was very low, low or moderate. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## A decline in the diversity of native plants and animals

Only 13% of landholders reported they had experienced a decline in the diversity of native plants and animals on their property (Table 200).

Table 200: "During the time you have been on your property has a decline in the diversity of native plants and animals ever been a problem?"

Response	Count	Percent
Yes	57	13.1
No	379	86.9
Total landholders	436	100.0

Source: EBC (2015).

Of those landholders who reported a problem with a decline in the diversity of native plants and animals, 32% reported this as a minor problem and 30% reported it as a major problem (Table 201).

Table 201: "In your opinion, would you say the decline in the diversity of native plants and animals on your property is a..."

Response	Count	Percent
Minor problem (1)	18	31.6
Moderate problem	22	38.6
Major problem (3)	17	29.8
Total landholders	57	100.0
Mean score		1.98

Note: Percentages based on landholders who reported the decline in the diversity of native plants and animals was or had been a problem on their property.

Source: EBC (2015).

## Management of the decline in the diversity of native plants and animals

Fifty-one percent of landholders who reported a problem with a decline in the diversity of native plants and animals indicated they had actively managed this problem in the last two years (Table 202).

Table 202: "In the last 2 years have you actively managed the decline in the diversity of native plants and animals on your property?"

Response	Count	Percent
Yes	26	51.0
No	25	49.0
Total landholders	51	100.0

Note: Percentages based on landholders who reported the decline in the diversity of native plants and animals was or had been a problem on their property.

Source: EBC (2015).

Of those landholders reporting a problem with a decline in the diversity of native plants and animals, 38% indicated they had been successful in managing the problem (Table 203).

Table 203: "Were you able to successfully manage the decline in the diversity of native plants and animals?"

Response	Count	Percent
Yes	20	38.5
No	32	61.5
Total landholders	52	100.0

Note: Percentages based on landholders who reported the decline in the diversity of native plants and animals was or had been a problem on their property.

Source: EBC (2015).

The most commonly reported method of managing the decline in the diversity of native plants and animals (Table 204) was to destock (29%).

Table 204: "What was the main thing you did to successfully manage the decline in the diversity of native plants and animals?"

Response	Count	Percent
Destock	6	28.6
Grazing management (general)	5	23.8
Rest or rotationally graze paddocks	4	19.0
Waited for rain	3	14.3
Reduced pest animals	3	14.3
Created a conservation reserve	2	9.5
Other practices ( <i>frequency of one</i> )	2	9.5
Total landholders	195	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Capacity to manage the decline in the diversity of native plants and animals

Table 205 shows that 'optimism about addressing the issue' (77%), equipment, machinery and materials to address the issue (69%), favourable land and water conditions (69%) and good markets and income for products (65%) were resources most landholders had available to manage the decline in the diversity of native plants and animals. On the other hand, fewer landholders had support from neighbours or formal groups (23%), support from businesses and contactors (12%) and people to do the work (12%).

Table 205: "In managing the decline in the diversity of native plants and animals on your property do you currently have...?"

Resources	Count	Percent
Optimism about addressing the issue	20	76.9
Equipment, machinery and materials to address the issue	18	69.2
Favourable land and water conditions on your property	18	69.2
Good markets and income for your products	17	65.4
Good health so as to undertake the work	12	46.2
Time available to do the work	11	42.3
A belief that you could address the issue	8	30.8
Favourable climate and seasonal conditions	8	30.8
The knowledge of how to address the issue	8	30.8
A property able to support change	8	30.8
Access to credit and funds to undertake the work	7	26.9
Support from friends and family	7	26.9
Practical skills to address the issue	6	23.1
Support from neighbours or formal group	6	23.1
Support from businesses and contactors	3	11.5
People to help do the work	3	11.5
Total landholders	26	100.0

Note: Percentages based on landholders who had actively managed the decline in the diversity of native plants and animals on their property.

This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

A summary of the capital resources available to manage the decline in the diversity of native plants and animals (Table 206 and Figure 54) shows landholders had the psychological and human capital to address the issue but limited natural and financial capital.

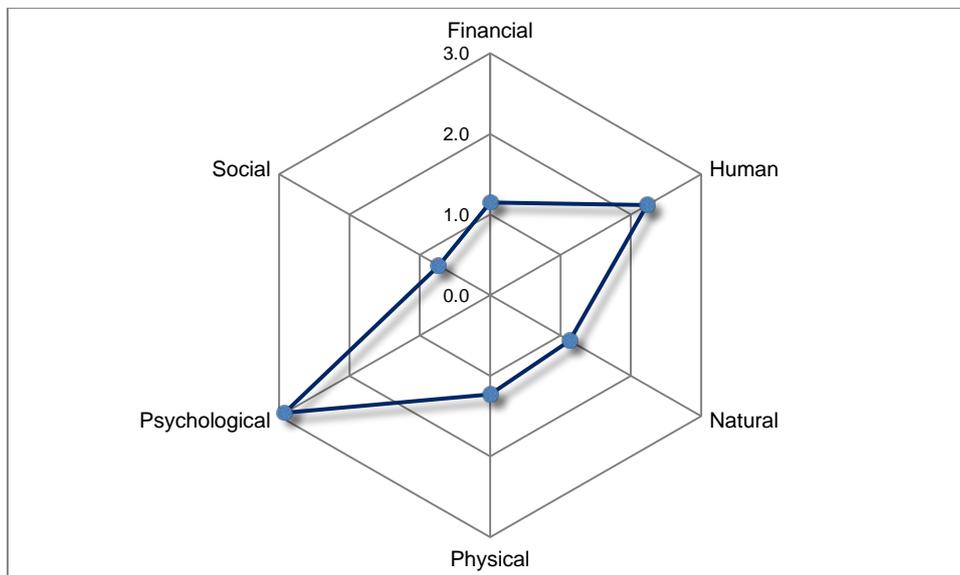
Table 206: resources available to manage the decline in the diversity of native plants and animals

Capital	Mean score	Sample size
Psychological	2.92	26
Human	2.23	26
Physical	1.23	26
Financial	1.15	26
Natural	1.13	26
Social	0.73	26

Note: Means based on landholders who had actively managed the decline in the diversity of native plants and animals on their property. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources) The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 54: resources available to manage the decline in the diversity of native plants and animals



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Seventy percent of landholders indicated they had 'moderate' to 'very high' ability to address the decline in the diversity of native plants and animals on their property (Table 207).

Table 207: "Would you say your ability to address this issue is..."

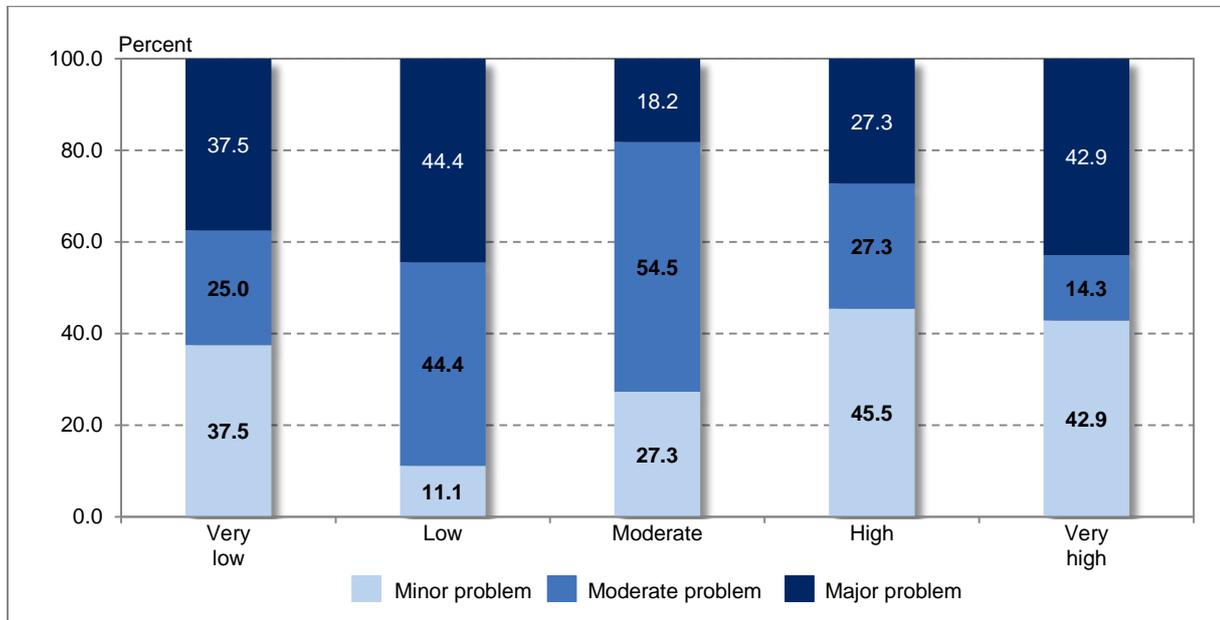
Ability to address issue	Count	Percent
Very low (1)	8	14.0
Low	9	15.8
Moderate	22	38.6
High	11	19.3
Very high (5)	7	12.3
Total landholders	57	100.0
Mean score		3.00

Note: Percentages based on landholders who reported the decline in the diversity of native plants and animals was or had been a problem on their property.

Source: EBC (2015).

Unlike other natural resource management issues, Figure 55 does not show a strong relationship between the decline in the diversity of native plants and animals and landholder ability to address the issue. The majority of landholders with limited ability to address this issue also tend to report this issue as a moderate or major problem as do landholders with a high ability to address this issue.

Figure 55: extent of problem and ability to address the decline in the diversity of native plants and animals



Source: EBC (2015).

Two of the most common reasons for landholders reporting a low to moderate ability to address the decline in the diversity of native plants and animals (Table 208) were the 'lack of money' (60%) and 'seasonal and climatic' conditions (54%).

Table 208: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Lack of money	22	59.5
Seasons and climate	20	54.1
Regulations or legislation	16	43.2
Lack of labour and help	11	29.7
Lack of time	10	27.0
Topography of my land	6	16.2
Don't live on the property	5	13.5
Too old	5	13.5
Poor land condition	4	10.8
Lack of knowledge	4	10.8
Lack of machinery, equipment or materials	4	10.8
No need to address issue	2	5.4
My poor health	1	2.7
No help or support from neighbours	1	2.7
Cannot be fixed	0	0.0
Other reasons (frequency of one)	4	10.8
<b>Total landholders</b>	<b>37</b>	<b>100.0</b>

Note: Based on those landholders who reported their ability to address the decline in native plants and animals was very low, low or moderate.

This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Access to water for agricultural purposes

Fifty-one percent of landholders reported that during the time they had been on the property access to water for agricultural purposes had been a problem (Table 209).

Table 209: "During the time you have been on your property has the access to water for agricultural purposes ever been a problem?"

Response	Count	Percent
Yes	223	51.4
No	211	48.7
Total landholders	433	100.0

Source: EBC (2015).

Of those landholders who reported a problem with access to water, 31% reported it as a minor problem and 32% reported it as a major problem (Table 210).

Table 210: "In your opinion, would you say your access to water for agricultural purposes is a..."

Response	Count	Percent
Minor problem (1)	66	31.0
Moderate problem	80	37.6
Major problem (3)	67	31.5
Total landholders	213	100.0
Mean score		2.00

Note: Percentages based on landholders who reported access to water for agricultural purposes was or had been a problem on their property.

Source: EBC (2015).

## Management of access to water for agricultural purposes

Fifty-one percent of landholders who reported a problem with access to water indicated they had actively tried to manage this problem in the last two years (Table 211).

Table 211: "In the last 2 years have you done anything to address access to water on your property?"

Response	Count	Percent
Yes	149	69.3
No	66	30.7
Total landholders	215	100.0

Note: Percentages based on landholders who reported access to water for agricultural purposes was or had been a problem on their property.

Source: EBC (2015).

Of those landholders reporting a problem with access to water, 67% indicated they had been successful in managing the problem (Table 212).

Table 212: "Were you able to successfully address the access to water on your property?"

Response	Count	Percent
Yes	142	67.0
No	70	33.0
Total landholders	212	100.0

Note: Percentages based on landholders who reported access to water for agricultural purposes was or had been a problem on their property.

Source: EBC (2015).

The most common action undertaken by landholders to address problems with access to water (Table 213) was to install water infrastructure, including pipes, dams, bores, pumps and tanks (86%).

Table 213: "What was the main thing you did to successfully address access to water?"

Response	Count	Percent
Installed water infrastructure(pipes, dams, bores, pumps and tanks)	113	85.6
Cleaned or maintained water infrastructure	19	14.4
Purchased water	13	9.8
carted water	6	4.5
Destocked areas	4	3.0
It rained	2	1.5
Other ( <i>frequency of one</i> )	12	9.1
Total landholders	195	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Capacity to manage access to water

Table 214 shows that favourable land and water conditions (66%), good markets and income for products (61%), optimism about addressing the issue (56%) and favourable climate and seasonal conditions (53%), were resources most landholders had available to manage access to water. On the other hand, fewer landholders had a belief that the issue could be addressed (16%) and support from neighbours or formal groups (10%).

Table 214: "In managing access to water on your property do you currently have...?"

Resources	Count	Percent
Favourable land and water conditions on your property	92	65.7
Good markets and income for your products	86	61.4
Optimism about addressing the issue	79	56.4
Favourable climate and seasonal conditions	74	52.9
Access to credit and funds to undertake the work	63	45.0
Equipment, machinery and materials to address the issue	62	44.3
A property able to support change	45	32.1
Good health so as to undertake the work	41	29.3
Time available to do the work	35	25.0
People to help do the work	32	22.9
Support from friends and family	31	22.1
Support from businesses and contactors	26	18.6
Practical skills to address the issue	25	17.9
The knowledge of how to address the issue	24	17.1
A belief that you could address the issue	23	16.4
Support from neighbours or formal group	14	10.0
Total landholders	140	100.0

Note: Percentages based on landholders who actively managed access to water for agricultural purposes on their property.

This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

A summary of the capital resources available to manage access to water (Table 215 and Figure 56) shows landholders had the physical and psychological capital to address the issue, but limited natural and social capital.

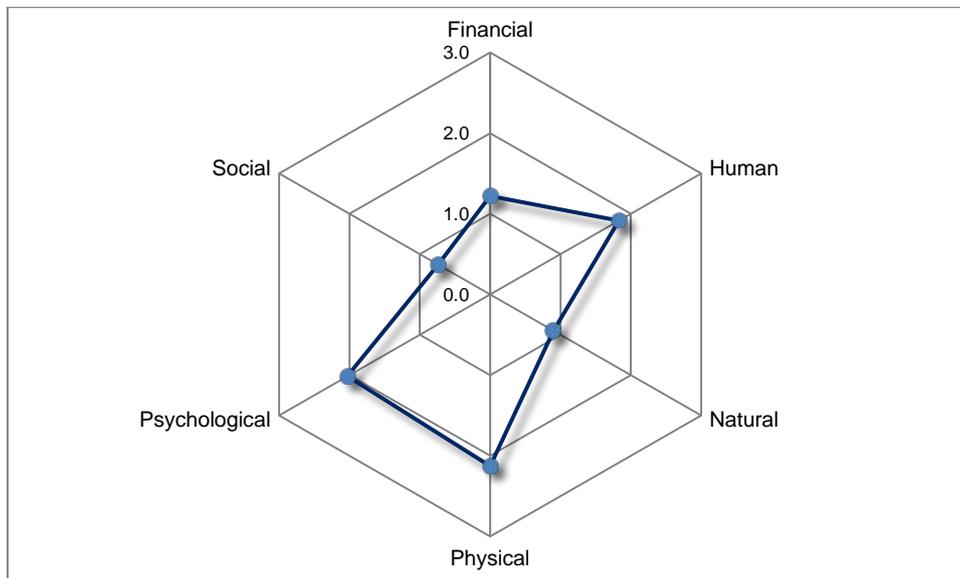
Table 215: resources available to manage access to water

Capital	Mean score	Sample size
Physical	2.13	139
Psychological	2.03	139
Human	1.83	139
Financial	1.22	139
Natural	0.90	139
Social	0.74	139

Note: Percentages based on landholders who actively managed access to water for agricultural purposes on their property. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 56: resources available to manage access to water for agricultural purposes



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Eighty-two percent of landholders indicated they had 'moderate' to 'very high' ability to address access to water for agricultural purposes on their property (Table 216).

Table 216: "Would you say your ability to address this issue is..."

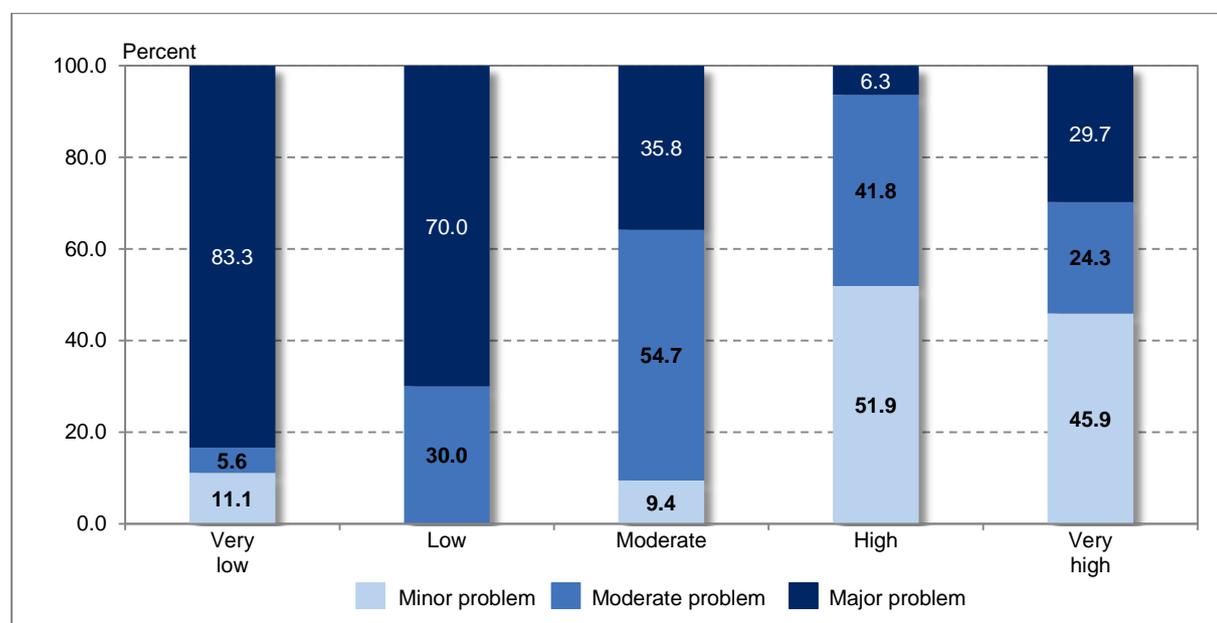
Ability to address issue	Count	Percent
Very low (1)	19	9.0
Low	20	9.5
Moderate	53	25.1
High	81	38.4
Very high (5)	38	18.0
Total landholders	211	100.0
Mean score		3.47

Note: Percentages based on landholders who reported access to water for agricultural purposes was or had been a problem on their property.

Source: EBC (2015).

Figure 57 shows a clear relationship between the problem of accessing water and landholder ability to address the issue. In this instance, the majority of landholders with limited ability to address access to water also tend to report access to water as a major problem; while the majority of landholders with the ability to address access to water reported this issue as minor or moderate problem.

Figure 57: extent of problem and ability to address access to water for agricultural purposes



Source: EBC (2015).

Three of the most common reasons for landholders reporting a low to moderate ability to access water on their property (Table 217) were the 'lack of money' (52%), 'seasonal and climatic' conditions (48%) and regulations or legislation (43%).

Table 217: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Lack of money	46	52.3
Seasons and climate	42	47.7
Regulations or legislation	38	43.2
Lack of machinery, equipment or materials	20	22.7
Lack of labour and help	12	13.6
Lack of time	12	13.6
Topography of my land	8	9.1
Don't live on the property	7	8.0
Poor land condition	7	8.0
No need to address issue	3	3.4
Cannot be fixed	3	3.4
Too old	3	3.4
Lack of knowledge	3	3.4
No help or support from neighbours	2	2.3
My poor health	1	1.1
Other reasons (frequency of one)	4	4.5
Total landholders	88	100.0

Note: Based on those landholders who reported their ability to address access to water for agricultural purposes was very low, low or moderate.

This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Total grazing pressure

Total grazing pressure was identified as including the "grazing of domestic, feral and native animals, i.e., goats, rabbits and kangaroos" (Appendix A).

Fifty-one percent of landholders reported that during the time they had been on their property, total grazing pressure had been a problem (Table 218).

Table 218: "During the time you have been on your property has total grazing pressure ever been a problem?"

Response	Count	Percent
Yes	219	50.6
No	214	49.4
Total landholders	433	100.0

Source: EBC (2015).

Of those landholders who reported a problem with total grazing pressure, 30% reported it as a minor problem and 21% reported it as a major problem (Table 219).

Table 219: "In your opinion, would you say total grazing pressure on your property is a..."

Response	Count	Percent
Minor problem (1)	64	30.2
Moderate problem	103	48.6
Major problem (3)	45	21.2
Total landholders	212	100.0
Mean score		1.91

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property.

Source: EBC (2015).

Table 220 and Figure 58 indicates that an average of 607 hectares of properties in which total grazing pressure was a problem were fenced for the purpose of managing the impact of feral or native grazing animals.

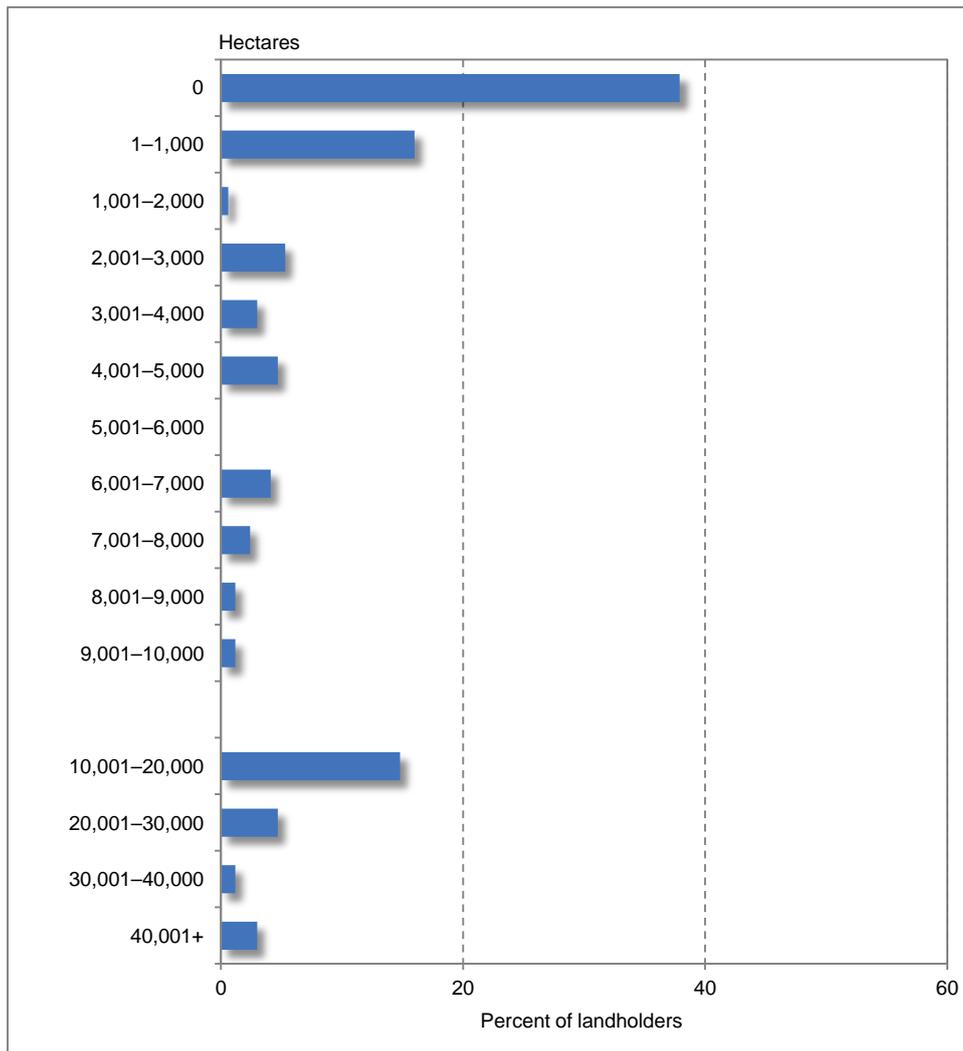
Table 220: "What area of your property is fenced for the purpose of managing the impact of feral or native grazing animals?"

Hectares	Count	Percent	Cumulative Percent
0	64	37.9	37.9
1 – 1,000	27	16.0	53.8
1,001 – 2,000	1	0.6	54.4
2,001 – 3,000	9	5.3	59.8
3,001 – 4,000	5	3.0	62.7
4,001 – 5,000	8	4.7	67.5
5,001 – 6,000	0	0.0	67.5
6,001 – 7,000	7	4.1	71.6
7,001 – 8,000	4	2.4	74.0
8,001 – 9,000	2	1.2	75.1
9,001 – 10,000	2	1.2	76.3
10,001 – 20,000	25	14.8	91.1
20,001 – 30,000	8	4.7	95.9
30,001 – 40,000	2	1.2	97.0
40,001 +	5	3.0	100.0
Total landholders	169	100.0	
Median hectares			607

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property.

Source: EBC (2015).

Figure 58: area of property fenced for the purpose of managing the impact of feral or native grazing animals



Source: EBC (2015).

While Table 220 indicates that an average of 607 hectares were fenced for the purpose of managing total grazing pressure, this represented an average of 10% of the area of properties (Table 221).

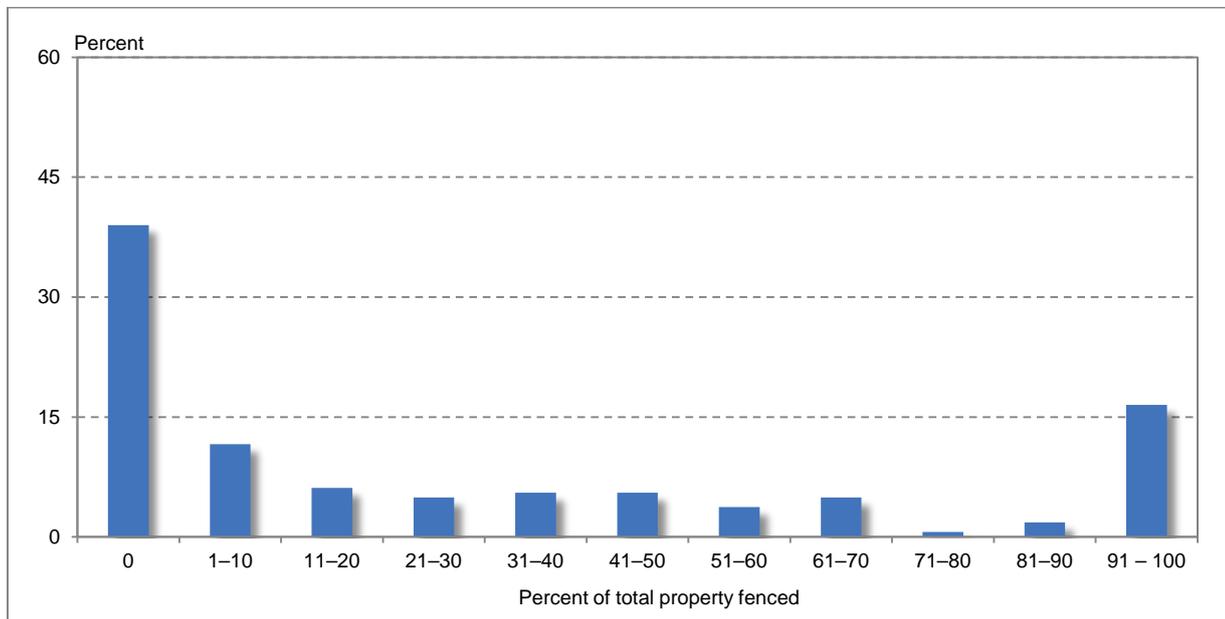
However, Figure 59 indicates that the percentage of the area of properties fenced for the purpose of managing total grazing pressure was bimodal - that is either none (39%) or between 91-100 percent (17%) of properties were fenced.

Table 221: percent of total property fenced for the purpose of managing the impact of feral or native grazing animals

Percent	Count	Percent	Cumulative Percent
0	64	39.0	39.0
1 – 10	19	11.6	50.6
11 – 20	10	6.1	56.7
21 – 30	8	4.9	61.6
31 – 40	9	5.5	67.1
41 – 50	9	5.5	72.6
51 – 60	6	3.7	76.2
61 – 70	8	4.9	81.1
71 – 80	1	0.6	81.7
81 – 90	3	1.8	83.5
91 – 100	27	16.5	100.0
Total landholders	164	100.0	
Median percent			10.0

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property.  
 Source: EBC (2015).

Figure 59: percent of total property fenced for the purpose of managing the impact of feral or native grazing animals



Source: EBC (2015).

## Management of total grazing pressure

Eighty-three percent of landholders who reported a problem with total grazing pressure indicated they had actively tried to manage this problem in the last two years (Table 222).

Table 222: "In the last 2 years have you actively managed total grazing pressure on your property?"

Response	Count	Percent
Yes	180	82.9
No	37	17.1
Total landholders	217	100.0

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property.  
Source: EBC (2015).

Table 223 indicates that 83% of landholders in managing their total grazing pressure tried to restrict the grazing of feral and native animals.

Table 223: "In managing your total grazing pressure do you try to restrict the grazing of feral and native animals?"

Response	Count	Percent
Yes	181	83.4
No	36	16.6
Total landholders	217	100.0

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property.  
Source: EBC (2015).

Of those landholders reporting a problem with total grazing pressure, 83% indicated they had been successful in managing the problem (Table 224).

Table 224: "Were you able to successfully address total grazing pressure on your property?"

Response	Count	Percent
Yes	182	83.1
No	37	16.9
Total landholders	219	100.0

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property.  
Source: EBC (2015).

The most common methods used to address total grazing pressure (Table 225) were the control of feral animals (53%) and destocking (39%)

Table 225: "What was the main thing you did to successfully manage total grazing pressure?"

Response	Count	Percent
Control feral animals	73	52.5
Destocking livestock	54	38.8
TGP fencing	33	23.7
Control watering points	20	14.4
Grazing management (general)	7	5.0
Rotational grazing	7	5.0
Supplementary feeding	7	5.0
Climate improved or rained	5	3.6
Controlled kangaroos	5	3.6
Spread stock over large area	3	2.2
Move stock regularly	2	1.4
Spell paddocks	2	1.4
Other ( <i>frequency of one</i> )	3	2.2
Total landholders	139	100.0

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Capacity to manage total grazing pressure

Table 226 shows that good markets and income for products (71%), optimism about addressing the issue (68%) and favourable land and water conditions (67%), were resources most landholders had available to manage total grazing pressure. On the other hand, fewer landholders had the knowledge of how to address the issue (17%), support from neighbours or formal groups (15%) and support from businesses and contractors (8%).

Table 226: "In managing total grazing pressure on your property do you currently have...?"

Resources	Count	Percent
Good markets and income for your products	102	71.3
Optimism about addressing the issue	97	67.8
Favourable land and water conditions on your property	96	67.1
Equipment, machinery and materials to address the issue	64	44.8
Favourable climate and seasonal conditions	59	41.3
A belief that you could address the issue	44	30.8
Good health so as to undertake the work	42	29.4
A property able to support change	41	28.7
Time available to do the work	36	25.2
Support from friends and family	35	24.5
Practical skills to address the issue	32	22.4
Access to credit and funds to undertake the work	31	21.7
People to help do the work	26	18.2
The knowledge of how to address the issue	24	16.8
Support from neighbours or formal group	21	14.7
Support from businesses and contactors	12	8.4
Total landholders	143	100.0

Note: Percentages based on landholders who have actively managed total grazing pressure on their property in the last two years.

This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

A summary of the capital resources available to manage total grazing pressure (Table 227 and Figure 60) shows landholders had the psychological capacity (optimisms and a belief they could address the issue) to address the issue, but limited natural and social capital.

Table 227: resources available to manage total grazing pressure

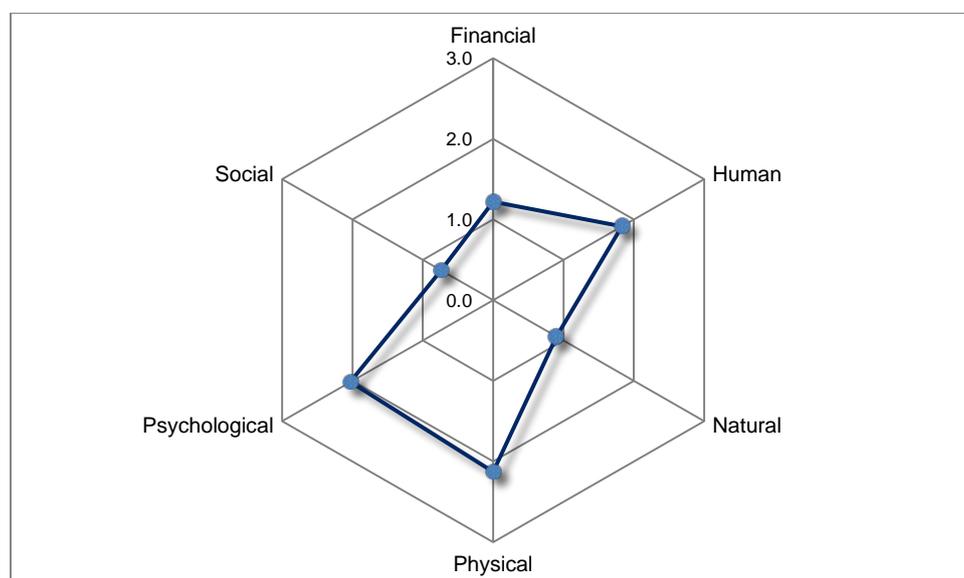
Capital	Mean score	Sample size
Psychological	2.25	143
Human	1.93	143
Physical	1.65	143
Financial	1.05	143
Natural	0.90	143
Social	0.66	143

Note: Means based on landholders who have actively managed total grazing pressure on their property in the last two years.

Note: Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources). The methodology section of this report provides a discussion of how each of the capitals have been scored.

Source: EBC (2015).

Figure 60: resources available to manage total grazing pressure



Note: Lower values (0) indicate low resources available while higher values (3) indicate relatively more resources are available

Source: EBC (2015).

Sixty-eight percent of landholders indicated they had 'moderate' to 'very high' ability to address total grazing pressure (Table 228).

Table 228: "Would you say your ability to address this issue is..."

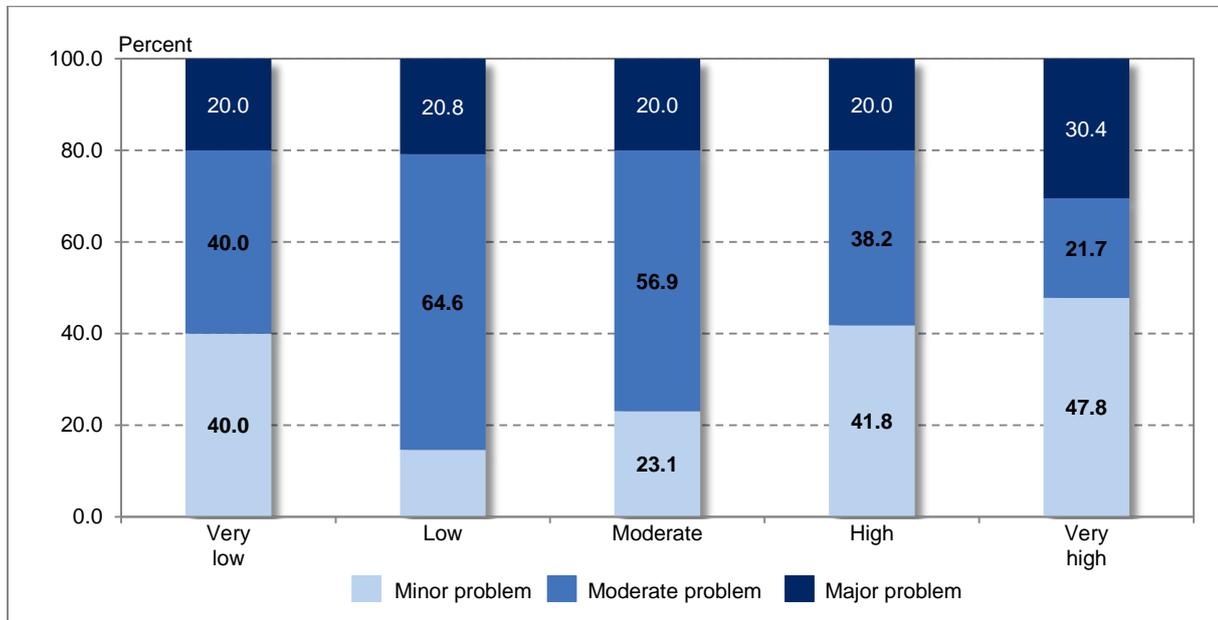
Ability to address issue	Count	Percent
Very low (1)	20	9.2
Low	49	22.6
Moderate	66	30.4
High	57	26.3
Very high (5)	25	11.5
Total landholders	217	100.0
Mean score		3.08

Note: Percentages based on landholders who reported total grazing pressure was or had been a problem on their property.

Source: EBC (2015).

Unlike other natural resource management issues, Figure 61 does not show a strong relationship between total grazing pressure and landholder ability to address the issue. The majority of landholders with limited ability to address this issue also tend to report this issue as a minor or moderate problem as do landholders with a high ability to address this issue.

Figure 61: extent of problem and ability to address total grazing pressure



Source: EBC (2015).

Three of the most common reasons for landholders reporting a low to moderate ability manage total grazing pressure (Table 229) were the 'lack of money' (61%), 'seasonal and climatic' conditions (39%) and regulations or legislation (34%).

Table 229: "Why do you say your ability to address this issue is low to moderate?"

Reasons	Count	Percent
Lack of money	81	61.4
Seasons and climate	51	38.6
Regulations or legislation	45	34.1
Lack of time	43	32.6
Lack of labour and help	36	27.3
Lack of machinery, equipment or materials	20	15.2
Topography of my land	16	12.1
Don't live on the property	12	9.1
Too old	9	6.8
No help or support from neighbours	9	6.8
No need to address issue	6	4.5
Poor land condition	5	3.8
Cannot be fixed	5	3.8
My poor health	3	2.3
Lack of knowledge	3	2.3
Other reasons ( <i>frequency of one</i> )	8	6.1
Total landholders	132	100.0

Note: Based on those landholders who reported their ability to address total grazing pressure was very low, low or moderate. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

## Natural resource management issues

This chapter provides a summary and comparison of findings in relation to all natural resource management issues.

During the time landholders had been on their properties, Table 230 and Figure 62 show that 'other pest animals' (85%), invasive native scrub (55%), low groundcover (53%), access to water for agricultural purposes (51%) and total grazing pressure (51%) were problems experienced by the majority of landholders.

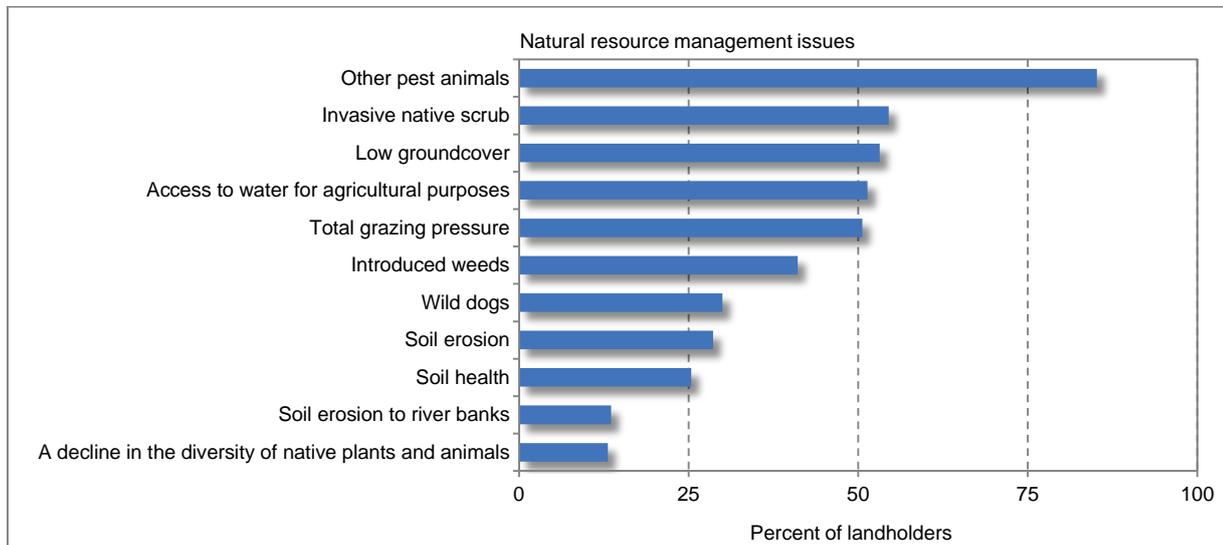
Table 230: "During the time you have been on your property has the [NRM issue] ever been a problem?"

NRM issue	Count	Percent
Other pest animals	375	85.2
Invasive native scrub	237	54.5
Low groundcover	232	53.2
Access to water for agricultural purposes	223	51.4
Total grazing pressure	219	50.6
Introduced weeds	179	41.1
Wild dogs	131	30.0
Soil erosion	125	28.6
Soil health	111	25.4
Soil erosion to river banks	59	13.6
A decline in the diversity of native plants and animals	57	13.1

Note: This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

Figure 62: natural resource management issues on properties



Source: EBC (2015).

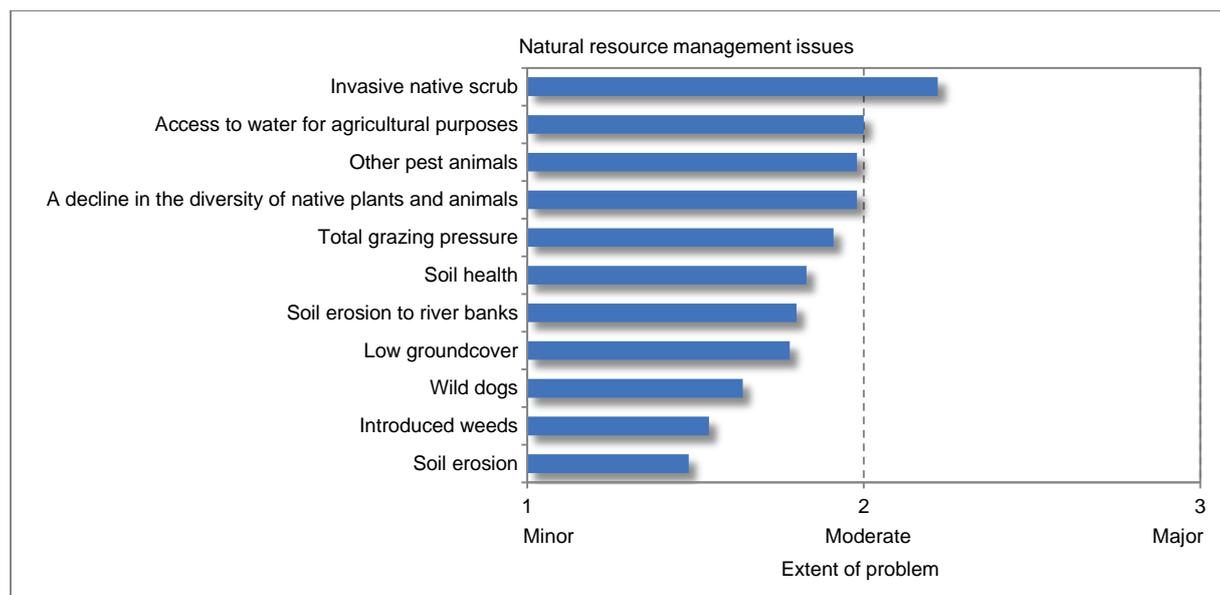
In terms of assessing the extent of each issue as a problem; that is whether the natural resource management issue is a minor, moderate or major problem; Table 231 and Figure 63 show that invasive native scrub, access to water for agricultural purposes, 'other pest animals', a decline in the diversity of native plants and animals and total grazing pressure were natural resource management issues that were most problematic to landholders.

Table 231: "In your opinion, would you say the [NRM issue] on your property is a...."

NRM issue	Mean score	Sample count
Invasive native scrub	2.22	235
Access to water for agricultural purposes	2.00	213
Other pest animals	1.98	362
A decline in the diversity of native plants and animals	1.98	57
Total grazing pressure	1.91	212
Soil health	1.83	107
Soil erosion to river banks	1.80	56
Low groundcover	1.78	223
Wild dogs	1.64	130
Introduced weeds	1.54	179
Soil erosion	1.48	124

Note: Means are based on scores for minor problem (1); moderate problem (2); major problem (3).  
 Source: EBC (2015).

Figure 63: extent of natural resource management issues



Source: EBC (2015).

## Management of natural resource management issues

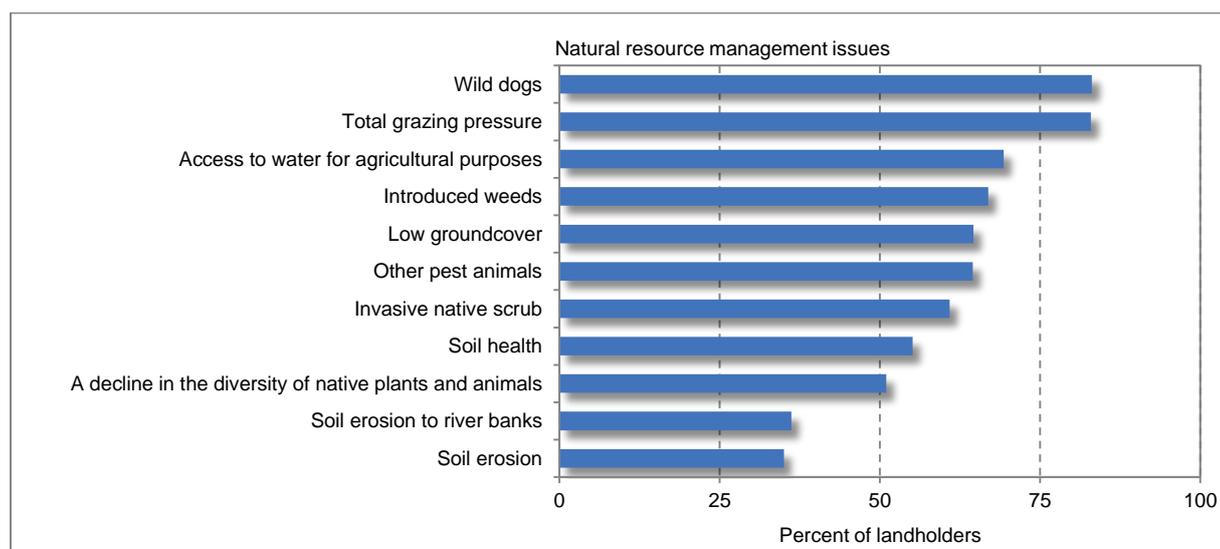
With the exception of soil erosion to riverbanks and soil erosion in general, the majority of landholders had actively managed all natural resource management issues (Table 232). In particular wild dogs and total grazing pressure were actively managed by over 80% of landholders (Figure 64).

Table 232: "In the last 2 years have you actively managed the [NRM issue] on your property?"

NRM issue	Count	Percent
Wild dogs	108	83.1
Total grazing pressure	180	82.9
Access to water for agricultural purposes	149	69.3
Introduced weeds	119	66.9
Low groundcover	146	64.6
Other pest animals	231	64.5
Invasive native scrub	137	60.9
Soil health	59	55.1
A decline in the diversity of native plants and animals	26	51.0
Soil erosion to river banks	21	36.2
Soil erosion	43	35.0

Source: EBC (2015).

Figure 64: active management of issues in the last two years



Source: EBC (2015).

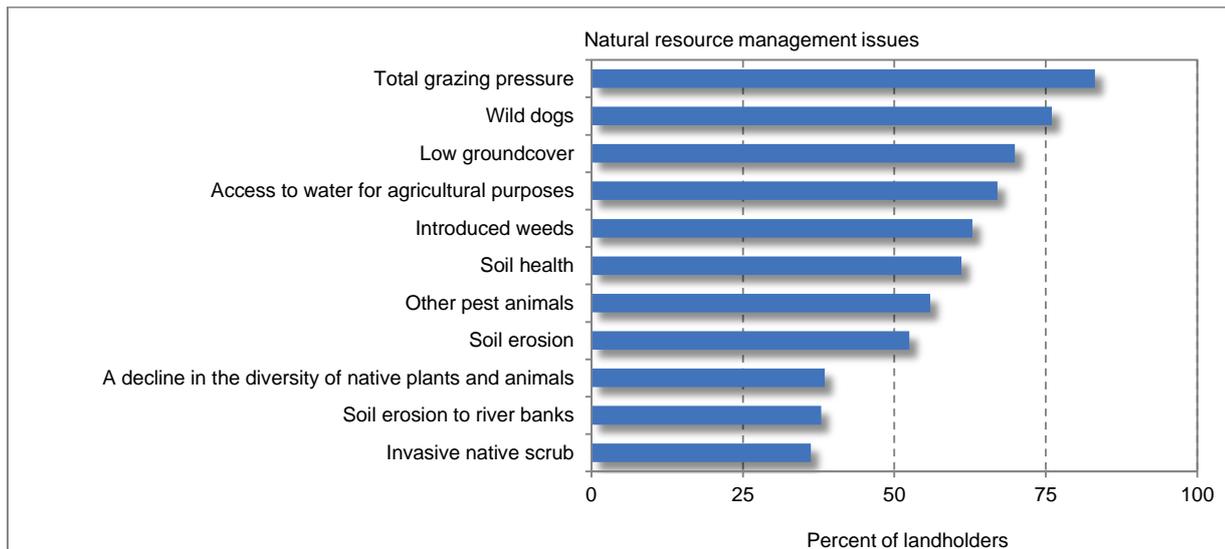
Table 233 and Figure 65 show that landholders were least successful in managing the decline in the diversity of native plants and animals (39%), soil erosion to river banks (38%) and invasive native scrub (36%). Most success was achieved in the management of total grazing pressure (83%) and the management of wild dogs (76%).

Table 233: "Were you able to successfully manage the [NRM issue]?"

NRM issue	Count	Percent
Total grazing pressure	182	83.1
Wild dogs	98	76.0
Low groundcover	156	69.9
Access to water for agricultural purposes	142	67.0
Introduced weeds	110	62.9
Soil health	66	61.1
Other pest animals	203	55.9
Soil erosion	64	52.5
A decline in the diversity of native plants and animals	20	38.5
Soil erosion to river banks	22	37.9
Invasive native scrub	85	36.2

Source: EBC (2015).

Figure 65: success in addressing natural resource management issues



Source: EBC (2015).

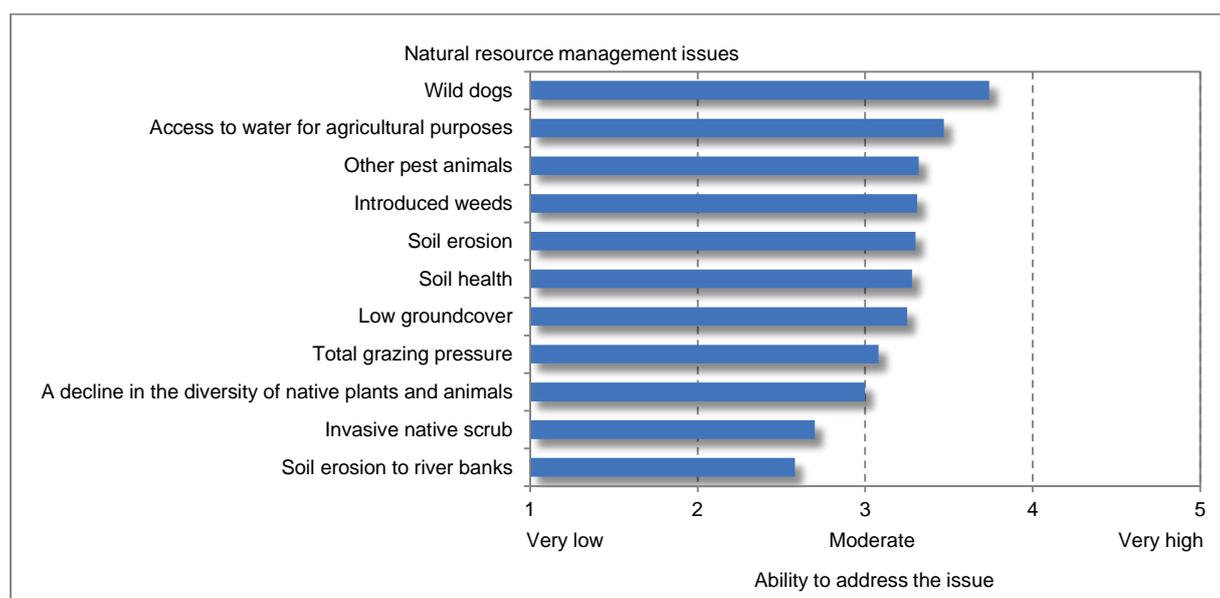
Table 234 and Figure 66 show landholders have the highest ability to address wild dogs and access to water for agricultural purposes. Conversely landholders have the least ability to address invasive native scrub and soil erosion to river banks.

Table 234: "Would you say your ability to address the [NRM issue] is..."

NRM issue	Mean score	Sample count
Wild dogs	3.74	130
Access to water for agricultural purposes	3.47	211
Other pest animals	3.32	361
Introduced weeds	3.31	175
Soil erosion	3.30	123
Soil health	3.28	103
Low groundcover	3.25	208
Total grazing pressure	3.08	217
A decline in the diversity of native plants and animals	3.00	57
Invasive native scrub	2.70	233
Soil erosion to river banks	2.58	57

Note: Means are based on scores for very low (1); low (2); moderate (3); high (4) very high (5)  
 Source: EBC (2015).

Figure 66: ability to address natural resource management issues



Source: EBC (2015).

Table 235 indicates that across all natural resource management issues the resources which most commonly constrain landholder ability to address issues are (i) the lack of money; (ii) seasonal and climatic conditions; (iii) the lack of labour and help; and the lack of machinery, equipment and materials. In contrast the belief that the issue 'cannot be fixed', the belief that there was no need to address the issue, the lack of help or support from neighbours and the health of the landholder were the factors least likely to constrain landholder ability to address each issue.

Table 235: "Why would you say your ability to address this issue is low to moderate?"

NRM issue	Invasive native scrub	Introduced weeds	Ground cover	Soil health	Soil erosion to river banks	Soil erosion	Wild dogs	'Other pest animals'	Decline in diversity	Access to water	Total grazing pressure
Lack of money	Red										
Seasons and climate	Red										
Lack of labour and help	Red										
Lack of machinery, equipment or materials	Red										
Regulations or legislation	Red										
Lack of time	Red										
Topography of my land	Red										
Poor land condition	Dark blue										
Don't live on the property	Dark blue										
Too old	Dark blue										
Lack of knowledge	Dark blue										
Cannot be fixed	Dark blue										
No need to address issue	Dark blue										
No help or support from neighbours	Dark blue										
My poor health	Dark blue										

Note: Red indicates the four most commonly reported resources which constrain landholders ability to address the issue; dark blue indicates the four most commonly reported resources which are least likely to constrain ability.

Source: EBC (2015).

Figure 67 summarises three core measures associated with landholder management of natural resource management issues.

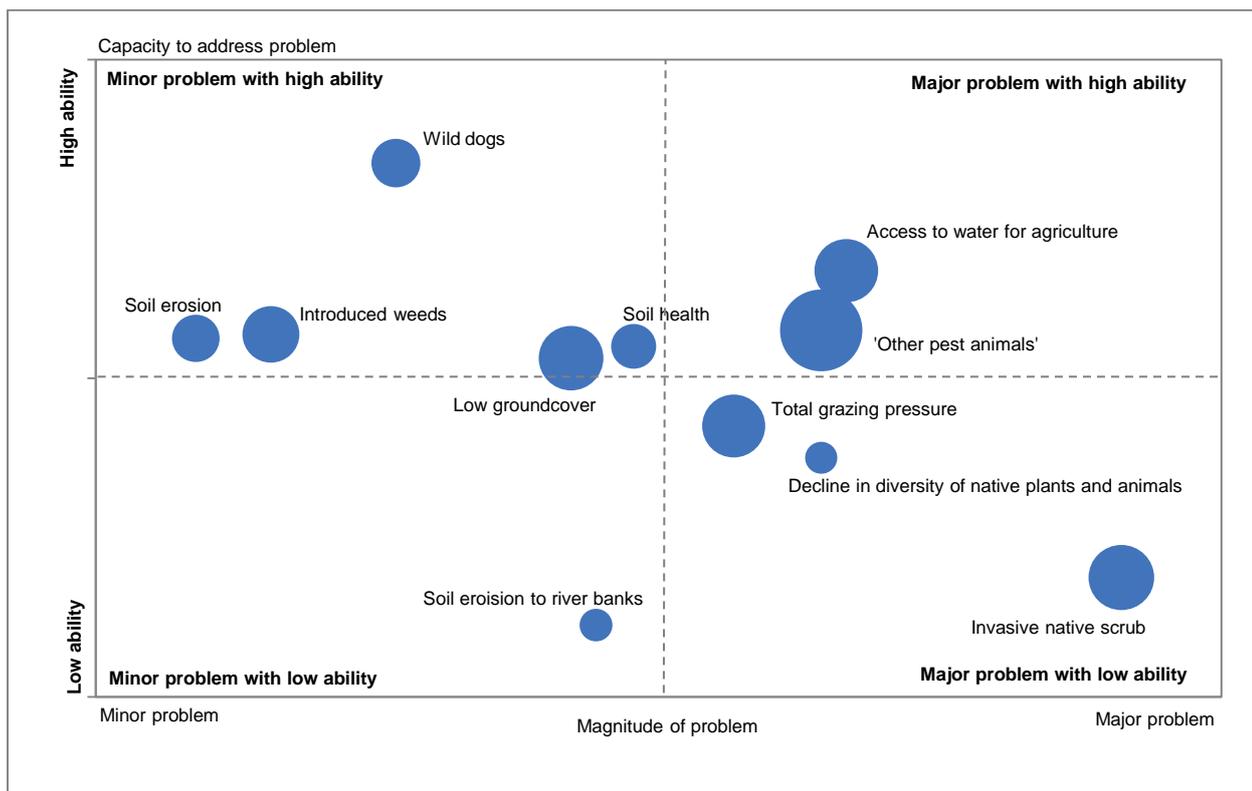
The horizontal axis of Figure 67 describes the extent of the problem, with the axis describing each issue on a scale from a minor to a major problem. The vertical axis describes the ability of the landholder to address each issue and varies from low ability to high ability.

Using only the horizontal and vertical axis, Figure 67 identifies four quadrants representing the extent of each problem and the landholders ability to address each issue. The lower right quadrant is of most interest as it includes those issues which are seen as relatively major problems and for which landholders have relatively low ability to address each issue. In this quadrant are found three issues namely (i) total grazing pressure, (ii) invasive native scrub and (iii) the decline in the diversity of native plants and animals.

In addition, the size of the circle represents the prevalence of the issue amongst landholders. For instance, while the decline in the diversity of native plants and animals was seen as a relatively major problem and one in which landholders had relatively low ability to address the issue, it was not regarded as one of the most prevalent natural resource management issues amongst landholders.

On the other hand, total grazing pressure and invasive native scrub were not only relatively major problems, with landholders also having relatively low ability to address each issue; but each issue was relatively prevalent problem amongst landholders.

Figure 67: landholder ability, extent and prevalence of natural resource management issues



Source: EBC (2015).

## Landholder capacity to address natural resource management issues

Overall Table 236 shows the resources most commonly available to landholders were (i) an optimistic belief about addressing the issue; (ii) favourable land and water conditions; (iii) good markets and income from their products; and (iv) favourable climate and seasonal conditions.

Resource least available to address natural resource management issues were (i) the knowledge of how to address the issue; (ii) practical skills to address the issue, (iii) support from neighbours and formal groups and (iv) support from business and contractors.

Soil erosion to riverbanks was somewhat different to other natural resource management issues in so far as resources to address this issue included (i) optimism about addressing the issue; (ii) equipment, machinery and materials, (iii) access to credit and funds to do the work and (iv) a belief that the issue could be addressed.

Table 236: "In managing [NRM issue] on your property do you currently have...."

NRM issue	Invasive native scrub	Introduced weeds	Ground cover	Soil health	Soil erosion to river banks	Soil erosion	Wild dogs	'Other pest animals'	Decline in diversity	Access to water	Total grazing pressure
Optimism about addressing issue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue
Favourable land and water conditions	Dark blue	Dark blue	Dark blue	Dark blue	Light blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue
Good markets and income	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue	Dark blue
Favourable climate and seasonal conditions	Dark blue	Dark blue	Light blue	Dark blue	Dark blue	Dark blue	Light blue	Dark blue	Light blue	Dark blue	Light blue
Equipment, machinery and materials	Light blue	Dark blue	Dark blue	Dark blue	Dark blue	Light blue	Light blue	Dark blue	Dark blue	Dark blue	Dark blue
Access to credit and funds to do the work	Light blue	Red	Light blue	Dark blue	Dark blue	Light blue	Light blue	Light blue	Dark blue	Light blue	Light blue
A belief that you could address the issue	Red	Red	Red	Dark blue	Dark blue	Red	Red	Red	Red	Red	Red
Support from neighbours or formal group	Red	Red	Red	Light blue	Light blue	Red	Dark blue	Red	Red	Red	Red
A property able to support change	Light blue	Light blue	Light blue	Light blue	Light blue	Light blue	Light blue	Light blue	Light blue	Light blue	Light blue
Good health so as to undertake the work	Light blue	Light blue	Light blue	Light blue	Red	Light blue	Light blue	Light blue	Light blue	Light blue	Light blue
Time available to do the work	Light blue	Light blue	Light blue	Light blue	Red	Light blue	Light blue	Light blue	Light blue	Light blue	Light blue
Support from friends and family	Light blue	Light blue	Light blue	Light blue	Red	Light blue	Light blue	Light blue	Light blue	Light blue	Light blue
People to help do the work	Light blue	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
The knowledge of how to address the issue	Red	Light blue	Red	Red	Light blue	Red	Red	Red	Red	Red	Red
Practical skills to address the issue	Red	Light blue	Red	Red	Light blue	Red	Red	Red	Red	Red	Red
Support from businesses and contractors	Red	Red	Red	Red	Light blue	Red	Red	Red	Red	Red	Red

Note: Dark blue indicates the four most available resources available; red indicates the four least available resources; light blue represents average availability of resources.

Source: EBC (2015).

Table 237 summarises each of the items shown in Table 236 into the six capitals, with Figure 68 showing the profile for each natural resource management issue in relation to each capital.

What is evident in relation to Table 237 and Figure 68 and Figure 69 is that psychological (optimism and a belief in ability to address the issue); physical (equipment, machinery and materials) and human (knowledge, skills and health) capacity are resources most commonly available to landholders in addressing each of the natural resource management issues.

The resources least commonly available in addressing natural resource management issues are those resources associated with natural (climate, seasons and property condition); financial (income); and social (support from friends, neighbours, businesses) capital.

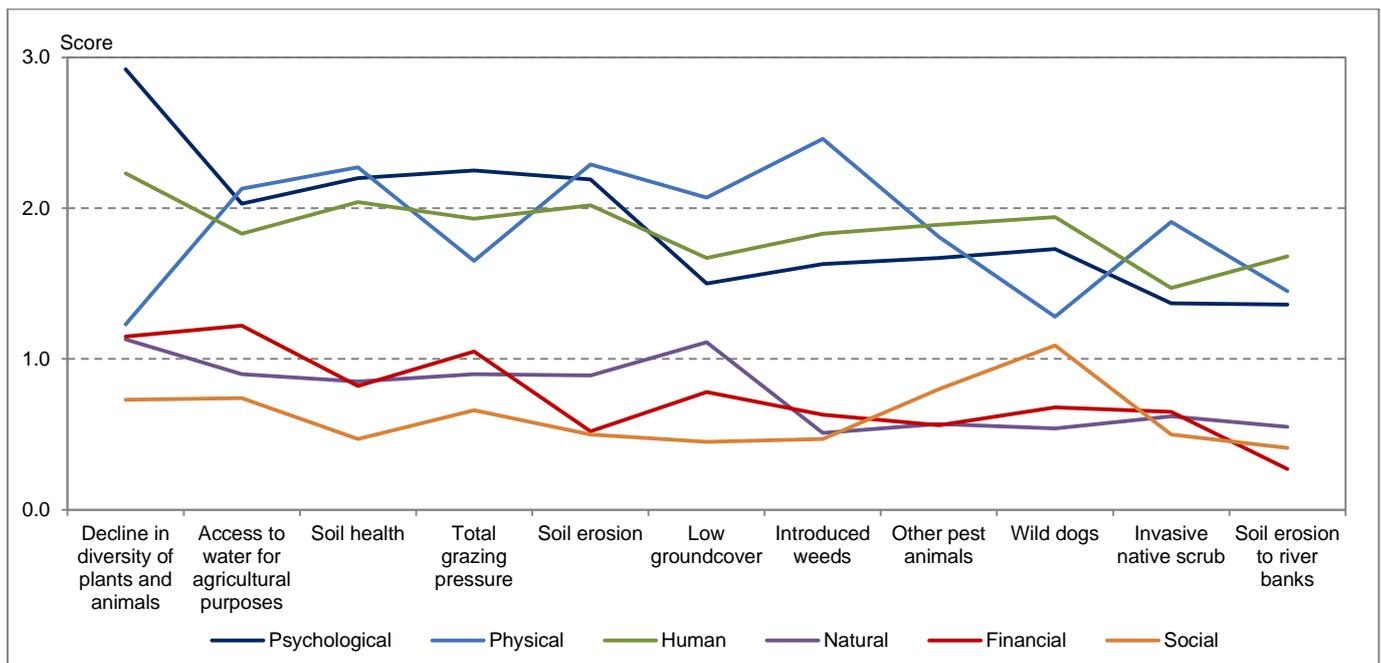
Table 237: resources to manage natural resource management issues

NRM issues	Psych	Physical	Human	Natural	Financial	Social	Total
Decline in diversity of plants and animals	2.92	1.23	2.23	1.13	1.15	0.73	9.39
Soil health	2.20	2.27	2.04	0.85	0.82	0.47	8.65
Access to water for agricultural purposes	2.03	2.13	1.83	0.90	1.22	0.74	8.65
Total grazing pressure	2.25	1.65	1.93	0.90	1.05	0.66	8.44
Soil erosion	2.19	2.29	2.02	0.89	0.52	0.50	8.41
Low groundcover	1.50	2.07	1.67	1.11	0.78	0.45	7.58
Introduced weeds	1.63	2.46	1.83	0.51	0.63	0.47	7.53
Other pest animals	1.67	1.81	1.89	0.57	0.56	0.80	7.30
Wild dogs	1.73	1.28	1.94	0.54	0.68	1.09	7.26
Invasive native scrub	1.37	1.91	1.47	0.62	0.65	0.50	6.52
Soil erosion to river banks	1.36	1.45	1.68	0.55	0.27	0.41	5.72
<b>Overall mean score</b>	<b>1.90</b>	<b>1.87</b>	<b>1.87</b>	<b>0.78</b>	<b>0.76</b>	<b>0.62</b>	

Note: Means based on landholders who had actively managed the NRM issue on their property in the last two years. Each of the capital scale scores vary between 0 (no available resources) to 4 (high available resources) Total score is the sum across each of the six capital scores The methodology section of this report provides a discussion of how each of the capitals have been scored.

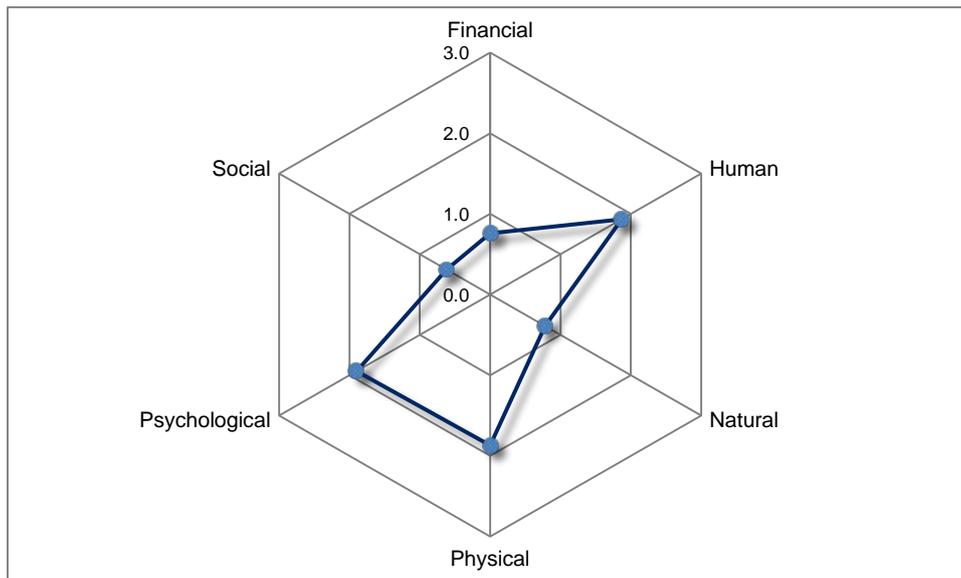
Source: EBC (2015).

Figure 68: resources to manage natural resource management issues



Source: EBC (2015).

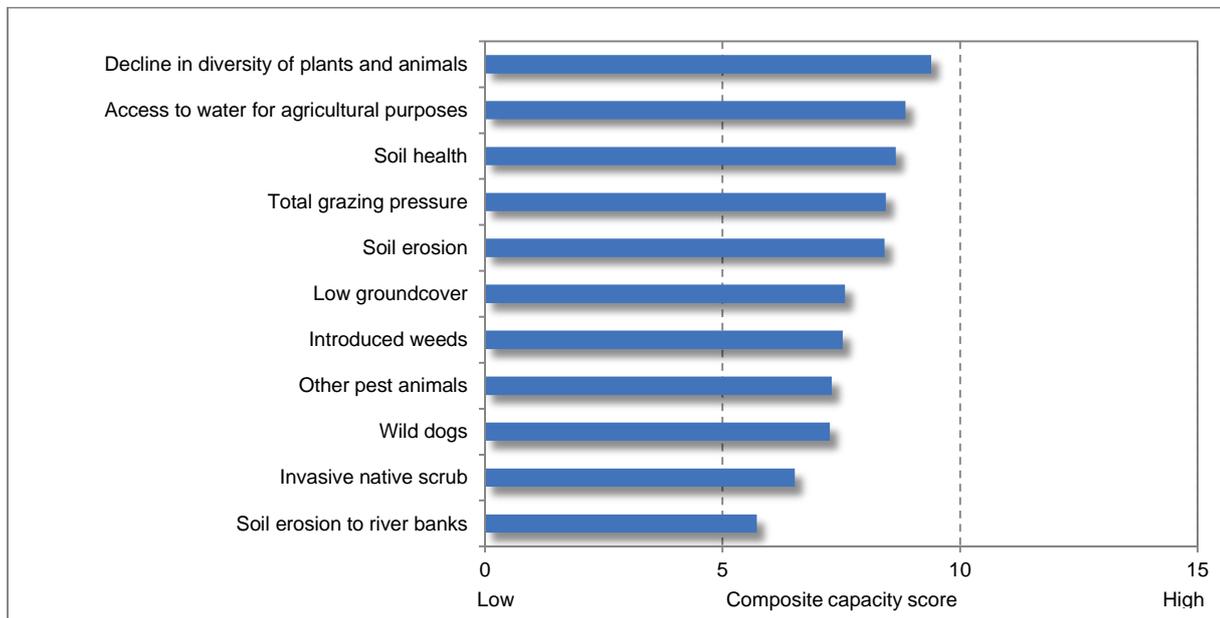
Figure 69: composite capacity scores across natural resource management issues



Source: EBC (2015).

Table 237 and Figure 70 also shows those natural resource management issues that require the most resources. In other words, the majority of resource items identified in Table 236 would be required to address the decline the diversity of native plants and animals and few of the resource items would be required to address invasive native scrub and soil erosion to riverbanks.

Figure 70: composite capacity scores for each natural resource management issue



Source: EBC (2015).

## Cultural heritage and property management

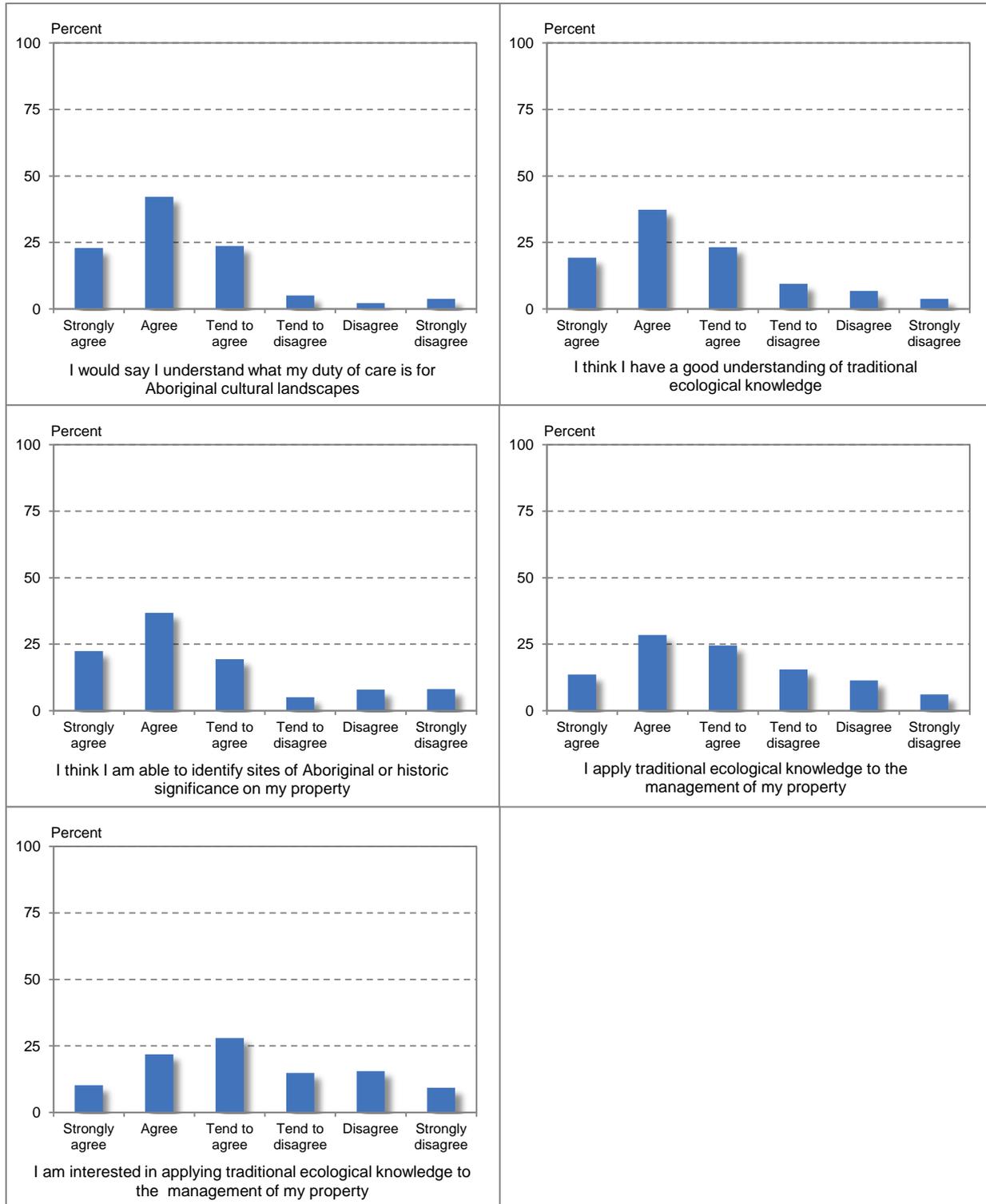
The majority of landholders indicated they understood their duty of care towards Aboriginal cultural landscapes; believed they had a good understanding of traditional ecological knowledge; and could identify sites of Aboriginal or historic significance on their property (Table 238 and Figure 71). The majority of landholders also indicated they applied or were interested in applying traditional ecological knowledge to the management of their property.

Table 238: "Would you say your ability to address this issue is..." (statements ordered from highest to lowest agreement)

Belief statement	Count	Percent
I would say I understand what my duty of care is for Aboriginal cultural landscapes		
Strongly agree (1)	94	22.9
Agree	173	42.2
Tend to agree	97	23.7
Tend to disagree	21	5.1
Disagree	9	2.2
Strongly disagree (6)	16	3.9
Total landholders	410	100.0
Mean score		2.33
I think I have a good understanding of traditional ecological knowledge		
Strongly agree (1)	79	19.3
Agree	153	37.3
Tend to agree	95	23.2
Tend to disagree	39	9.5
Disagree	28	6.8
Strongly disagree (6)	16	3.9
Total landholders	410	100.0
Mean score		2.59
I think I am able to identify sites of Aboriginal or historic significance on my property		
Strongly agree (1)	93	22.5
Agree	152	36.8
Tend to agree	80	19.4
Tend to disagree	21	5.1
Disagree	33	8.0
Strongly disagree (6)	34	8.2
Total landholders	413	100.0
Mean score		2.64
I apply traditional ecological knowledge to the management of my property		
Strongly agree (1)	55	13.6
Agree	115	28.5
Tend to agree	99	24.6
Tend to disagree	63	15.6
Disagree	46	11.4
Strongly disagree (6)	25	6.2
Total landholders	403	100.0
Mean score		3.01
I am interested in applying traditional ecological knowledge to the management of my property		
Strongly agree (1)	41	10.3
Agree	87	21.9
Tend to agree	111	28.0
Tend to disagree	59	14.9
Disagree	62	15.6
Strongly disagree (6)	37	9.3
Total landholders	397	100.0
Mean score		3.31

Source: EBC (2015).

Figure 71: cultural heritage and property management



Source: EBC (2015).

## Awareness of Western Local Land Services

Eighty-four percent of all landholders indicated they had heard of Western Local Land Services prior to receiving the questionnaire (Table 239).

Table 239: "Had you heard of Western Local Land Services prior to receiving this survey?"

Response	Count	Percent
Yes	369	83.5
No	73	16.5
Total landholders	442	100.0

Source: EBC (2015).

Amongst those landholders who had heard of Western Local Land Services, 54% believed the main activity of Western Local Land Services was administering the National Livestock Identification System (Table 240). In addition, 48% believed the main activity of Western Local Land Services was funding programs for natural resource management projects and 47% believed it to be associated with administering rabbit baits.

Table 240: "Prior to receiving this survey, what did you think were the main activities undertaken by the Western Local Land Services?"

Reasons	Count	Percent
National Livestock Identification System tags	184	53.5
Funding programs for natural resource management projects	165	48.0
Rabbit baits	162	47.1
Brucellosis testing	136	39.5
Grazing management	134	39.0
Total grazing pressure advice	124	36.0
Providing agricultural production advice	114	33.1
Design of land rehabilitation works	92	26.7
Property planning training	90	26.2
Preserving Aboriginal cultural heritage	84	24.4
Grazing systems training	83	24.1
Don't know	82	23.8
Total landholders	344	100.0

Note: Based on those landholders who had heard of Western Local Land Services prior to receiving the survey. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

Table 241 shows that across all landholders, 46% had contact with Western Local Land Services in the six months prior to the survey.

Table 241: "Did you have any contact or communication with Western Local Land Services in the past six months?"

Response	Count	Percent
Yes	193	45.7
No	229	54.3
Total landholders	422	100.0

Source: EBC (2015).

The primary contact between landholders and Western Local Land Services (Table 242) was in relation to the baiting of pest animals (37%); general phone, face-to-face, mail or email contact (22%) and in relation to Brucellosis testing (14%).

Table 242: "What type of contact did you have?"

Type of contact	Count	Percent
Baiting of pest animals	51	36.7
Phone, face-to-face, mail or email contact	30	21.6
Brucellosis testing	20	14.4
Requested advice (i.e., pest animals and plants, soil)	19	13.7
Involved in projects with LLS or CMA	14	10.1
NILIS tags	10	7.2
Training and courses	8	5.8
Field days , information days or workshops	6	4.3
Property vegetation plans	6	4.3
Received funding for projects	5	3.6
Rates paid	4	2.9
Mesquite control program	3	2.2
Bullet purchases	2	1.4
Land and stock returns	2	1.4
Landcare meeting	2	1.4
Shooting inspection	2	1.4
Veterinary services	2	1.4
Election notice or voted	2	1.4
Other types of contact ( <i>frequency of one</i> )	9	6.5
Total landholders	139	100.0

Note: Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey.  
This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

Landholders who had contact with Western Local Land Services rated their level of satisfaction with the service provided by Western Local Land Services on a 10 point scale with endpoints which were 'not at all satisfied' (0) and 'very satisfied' (10). The majority of landholders (78%) indicated they were satisfied with the service provided (a score of 6-10 on the 10 point scale), with 34% providing a maximum satisfaction score of ten (Table 243 and Figure 72).

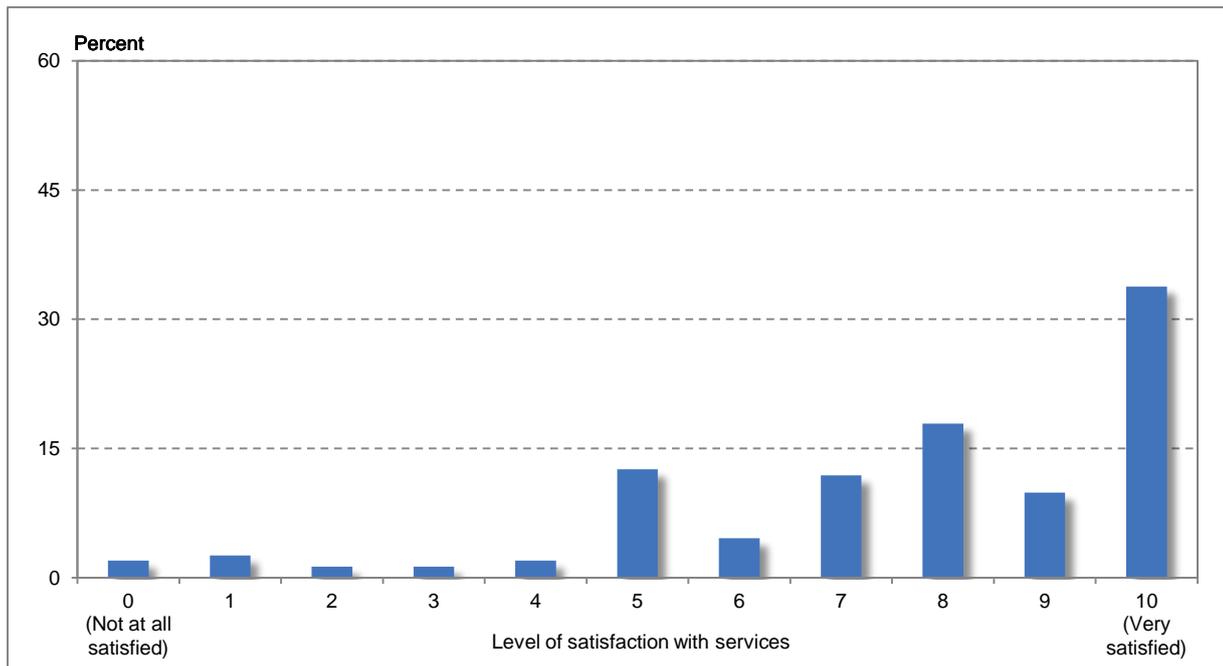
Table 243: "How satisfied were you with the service provided by Western Local Land Services?"

Response	Count	Percent
0 ( <i>Not at all satisfied</i> )	3	2.0
1	4	2.6
2	2	1.3
3	2	1.3
4	3	2.0
5	19	12.6
6	7	4.6
7	18	11.9
8	27	17.9
9	15	9.9
10 ( <i>Very satisfied</i> )	51	33.8
Total landholders	151	100.0
Mean score		7.62

Note: Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey.

Source: EBC (2015).

Figure 72: level of satisfaction with services provided by Western Local Land Services



Source: EBC (2015).

In addition, landholders who had contact with Western Local Land Services were also asked to indicate how likely they would be to recommend the services to a friend using a ten point scale with endpoints 'not at all likely' (0) and 'very likely' (10). This measure of satisfaction is also referred to as a 'net promoter score' as detractors (a score of 6 or less) are subtracted from promoters (scores of 9 or 10), to provide an estimate of how many more promoters than detractors the organisation has.

Table 244 and Figure 73 show that in relation to Western Local Land Services the percentage of promoters (47%) outweighs the percentage of detractors (26%).

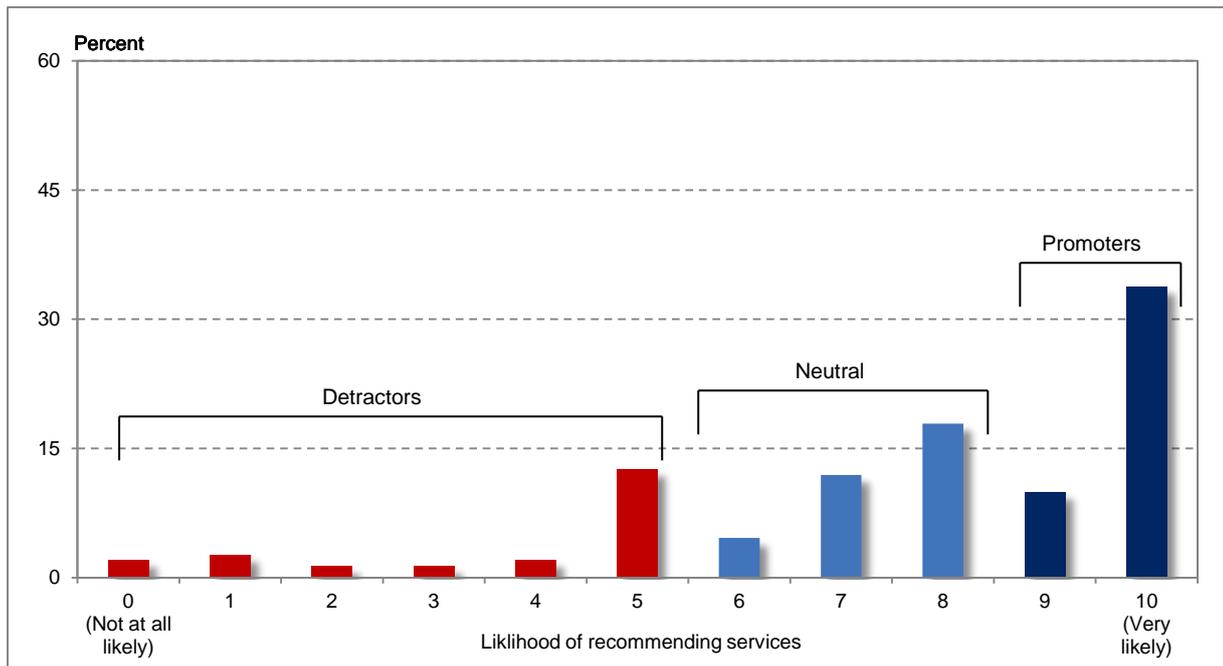
Table 244: "Considering your most recent contact with Western Local Land Services, how likely would you be to recommend their services to a friend?"

Response	Count	Percent
0 (Not at all likely)	3	2.0
1	3	2.0
2	5	3.4
3	2	1.3
4	2	1.3
5	16	10.7
6	8	5.4
7	18	12.1
8	22	14.8
9	19	12.8
10 (Very likely)	51	34.2
Total landholders	152	100.0
Mean score		7.64

Note: Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey.

Source: EBC (2015).

Figure 73: likelihood of recommending Western Local Land Services



Source: EBC (2015).

Landholders who had contact with Western Local Land Services were asked to indicate what they believed Western Local Land Services did 'really well'. Table 245 shows that 63% of landholders believed Western Local Land Services communicated well, which included descriptions such as being helpful, prompt, knowledgeable, timely and efficient.

Table 245: "In relation to your experience with Western Local Land Services, what did we do really well?"

Response	Count	Percent
Communication (helpful, prompt, knowledgeable, timely, efficient)	59	62.8
Provided poison and baits	18	19.1
Training, workshops and field days	11	11.7
Nothing done well	4	4.3
Testing rams	3	3.2
Grant funding	2	2.1
Other (frequency of one)	11	11.7
Total landholders	94	100.0

Note: Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

Interestingly, when the same landholders were asked what Western Local Land Services could do better (Table 246), 30% believed they could improve communication and the exchange of information with landholders.

Table 246: “What can we do to be even better?”

Response	Count	Percent
Improve communication and information exchange with landholders	20	30.3
Need for more local on ground staff	9	13.6
More and better funding models	6	9.1
Pest animal coordination and enforcement	6	9.1
Be more available	3	4.5
Return to previous operation of Rural Lands Protection Board	3	4.5
More practical assistance (less theory/bureaucratic)	3	4.5
Hasten funding application, PVP process	2	3.0
Lower rates	2	3.0
Provide lower cost services	2	3.0
Other responses ( <i>frequency of one</i> )	17	25.8
Total landholders	66	100.0

Note: Based on those landholders who had contact with Western Local Land Services in the six months prior to the survey. This is a multiple response table in which a respondent may be included in multiple rows.

Source: EBC (2015).

Table 247 indicates that 49% of all landholders had contact or communication with the former Catchment Management Authority in their district in the two years prior to the survey.

Table 247: “Did you have any contact or communication with the former CMA in your district in the past two years?”

Response	Count	Percent
Yes	213	49.2
No	220	50.8
Total landholders	433	100.0

Source: EBC (2015).

Sixty-five percent of all landholders indicated they had contact or communication with the former Livestock Health and Pest Authority (LHPA) in their district in the two years prior to the survey (Table 248).

Table 248: “Did you have any contact or communication with the former LHPA in your district in the past two years?”

Response	Count	Percent
Yes	284	65.1
No	152	34.9
Total landholders	436	100.0

Source: EBC (2015).

In addition, a third of all landholders (33%) indicated they had contact or communication with the Department of Primary Industries Advisory and Extension Services in their district in the two years prior to the survey (Table 249).

Table 249: “Did you have any contact or communication with DPI Advisory and Extension Services in your district in the past two years?”

Response	Count	Percent
Yes	141	32.8
No	289	67.2
Total landholders	430	100.0

Source: EBC (2015).

Appendix A  
Landholder questionnaire

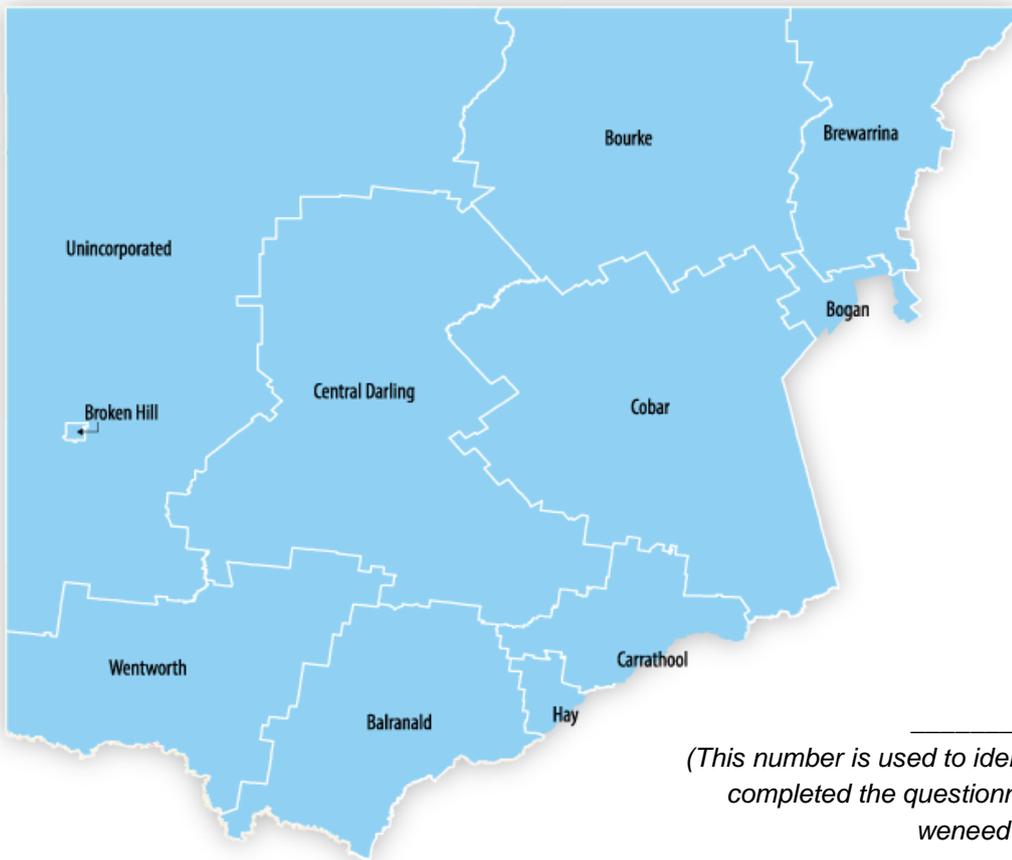


**Local Land Services**  
Western

# Survey of Landholders in the Western Local Land Services region

If you do not own, lease, look after or have an interest in a rural property in the Western Local Land Services region (the region is shown in the map below), please tick the box below and return the questionnaire in the prepaid envelope).

I do not have a rural property in the Western Local Land Services region



\_\_\_\_\_ Questionnaire Number  
(This number is used to identify which landholders have completed the questionnaire and which landholders we need to send a reminder letter to)

## PROPERTY AND LANDHOLDER CHARACTERISTICS

1. **How large is your property?** \_\_\_\_\_ Acres or \_\_\_\_\_ Hectares
2. **What would be the nearest town or location to your property?** \_\_\_\_\_
3. **What is your property primarily used for?** *(you may tick more than one box)*

<input type="checkbox"/> Dryland cropping	<input type="checkbox"/> Recreation (inc. shooting and/or fishing)
<input type="checkbox"/> Irrigation cropping	<input type="checkbox"/> Harvesting feral goats
<input type="checkbox"/> Cattle	<input type="checkbox"/> Managed goat production
<input type="checkbox"/> Sheep for wool	<input type="checkbox"/> Tourism or farm stays
<input type="checkbox"/> Sheep for meat	<input type="checkbox"/> Conservation land use
<input type="checkbox"/> Lifestyle or hobby farming	<input type="checkbox"/> Aboriginal land use
<input type="checkbox"/> Horticulture (please describe) _____	
Other uses (please describe) _____	
4. **Please state your role in the ownership or management of the property**

<input type="checkbox"/> Owner	
<input type="checkbox"/> Manager	→ <b>Go to Question 10</b>
<input type="checkbox"/> Other (please specify) _____	→ <b>Go to Question 10</b>
5. **Would you say your property is family owned or corporate owned?**

<input type="checkbox"/> Family	<input type="checkbox"/> Corporate	→ <b>Go to Question 10</b>
---------------------------------	------------------------------------	----------------------------
6. **Do you have a succession plan in place?**

<input type="checkbox"/> Yes	<input type="checkbox"/> No
------------------------------	-----------------------------
7. **Do you usually live on your property full-time as an owner operator?**

<input type="checkbox"/> Yes	→ <b>Go to Question 9</b>
<input type="checkbox"/> No	
8. **How many days do you usually stay on your property in a typical year?**

<input type="checkbox"/> 0	<input type="checkbox"/> 1-5	<input type="checkbox"/> 6-10	<input type="checkbox"/> 11- 20	<input type="checkbox"/> 21 - 50	<input type="checkbox"/> More than 51
----------------------------	------------------------------	-------------------------------	---------------------------------	----------------------------------	---------------------------------------
9. **Think about all the income your family received in the past 12 months. Approximately what percentage (%) of your total income was from *activities derived on property*?**  
\_\_\_\_\_ Percentage of total income from property
10. **Does a manager or other person who looks after the property live on the property?**

<input type="checkbox"/> Yes full-time	<input type="checkbox"/> Yes part-time (more than 51 days)	<input type="checkbox"/> Yes part-time (less than 51 days)
<input type="checkbox"/> No		
11. **How many people contribute to the decisions made on your property** *(circle only one)?*

1	23	4	5	6+
---	----	---	---	----

12. How often is there disagreement amongst these people about the management of the property?

- Never       Rarely       Sometimes       Often

13. How many years have you owned or managed land in western NSW?

\_\_\_\_\_ years

14. How many years have you lived on your current property?

\_\_\_\_\_ years

15. How many past generations of your family have been on the property? (circle only one)

- 0      1      2      3      4      5      6+

16. Do you have access to the internet on your property?

- Yes       No → **Go to Question 18**

17. Typically, when you access the internet on your property would you say the internet speed is?

- Very fast    Fast       Average    Slow    Very slow

18. What is your highest level of education? Was it at a... (tick one box only)

- |  |  |
|--|--|
| <input type="checkbox"/> Primary school          | <input type="checkbox"/> A TAFE college                |
| <input type="checkbox"/> Secondary school        | <input type="checkbox"/> A university                  |
| <input type="checkbox"/> An agricultural college | <input type="checkbox"/> Other (please describe) _____ |

19. Are you a member of an industry or producer group? For example, Landcare, producer discussion group, BestPrac, pest animal control or an Aboriginal Cultural Heritage group.

- Yes  
 No → **Go to Question 21**

20. What was the name or type of group in which you are a member? (record details for up to three groups)

**Group 1** \_\_\_\_\_

a) Is this group currently active?

- Yes       No

b) Who is the primary driver of this group?

- Landholders       Others (please explain) \_\_\_\_\_

**Group 2** \_\_\_\_\_

a) Is this group currently active?

- Yes       No

b) Who is the primary driver of this group?

- Landholders       Others (please explain) \_\_\_\_\_

**Group 3** \_\_\_\_\_

a) Is this group currently active?

- Yes       No

b) Who is the primary driver of this group?

- Landholders       Others (please explain) \_\_\_\_\_

**21. Where do you usually get your information that influences changes you make on your property?**

*(you may tick more than one box)*

- |   |   |
|---|---|
| <input type="checkbox"/> Neighbours and other landholders     | <input type="checkbox"/> Farmer and community groups (eg. Landcare) |
| <input type="checkbox"/> Government agencies and departments  | <input type="checkbox"/> Local Government                           |
| <input type="checkbox"/> Stock and station agents             |   |
| <input type="checkbox"/> Other <i>(please describe)</i> _____ |   |

**22. Do you usually obtain information by...**

- |  |   |
|--|---|
| <input type="checkbox"/> Researching products and systems                                    | <input type="checkbox"/> Industry websites                      |
| <input type="checkbox"/> Industry newsletters  | <input type="checkbox"/> Conducting trials and field monitoring |
| <input type="checkbox"/> Reading agricultural publications (eg. The Land, industry journals) |   |
| <input type="checkbox"/> Other <i>(please describe)</i> _____                                |   |

**TRAINING AND PROPERTY MANAGEMENT**

**23. Have you undertaken any agriculture, grazing or land management related courses in the past two years?**

- Yes
- No → **Go to Question 27**

**24. What courses have you undertaken? *(you may tick more than one box)***

- |   |  |
|---|--|
| <input type="checkbox"/> Chemical handling            | <input type="checkbox"/> Pro-Graze                   |
| <input type="checkbox"/> Grazing for Profit           | <input type="checkbox"/> Property planning           |
| <input type="checkbox"/> Holistic Resource Management | <input type="checkbox"/> Succession planning         |
| <input type="checkbox"/> Pasture to Pocket            | <input type="checkbox"/> Tactical Grazing Management |
| <input type="checkbox"/> Phoenix mapping              | <input type="checkbox"/> Whole Farm Planning         |

Name of any other course \_\_\_\_\_

**25. Did you change any of your practices as a result of what you learnt from the course?**

- Yes → **Go to Question 27**
- No

**26. Why didn't you change any of your practices as a result of attending the course?**

\_\_\_\_\_

**27. Are you able to identify any training you would like to receive to improve the management of your enterprise?**

- Yes (please specify type) \_\_\_\_\_
- No

**28. Do you have a biosecurity or access policy for your property?**

- Yes       No

29. Do you have a documented or written property management plan (excluding a property vegetation plan)?

Yes

No → **Go to Question 34**

30. How many years ago was the property management plan first developed?

\_\_\_\_\_years

31. How often do you update your management plan?

Always

Often

Sometimes

Occasionally

Never

32. How often do you refer to your property management plan when making decisions? Would it be...

Always

Often

Sometimes

Occasionally

Never

33. Which of the following is included in your documented property management plan?

**Does it include a description or map of ... (you may tick more than one box)**

...an air photo or satellite imagery mapping

...irrigation/soil capability maps

...pest plants or areas of invasive native scrub

...current plantings/block identification

...soil or land types

...conservation or sanctuary areas

...vegetation types

...stock or crop management

...natural or man-made watering points

...fencing requirements

...future plans or developments

...property vegetation plan

...risk control plan, i.e. weeds, disease

## CULTURAL HERITAGE ON MY PROPERTY

Read each of the following statements and score each one in terms of whether it is most like you.

	Strongly agree	Agree	Tend to agree	Tend to disagree	Disagree	Strongly disagree
34. I think I am able to identify sites of Aboriginal or historic significance on my property	<input type="checkbox"/>					
35. I would say I understand what my duty of care is for Aboriginal cultural landscapes	<input type="checkbox"/>					
36. I think I have a good understanding of traditional ecological knowledge (including cultural, spiritual, managing the landscape, plant and animal knowledge)	<input type="checkbox"/>					
37. I apply traditional ecological knowledge to the management of my property	<input type="checkbox"/>					
38. I am interested in applying traditional ecological knowledge to the management of my property	<input type="checkbox"/>					

## USE OF FIRE

39. In the past 2 years how often have you purposefully used fire to improve the condition of your land?

- None
  Once
  2-3 times  
 4-6 times
  More than 7 times

## How I do business

40. Read each of the following statements and score each one in terms of whether it is most like you.

	A lot like me	Somewhat like me	A little like me	Not like me
a) I like to be at the cutting edge of agricultural change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I am constantly seeking new ideas about ways of doing things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I often monitor the financial agricultural markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) I enjoy running my property even though it can be tough at times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I am good at what I do on my property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Running my property is a good lifestyle for me and my family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) I don't want to take risks with my property just to make more money	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Farming is my life and I cannot see myself ever doing anything else	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) I am wary of people who tell me that there is a better way of doing things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) The increasing cost of farming is making it difficult to keep up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) I sometimes feel that I am going backwards even though I work hard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) I often think about moving out of farming or grazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) I keep a close watch on seasonal climate forecasts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n) I like to keep my machinery in the best condition I can	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o) I know how to make my land produce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p) I am continually seeking to expand the size of my farm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q) I am considered a member of the established farmers in the area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r) The only way to make money at farming is to take risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s) I like to run my property effectively, but I am careful that the changes I make are appropriate for my property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t) I believe that there are more environmentally friendly ways of controlling weed and insect pests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u) I believe that mental health is an issue I often face in this industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## AWARENESS OF WESTERN LOCAL LAND SERVICES

**41. Had you heard of Western Local Land Services prior to receiving this survey?**

- Yes       No → **Go to Question 51**

**42. Prior to receiving this survey, what did you think were the main activities undertaken by the Western Local Land Services? (You may tick more than one box)**

- |  |   |
|--|---|
| <input type="checkbox"/> Don't know <b>OR...</b>                                   |   |
| <input type="checkbox"/> Brucellosis testing                                       | <input type="checkbox"/> Rabbit baits                             |
| <input type="checkbox"/> Total grazing pressure advice                             | <input type="checkbox"/> Grazing management                       |
| <input type="checkbox"/> Grazing systems training                                  | <input type="checkbox"/> Property planning training               |
| <input type="checkbox"/> National Livestock Identification System tags             | <input type="checkbox"/> Design of land rehabilitation works      |
| <input type="checkbox"/> Preserving Aboriginal cultural heritage                   | <input type="checkbox"/> Providing agricultural production advice |
| <input type="checkbox"/> Funding programs for natural resource management projects |   |

**43. Did you have any contact or communication with Western Local Land Services in the past six months?**

- Yes       No → **Go to Question 51**

**44. What type of contact did you have**

(Please specify) \_\_\_\_\_

**45. Have you obtained any services from the Western Local Land Services?**

- Yes       No → **Go to Question 51**

**46. What type of service did you obtain from Western Local Land Services? (You may tick more than one box)**

- Obtained advice about animal or plant diseases
- Obtained advice about livestock management
- Obtained advice about land management
- Attended a course or other function provided by the Western Local Land Services
- Obtained a stock or other permit from Western Local Land Services
- Obtained a PIC number or NLIS tags
- Obtained written materials from the Western Local Land Services
- A Western Local Land Services staff member attended a meeting of a group I'm involved with
- Other type of service (please describe) \_\_\_\_\_

**47. How satisfied were you with the service provided by Western Local Land Services? (0 is not at all satisfied, 10 is very satisfied)**

Not at all satisfied

Very satisfied

0	1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>										

**48. Considering your most recent contact with Western Local Land Services, how likely would you be to recommend their services to a friend? (0 is not at all likely, 10 is extremely likely)**

Not at all likely

Extremely likely

0	1	2	3	4	5	6	7	8	9	10
<input type="checkbox"/>										

**49. In relation to your experience with Western Local Land Services, what did we do really well?**

---

**50. What can we do to be even better?**

---

**51. Did you have any contact or communication with the former CMA in your district in the past two years?**

Yes                       No

**52. Did you have any contact or communication with the former LHPA in your district in the past two years?**

Yes                       No

**53. Did you have any contact or communication with DPI Advisory and Extension Services in your district in the past two years?**

Yes                       No

**54. What information do you require to carry out your business in the next 5 years?**

- |   |   |
|---|---|
| <input type="checkbox"/> New or improved horticulture crops | <input type="checkbox"/> Improving soil condition             |
| <input type="checkbox"/> Animal health and nutrition        | <input type="checkbox"/> Pest animal management               |
| <input type="checkbox"/> Invasive native scrub management   | <input type="checkbox"/> Introduced weed management           |
| <input type="checkbox"/> Nutrition management               | <input type="checkbox"/> Innovative technologies              |
| <input type="checkbox"/> Capacity building                  | <input type="checkbox"/> Rural community health and wellbeing |
| <input type="checkbox"/> Succession planning                | <input type="checkbox"/> Biosecurity                          |
| <input type="checkbox"/> Water and irrigation               |   |

Other (please describe) \_\_\_\_\_

**55. What do you see as the major issues your business faces in the next 5 years?**

- |  |  |
|--|--|
| <input type="checkbox"/> Market access – available or newly developed markets    | <input type="checkbox"/> Grazing animal management practices     |
| <input type="checkbox"/> Replanting or restructuring plantings                   | <input type="checkbox"/> Profit margins increasing or decreasing |
| <input type="checkbox"/> Natural disaster events including drought, flood & fire | <input type="checkbox"/> New technology and adoption             |

Other (please describe) \_\_\_\_\_

**DRYLAND AND IRRIGATED CROPPING**

**56. Did you undertake any cropping activities in the past two years on your property?**

Yes

No → **Go to Question 64**

**57. What area of your property was under cropping?**

\_\_\_\_\_ Acres **OR** \_\_\_\_\_ Hectares

**58. Have you irrigated crops in the past two years**

Yes

No → **Go to Question 60**

**59. What area of your property did you irrigate?**

\_\_\_\_\_ Acres **OR** \_\_\_\_\_ Hectares

**60. How much of your cropping country did you cultivate using...(leave blank if not used)**

No tillage, using one pass, direct drill with disks or knife points? \_\_\_\_\_ Acres **OR** \_\_\_\_\_ Hectares

Minimum tillage using one cultivation plus sowing? \_\_\_\_\_ Acres **OR** \_\_\_\_\_ Hectares

Conventional tillage using 2 or more cultivations prior to sowing? \_\_\_\_\_ Acres **OR** \_\_\_\_\_ Hectares

**61. Did you use any other cultivation methods?**

Yes

No → **Go to Question 63**

**62. What other cultivation methods did you use? (describe the method)**

(1) \_\_\_\_\_ Acres **OR** \_\_\_\_\_ Hectares

(2) \_\_\_\_\_ Acres **OR** \_\_\_\_\_ Hectares

**63. Have you undertaken any of the following cropping practices in the past two years?**

*(you may tick more than one box)*

Stubble retention

Crop rotation

Controlled traffic

Soil testing

Precision farming

Selective grazing

## HORTICULTURE

64. Did you undertake any horticultural activities in the past two years on your property?

Yes

No → **Go to Question 76**

65. What area of your property is used for horticultural production

\_\_\_\_\_ Acres **OR** \_\_\_\_\_ Hectares

66. Do you have a water allocation that you have used in the last two years?

Yes

No → **Go to Question 72**

67. What is your current water allocation? \_\_\_\_\_ Megalitres

68. What percentage of your horticultural production is irrigated with... (total should be 100%)

a) Drip..... %

b) Micro sprinklers ..... %

c) Overheads..... %

d) Other (please describe) \_\_\_\_\_ %

69. Do you see a need to increase your water allocation?

Yes

No → **Go to Question 72**

70. By how much would you increase your water allocation?

\_\_\_\_\_ Megalitres per hectare

71. Why do you need to increase your water allocation?

\_\_\_\_\_

72. What do you use in your orchard? (you may tick more than one box)

A traditional cover crop

Chemical control

Chemical control and slashing

Cultivation

Other (please specify) \_\_\_\_\_

73. Have you used soil amendments?

Yes

No → **Go to Question 76**

74. What type of soil amendments have you used? (you may tick more than one box)

Animal manure

Compost

Gypsum

Cut cover crop from mid row

75. In a typical year, how often would you apply soil amendments?

Once

Twice

Three times

As required

## LIVESTOCK ENTERPRISES

**76. Do you manage livestock (including harvesting goats) on your property?**

Yes

No → **Go to Question 83**

**77. Do you run sheep on your property?**

Yes

No → **Go to Question 79**

**78. What type of sheep enterprise do you run? (you may tick more than one box)**

Merino sheep for wool and meat

Fleece-shedding sheep for meat

Other sheep for wool and meat

Other sheep enterprises (please specify) \_\_\_\_\_

**79. Do you run cattle on your property?**

Yes

No → **Go to Question 81**

**80. What type of cattle enterprise do you run? (you may tick more than one box)**

Cattle for breeding

Cattle for fattening

Other cattle enterprises (please specify) \_\_\_\_\_

**81. Do you harvest or manage goats on your property?**

Yes

No → **Go to Question 83**

**82. What type of goat enterprise do you run? (you may tick more than one box)**

Harvesting

Rangeland goats (Contained with fencing, low management eg. only mustering and drafting)

Managed goat enterprise (Fencing, animal husbandry practices, doe & buck selection, managed joining)

Other goat enterprise (please specify) \_\_\_\_\_

## GRAZING FOR PRODUCTION

### 83. What area of your property is grazed by stock?

\_\_\_\_\_ Acres or \_\_\_\_\_ Hectares

None → **Go to Question 91**

### 84. How would you manage your pastures in times of drought? Would you...

*(you may tick more than one box)*

- |   |  |
|---|--|
| <input type="checkbox"/> Sell your stock outright             | <input type="checkbox"/> Move stock off the property     |
| <input type="checkbox"/> Reduce numbers to a core herd        | <input type="checkbox"/> Use a temporary drought feedlot |
| <input type="checkbox"/> Move stock elsewhere on the property | <input type="checkbox"/> Sacrifice key paddocks          |
| <input type="checkbox"/> Supplementary feed                   | <input type="checkbox"/> Cut scrub                       |
| <input type="checkbox"/> Use a feed budget                    |  |

Do something else *(please describe)* \_\_\_\_\_

### 85. In managing your property do you regularly move your stock between different paddocks to allow rest?

- Regularly move stock between paddocks
- Don't move them (e.g. set stocking) → **Go to Question 87**

### 86. When making decisions about moving stock between paddocks on your property which of the following BEST describes your reasons to move stock *(tick only one box)*

- |   |  |
|---|--|
| <input type="checkbox"/> The area of bare ground in the paddock | <input type="checkbox"/> The browse height of shrub            |
| <input type="checkbox"/> The height of pasture grass            | <input type="checkbox"/> The level of use of palatable grasses |
| <input type="checkbox"/> The condition of stock                 | <input type="checkbox"/> Stock water availability              |

### 87. Do you manage or control stock access to watering points as part of your management of domestic or feral stock, through for example, fencing off watering points or turning tanks on or off?

- Yes       No → **Go to Question 89**

### 88. What are your main reasons for controlling stock access to watering points? *(you may tick more than one box)*

- |  |   |
|--|---|
| <input type="checkbox"/> Preserve creek/river banks                              | <input type="checkbox"/> Exclude feral or native animals  |
| <input type="checkbox"/> Prevent erosion   | <input type="checkbox"/> Control domestic stock movements |
| <input type="checkbox"/> Trap feral goats  | <input type="checkbox"/> Preserving available pasture     |
| <input type="checkbox"/> Stock health (e.g., prevent stock deaths in waterholes) |   |

Other reasons *(please describe)* \_\_\_\_\_

### 89. Would you consider incorporating Total Grazing Pressure (TGP) fencing or multi-species exclusion fencing technologies on your property? *TGP excludes kangaroos and goats. Multi-species excludes goats, kangaroos, wild dogs and pigs.*

- Yes       No

### 90. What percentage of groundcover do you try to maintain in the majority of your paddocks throughout the year? *Groundcover can include any live or dead vegetation, rock or other protective cover that has the capacity to break or stop raindrops making contact with the soil.*

\_\_\_\_\_ (%) Percent      or       Whatever I can       Don't know

## ENTERPRISE CHANGE

91. **What is your property's organic status** (*tick only one box*)
- My property is not organically certified and never has been → **Go to Question 96**
- My property has been organically certified, but is not currently
- All or part of my property is organically certified
92. **In the past two years, have you sold organic certified products into an organic market or supply chain?**
- Yes
- No → **Go to Question 96**
93. **What organic products have you sold to an organic market or supply chain?**
- Livestock
- Horticultural products
- Vegetables
- Grains
- Other products (*please describe*) \_\_\_\_\_
94. **In the past two years, have you sold organic certified products into a conventional market rather than into an organic market or supply chain?**
- Yes
- No → **Go to Question 96**
95. **What organic products have you sold into a conventional market?** (*please describe*)
- \_\_\_\_\_
96. **Are you planning to gain or regain organic 'in conversion' status or certification in the next two years?**
- Yes → **Go to Question 98**
- No
97. **Why aren't you planning to gain or regain organic 'in conversion' status or certification in the next two years?**
- \_\_\_\_\_
98. **In the last ten years, have you changed enterprises (including expanding or reducing an enterprise) in your business?** (*For example, a change in the type of crops or livestock breeds*)
- Yes
- No → **Go to Question 100**
99. **What changes did you make?**
- \_\_\_\_\_
- \_\_\_\_\_

100. Are you considering or planning to make any changes to your enterprise in the next five years?  
(For example a change of enterprise from cattle to sheep)

Yes

No → Go to Question 102

101. What changes are you considering or planning?

---

---

102. Which of the following factors contributed to your decision to make these changes?  
(you may tick more than one box)

Improving profitability

Seasonal conditions

Reducing labour requirements

Managing seasonal variation

Diversification to reduce risk

Improving grazing management

Infrastructure

Land types

Success of other producers

Markets and marketing alternatives

Education and training

Other (please describe) \_\_\_\_\_

103. What is the distance to your closest market (km)?

\_\_\_\_\_ (km)

#### ENTERPRISE PRODUCTION AND PROFITABILITY

104. In the last five years have you increased production in your enterprise(s) irrespective of seasonal conditions?

Yes

No → Go to Question 107

105. In which of the following areas have you increased production? (you may tick more than one box)

##### Livestock

Wool cut per head

Reproduction rates

Growth rates

Meat mass (kg) produced per ha

Wool (kg) produced per hectare

Other (please describe) \_\_\_\_\_

##### Horticulture

Yield (either per hectare or per crop)

Grow times

Quality improvements (1<sup>st</sup>, 2<sup>nds</sup> etc..)

'Protein content'

Other (please describe) \_\_\_\_\_

106. **What have been the main reasons that have led to these production increases?**

*(you may tick more than one box)*

- |   |   |
|---|---|
| <input type="checkbox"/> External service provider engagement (i.e. LLS, private consultant or point of inputs sale advice) |   |
| <input type="checkbox"/> Enterprise change  | <input type="checkbox"/> Improved disease/parasite management |
| <input type="checkbox"/> Managing seasonal variation  | <input type="checkbox"/> Technology                           |
| <input type="checkbox"/> Education and training   | <input type="checkbox"/> Other (please describe) _____        |

**Livestock**

- |   |   |
|---|---|
| <input type="checkbox"/> Genetics               | <input type="checkbox"/> Stocking rate decrease                       |
| <input type="checkbox"/> Stocking rate increase | <input type="checkbox"/> Nutrition                                    |
| <input type="checkbox"/> Grazing management     | <input type="checkbox"/> Infrastructure development                   |
| <input type="checkbox"/> Control of predators   | <input type="checkbox"/> Reduced competition from feral animals       |
| <input type="checkbox"/> Animal husbandry       | <input type="checkbox"/> Rangeland Rehabilitation (e.g. waterponding) |

**Horticulture**

- |  |   |
|--|---|
| <input type="checkbox"/> Increase in production area   | <input type="checkbox"/> Adjustments to nutrition program (fertilisers)           |
| <input type="checkbox"/> Variety selection (genetics)  | <input type="checkbox"/> Increasing or adjusting planting densities               |
| <input type="checkbox"/> Growing different or additional lines   | <input type="checkbox"/> Improvements to infrastructure (i.e. irrigation systems) |
| <input type="checkbox"/> Other technology introductions (such as improvements to harvesting techniques, precision agriculture) |   |
| <input type="checkbox"/> Adjustments to pest or disease management programs (using fungicides or insecticides - IPM)           |   |

107. **Do you think you will improve production over the next five years?**

- Yes       No → **Go to Question 109**

108. **What do you think will be the main reasons for any improvement in production in the next five years?** *(you may tick more than one box)*

- |   |   |
|---|---|
| <input type="checkbox"/> External service provider engagement (i.e. LLS, private consultant or point of inputs sale advice) |   |
| <input type="checkbox"/> Enterprise change  | <input type="checkbox"/> Improved disease/parasite management |
| <input type="checkbox"/> Managing seasonal variation  | <input type="checkbox"/> Technology                           |
| <input type="checkbox"/> Education and training   | <input type="checkbox"/> Other (please describe) _____        |

**Livestock**

- |   |   |
|---|---|
| <input type="checkbox"/> Genetics               | <input type="checkbox"/> Stocking rate decrease                       |
| <input type="checkbox"/> Stocking rate increase | <input type="checkbox"/> Nutrition                                    |
| <input type="checkbox"/> Grazing management     | <input type="checkbox"/> Infrastructure development                   |
| <input type="checkbox"/> Control of predators   | <input type="checkbox"/> Reduced competition from feral animals       |
| <input type="checkbox"/> Animal husbandry       | <input type="checkbox"/> Rangeland Rehabilitation (e.g. waterponding) |

**Horticulture**

- |  |   |
|--|---|
| <input type="checkbox"/> Increase in production area   | <input type="checkbox"/> Adjustments to nutrition program (fertilisers)           |
| <input type="checkbox"/> Variety selection (genetics)  | <input type="checkbox"/> Increasing or adjusting planting densities               |
| <input type="checkbox"/> Growing different or additional lines   | <input type="checkbox"/> Improvements to infrastructure (i.e. irrigation systems) |
| <input type="checkbox"/> Other technology introductions (such as improvements to harvesting techniques, precision agriculture) |   |
| <input type="checkbox"/> Adjustments to pest or disease management programs (using fungicides or insecticides - IPM)           |   |

## INVASIVE NATIVE SCRUB

109. During the time you have been on your property has invasive native scrub ever been a problem?  
 Yes  No → **Go to Question 120**
110. Have you been able to *successfully* manage the invasive native scrub?  
 Yes  No → **Go to Question 112**
111. What was the main thing you did to *successfully* manage the invasive native scrub?  
\_\_\_\_\_
112. In the last 2 years have you actively managed invasive native scrub on your property?  
 Yes  No → **Go to Question 114**
113. Which of the following methods have you used to control invasive native scrub? (You may tick more than one box)  
 Fire  Cultivation such as cropping  
 Grazing goats  Controlling stocking rates and total amount of grazing  
 Chemicals  Blade ploughing, grubbing, chaining or other mechanical methods  
Other methods \_\_\_\_\_
114. Do you control invasive native scrub with one treatment or multiple follow up treatments?  
 One treatment  Multiple follow up treatments
115. In managing invasive native scrub on your property do you currently have...? (You may tick more than one box)  
 Access to credit and funds to undertake the work  Practical skills to address the issue  
 Good markets and income for your products  A property able to support change  
 A belief that you could address the issue  Support from neighbours or formal group  
 Optimism about addressing the issue  Support from businesses and contactors  
 Equipment, machinery and materials to address the issue  Support from friends and family  
 Favourable climate and seasonal conditions  Time available to do the work  
 The knowledge of how to address the issue  Good health so as to undertake the work  
 Favourable land and water conditions on your property  People to help do the work
116. In your opinion, would you say invasive native scrub on your property is a...  
 Minor problem  Moderate problem  Major problem
117. Over what area of your property is invasive native scrub a problem?  
\_\_\_\_\_ Acres OR \_\_\_\_\_ Hectares
118. Would you say your ability to address invasive native scrub is...  
 Very low  Low  Moderate  
 High → **Go to Q120**  Very high → **Go to Q120**

**119. Why do you say your ability to address this issue is low to moderate?**

*(You may tick more than one box)*

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Don't live on the property | <input type="checkbox"/> Cannot be fixed | <input type="checkbox"/> Topography of my land (hilly or flat)        |
| <input type="checkbox"/> Lack of labour and help    | <input type="checkbox"/> My poor health  | <input type="checkbox"/> No help or support from neighbours           |
| <input type="checkbox"/> Poor land condition        | <input type="checkbox"/> Lack of time    | <input type="checkbox"/> Lack of knowledge (don't know how to fix it) |
| <input type="checkbox"/> No need to address issue   | <input type="checkbox"/> Too old         | <input type="checkbox"/> Lack of machinery, equipment or materials    |
| <input type="checkbox"/> Seasons and climate        | <input type="checkbox"/> Lack of money   | <input type="checkbox"/> Regulations or legislation                   |

Other reasons \_\_\_\_\_

**INTRODUCED WEEDS** (such as Parkinsonia, Mesquite and Boxthorn)

**120. During the time you have been on your property have introduced weeds ever been a problem?**

Yes

No → **Go to Question 128**

**121. Have you been able to successfully manage introduced weeds on your property?**

Yes

No → **Go to Question 123**

**122. What was the main thing you did to successfully manage introduced weeds?**

---

**123. In the last 2 years have you actively managed introduced weeds on your property?**

Yes

No → **Go to Question 125**

**124. In managing introduced weeds on your property do you currently have...?**

*(You may tick more than one box)*

Access to credit and funds to undertake the work

Practical skills to address the issue

Good markets and income for your products

A property able to support change

A belief that you could address the issue

Support from neighbours or formal group

Optimism about addressing the issue

Support from businesses and contactors

Equipment, machinery and materials to address the issue

Support from friends and family

Favourable climate and seasonal conditions

Time available to do the work

The knowledge of how to address the issue

Good health so as to undertake the work

Favourable land and water conditions on your property

People to help do the work

**125. In your opinion, would you say weeds on your property are a....**

Minor problem

Moderate problem

Major problem

**126. Would you say your ability to address this issue is...**

Very low

Low

Moderate

High → **Go to Q128**

Very high → **Go to Q128**

**127. Why do you say your ability to address this issue is low to moderate? (You may tick more than 1 box)**

Don't live on the property

Cannot be fixed

Topography of my land (hilly or flat)

Lack of labour and help

My poor health

No help or support from neighbours

Poor land condition

Lack of time

Lack of knowledge (don't know how to fix it)

No need to address issue

Too old

Lack of machinery, equipment or materials

Seasons and climate

Lack of money

Regulations or legislation

Other reasons \_\_\_\_\_

**GROUNDCOVER** (Includes any live or dead vegetation, rock or other protective cover that has the capacity to break or stop raindrops making contact with the soil)

**128. During the time you have been on your property has low groundcover, that is less than 50% vegetation on the ground ever been a problem?**

Yes  No → **Go to Question 136**

**129. Have you been able to *successfully* manage the low groundcover on your property?**

Yes  No → **Go to Question 131**

**130. What was the main thing you did to *successfully* manage low groundcover?**

---

**131. In the last 2 years have you actively managed low groundcover on your property?**

Yes  
 No → **Go to Question 133**

**132. In managing groundcover on your property do you currently have...? (You may tick more than one box)**

<input type="checkbox"/> Access to credit and funds to undertake the work	<input type="checkbox"/> Practical skills to address the issue
<input type="checkbox"/> Good markets and income for your products	<input type="checkbox"/> A property able to support change
<input type="checkbox"/> A belief that you could address the issue	<input type="checkbox"/> Support from neighbours or formal group
<input type="checkbox"/> Optimism about addressing the issue	<input type="checkbox"/> Support from businesses and contactors
<input type="checkbox"/> Equipment, machinery and materials to address the issue	<input type="checkbox"/> Support from friends and family
<input type="checkbox"/> Favourable climate and seasonal conditions	<input type="checkbox"/> Time available to do the work
<input type="checkbox"/> The knowledge of how to address the issue	<input type="checkbox"/> Good health so as to undertake the work
<input type="checkbox"/> Favourable land and water conditions on your property	<input type="checkbox"/> People to help do the work

**133. In your opinion, would you say low groundcover on your property is a....**

Minor problem  Moderate problem  Major problem

**134. Would you say your ability to address this issue is...**

Very low  Low  Moderate  
 High → **Go to Q135**  Very high → **Go to Q136**

**135. Why do you say your ability to address this issue is low to moderate? (You may tick more than 1 box)**

<input type="checkbox"/> Don't live on the property	<input type="checkbox"/> Cannot be fixed	<input type="checkbox"/> Topography of my land (hilly or flat)
<input type="checkbox"/> Lack of labour and help	<input type="checkbox"/> My poor health	<input type="checkbox"/> No help or support from neighbours
<input type="checkbox"/> Poor land condition	<input type="checkbox"/> Lack of time	<input type="checkbox"/> Lack of knowledge (don't know how to fix it)
<input type="checkbox"/> No need to address issue	<input type="checkbox"/> Too old	<input type="checkbox"/> Lack of machinery, equipment or materials
<input type="checkbox"/> Seasons and climate	<input type="checkbox"/> Lack of money	<input type="checkbox"/> Regulations or legislation

Other reasons \_\_\_\_\_

**SOIL HEALTH** (Including soil composition and structure – this includes for example soil compaction, permeability and microbial activity)

136. During the time you have been on your property has poor soil health ever been a problem?

- Yes  No → **Go to Question 144**

137. Have you been able to *successfully* manage the poor soil health on your property?

- Yes  No → **Go to Question 139**

138. What was the main thing you did to *successfully* manage the poor soil health?

---

139. In the last 2 years have you actively managed the poor soil health on your property?

- Yes  
 No → **Go to Question 141**

140. In managing soil health on your property do you currently have...? (You may tick more than one box)

- |  |  |
|--|--|
| <input type="checkbox"/> Access to credit and funds to undertake the work        | <input type="checkbox"/> Practical skills to address the issue   |
| <input type="checkbox"/> Good markets and income for your products               | <input type="checkbox"/> A property able to support change       |
| <input type="checkbox"/> A belief that you could address the issue               | <input type="checkbox"/> Support from neighbours or formal group |
| <input type="checkbox"/> Optimism about addressing the issue                     | <input type="checkbox"/> Support from businesses and contactors  |
| <input type="checkbox"/> Equipment, machinery and materials to address the issue | <input type="checkbox"/> Support from friends and family         |
| <input type="checkbox"/> Favourable climate and seasonal conditions              | <input type="checkbox"/> Time available to do the work           |
| <input type="checkbox"/> The knowledge of how to address the issue               | <input type="checkbox"/> Good health so as to undertake the work |
| <input type="checkbox"/> Favourable land and water conditions on your property   | <input type="checkbox"/> People to help do the work              |

141. In your opinion, would you say poor soil health on your property is a....

- Minor problem  Moderate problem  Major problem

142. Would you say your ability to address this issue is...

- Very low  Low  Moderate  
 High → **Go to Q144**  Very high → **Go to Q144**

143. Why do you say your ability to address this issue is low to moderate? (You may tick more than one box)

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Don't live on the property | <input type="checkbox"/> Cannot be fixed | <input type="checkbox"/> Topography of my land (hilly or flat)        |
| <input type="checkbox"/> Lack of labour and help    | <input type="checkbox"/> My poor health  | <input type="checkbox"/> No help or support from neighbours           |
| <input type="checkbox"/> Poor land condition        | <input type="checkbox"/> Lack of time    | <input type="checkbox"/> Lack of knowledge (don't know how to fix it) |
| <input type="checkbox"/> No need to address issue   | <input type="checkbox"/> Too old         | <input type="checkbox"/> Lack of machinery, equipment or materials    |
| <input type="checkbox"/> Seasons and climate        | <input type="checkbox"/> Lack of money   | <input type="checkbox"/> Regulations or legislation                   |

Other reasons \_\_\_\_\_

## SOIL EROSION TO RIVER BANKS

144. During the time you have been on your property has soil erosion to river banks ever been a problem?

Yes

No → Go to Question 152

145. Were you able to *successfully* manage the soil erosion to river banks?

Yes

No → Go to Question 147

146. What was the main thing you did to *successfully* manage the soil erosion to river banks?

---

147. In the last 2 years have you actively managed soil erosion to river banks on your property?

Yes

No → Go to Question 149

148. In managing soil erosion to river banks on your property do you currently have...? (You may tick more than one box)

Access to credit and funds to undertake the work

Practical skills to address the issue

Good markets and income for your products

A property able to support change

A belief that you could address the issue

Support from neighbours or formal group

Optimism about addressing the issue

Support from businesses and contactors

Equipment, machinery and materials to address the issue

Support from friends and family

Favourable climate and seasonal conditions

Time available to do the work

The knowledge of how to address the issue

Good health so as to undertake the work

Favourable land and water conditions on your property

People to help do the work

149. In your opinion, would you say soil erosion to river banks on your property is a...

Minor problem

Moderate problem

Major problem

150. Would you say your ability to address this issue is...

Very low

Low

Moderate

High → Go to Q152

Very high → Go to Q152

151. Why do you say your ability to address this issue is low to moderate?

(You may tick more than one box)

Don't live on the property

Cannot be fixed

Topography of my land (hilly or flat)

Lack of labour and help

My poor health

No help or support from neighbours

Poor land condition

Lack of time

Lack of knowledge (don't know how to fix it)

No need to address issue

Too old

Lack of machinery, equipment or materials

Seasons and climate

Lack of money

Regulations or legislation

Other reasons \_\_\_\_\_

**SOIL EROSION** (sheet, rill, or gully erosion e.g., along fence lines and tracks)

152. During the time you have been on your property has soil erosion ever been a problem?

- Yes  No → **Go to Question 160**

153. Were you able to *successfully* manage the soil erosion?

- Yes  No → **Go to Question 155**

154. What was the main thing you did to *successfully* manage soil erosion?

---

155. In the last 2 years have you actively managed sheet, rill or gully erosion on your property?

- Yes  
 No → **Go to Question 157**

156. In managing soil erosion on your property do you currently have...? (You may tick more than one box)

- |  |  |
|--|--|
| <input type="checkbox"/> Access to credit and funds to undertake the work        | <input type="checkbox"/> Practical skills to address the issue   |
| <input type="checkbox"/> Good markets and income for your products               | <input type="checkbox"/> A property able to support change       |
| <input type="checkbox"/> A belief that you could address the issue               | <input type="checkbox"/> Support from neighbours or formal group |
| <input type="checkbox"/> Optimism about addressing the issue                     | <input type="checkbox"/> Support from businesses and contactors  |
| <input type="checkbox"/> Equipment, machinery and materials to address the issue | <input type="checkbox"/> Support from friends and family         |
| <input type="checkbox"/> Favourable climate and seasonal conditions              | <input type="checkbox"/> Time available to do the work           |
| <input type="checkbox"/> The knowledge of how to address the issue               | <input type="checkbox"/> Good health so as to undertake the work |
| <input type="checkbox"/> Favourable land and water conditions on your property   | <input type="checkbox"/> People to help do the work              |

157. In your opinion, would you say soil erosion on your property is a...

- Minor problem  Moderate problem  Major problem

158. Would you say your ability to address this issue is...

- Very low  Low  Moderate  
 High → **Go to Q160**  Very high → **Go to Q160**

159. Why do you say your ability to address this issue is low to moderate?

(You may tick more than one box)

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Don't live on the property | <input type="checkbox"/> Cannot be fixed | <input type="checkbox"/> Topography of my land (hilly or flat)        |
| <input type="checkbox"/> Lack of labour and help    | <input type="checkbox"/> My poor health  | <input type="checkbox"/> No help or support from neighbours           |
| <input type="checkbox"/> Poor land condition        | <input type="checkbox"/> Lack of time    | <input type="checkbox"/> Lack of knowledge (don't know how to fix it) |
| <input type="checkbox"/> No need to address issue   | <input type="checkbox"/> Too old         | <input type="checkbox"/> Lack of machinery, equipment or materials    |
| <input type="checkbox"/> Seasons and climate        | <input type="checkbox"/> Lack of money   | <input type="checkbox"/> Regulations or legislation                   |

Other reasons \_\_\_\_\_

## WILD DOGS

160. During the time you have been on your property have wild dogs ever been a problem?

Yes

No → Go to Question 168

161. Were you able to successfully manage the wild dogs on your property?

Yes

No → Go to Question 163

162. What was the main thing you did to successfully manage wild dogs?

---

163. In the last 2 years have you actively managed wild dogs on your property?

Yes

No → Go to Question 165

164. In managing wild dogs on your property do you currently have...? (You may tick more than one box)

Access to credit and funds to undertake the work

Practical skills to address the issue

Good markets and income for your products

A property able to support change

A belief that you could address the issue

Support from neighbours or formal group

Optimism about addressing the issue

Support from businesses and contactors

Equipment, machinery and materials to address the issue

Support from friends and family

Favourable climate and seasonal conditions

Time available to do the work

The knowledge of how to address the issue

Good health so as to undertake the work

Favourable land and water conditions on your property

People to help do the work

165. In your opinion, would you say wild dogs on your property are a...

Minor problem

Moderate problem

Major problem

166. Would you say your ability to address this issue is...

Very low

Low

Moderate

High → Go to Q168

Very high → Go to Q168

167. Why do you say your ability to address this issue is low to moderate? (You may tick more than one box)

Don't live on the property

Cannot be fixed

Topography of my land (hilly or flat)

Lack of labour and help

My poor health

No help or support from neighbours

Poor land condition

Lack of time

Lack of knowledge (don't know how to fix it)

No need to address issue

Too old

Lack of machinery, equipment or materials

Seasons and climate

Lack of money

Regulations or legislation

Other reasons \_\_\_\_\_

**OTHER PEST ANIMALS** (excluding unmanaged goats and wild dogs)

**168. During the time you have been on your property have you have any of the following pest animals been a problem?**

No pest animals have been a problem → **Go to Question 176**

- |                                 |                                  |                                      |                                    |
|---------------------------------|----------------------------------|--------------------------------------|------------------------------------|
| <input type="checkbox"/> Camels | <input type="checkbox"/> Emus    | <input type="checkbox"/> Pigs        | <input type="checkbox"/> Cats      |
| <input type="checkbox"/> Foxes  | <input type="checkbox"/> Rabbits | <input type="checkbox"/> Donkeys     | <input type="checkbox"/> Kangaroos |
| <input type="checkbox"/> Carp   | <input type="checkbox"/> Locusts | <input type="checkbox"/> Wild horses |                                    |

Others (describe) \_\_\_\_\_

**169. Were you able to successfully manage these pest animals?**

Yes       No → **Go to Question 171**

**170. What was the main thing you did to successfully manage these pest animals?**

\_\_\_\_\_

**171. In the last 2 years have you actively managed these other pest animals on your property?**

Yes       No → **Go to Question 173**

**172. In managing other pest animals on your property do you currently have...? (You may tick more than one box)**

- |  |  |
|--|--|
| <input type="checkbox"/> Access to credit and funds to undertake the work        | <input type="checkbox"/> Practical skills to address the issue   |
| <input type="checkbox"/> Good markets and income for your products               | <input type="checkbox"/> A property able to support change       |
| <input type="checkbox"/> A belief that you could address the issue               | <input type="checkbox"/> Support from neighbours or formal group |
| <input type="checkbox"/> Optimism about addressing the issue                     | <input type="checkbox"/> Support from businesses and contactors  |
| <input type="checkbox"/> Equipment, machinery and materials to address the issue | <input type="checkbox"/> Support from friends and family         |
| <input type="checkbox"/> Favourable climate and seasonal conditions              | <input type="checkbox"/> Time available to do the work           |
| <input type="checkbox"/> The knowledge of how to address the issue               | <input type="checkbox"/> Good health so as to undertake the work |
| <input type="checkbox"/> Favourable land and water conditions on your property   | <input type="checkbox"/> People to help do the work              |

**173. In your opinion, would you say these pest animals are a....**

Minor problem       Moderate problem       Major problem

**174. Would you say your ability to address this issue is...**

Very low       Low       Moderate

High → **Go to Q176**       Very high → **Go to Q176**

**175. Why do you say your ability to address this issue is low to moderate? (You may tick more than 1 box)**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Don't live on the property | <input type="checkbox"/> Cannot be fixed | <input type="checkbox"/> Topography of my land (hilly or flat)        |
| <input type="checkbox"/> Lack of labour and help    | <input type="checkbox"/> My poor health  | <input type="checkbox"/> No help or support from neighbours           |
| <input type="checkbox"/> Poor land condition        | <input type="checkbox"/> Lack of time    | <input type="checkbox"/> Lack of knowledge (don't know how to fix it) |
| <input type="checkbox"/> No need to address issue   | <input type="checkbox"/> Too old         | <input type="checkbox"/> Lack of machinery, equipment or materials    |
| <input type="checkbox"/> Seasons and climate        | <input type="checkbox"/> Lack of money   | <input type="checkbox"/> Regulations or legislation                   |

Other reasons \_\_\_\_\_

## A DECLINE IN THE DIVERSITY OF NATIVE PLANTS AND ANIMALS

176. During the time you have been on your property has a decline in the diversity of native plants and animals ever been a problem?

- Yes                       No → **Go to Question 184**

177. Were you able to *successfully* manage the decline in diversity?

- Yes                       No → **Go to Question 179**

178. What was the main thing you did to *successfully* manage the decline in diversity?

---

179. In the last 2 years have you actively managed the decline in diversity on your property?

- Yes                       No → **Go to Question 181**

180. In managing the decline in diversity on your property do you currently have...? (You may tick more than one box)

- |  |  |
|--|--|
| <input type="checkbox"/> Access to credit and funds to undertake the work        | <input type="checkbox"/> Practical skills to address the issue   |
| <input type="checkbox"/> Good markets and income for your products               | <input type="checkbox"/> A property able to support change       |
| <input type="checkbox"/> A belief that you could address the issue               | <input type="checkbox"/> Support from neighbours or formal group |
| <input type="checkbox"/> Optimism about addressing the issue                     | <input type="checkbox"/> Support from businesses and contactors  |
| <input type="checkbox"/> Equipment, machinery and materials to address the issue | <input type="checkbox"/> Support from friends and family         |
| <input type="checkbox"/> Favourable climate and seasonal conditions              | <input type="checkbox"/> Time available to do the work           |
| <input type="checkbox"/> The knowledge of how to address the issue               | <input type="checkbox"/> Good health so as to undertake the work |
| <input type="checkbox"/> Favourable land and water conditions on your property   | <input type="checkbox"/> People to help do the work              |

181. In your opinion, would you say the decline in the diversity of native plants and animals on your property is a....

- Minor problem                       Moderate problem                       Major problem

182. Would you say your ability to address this issue is...

- Very low                       Low                       Moderate
- High → **Go to Q184**                       Very high → **Go to Q184**

183. Why do you say your ability to address this issue is low to moderate? (You may tick more than 1 box)

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Don't live on the property | <input type="checkbox"/> Cannot be fixed | <input type="checkbox"/> Topography of my land (hilly or flat)        |
| <input type="checkbox"/> Lack of labour and help    | <input type="checkbox"/> My poor health  | <input type="checkbox"/> No help or support from neighbours           |
| <input type="checkbox"/> Poor land condition        | <input type="checkbox"/> Lack of time    | <input type="checkbox"/> Lack of knowledge (don't know how to fix it) |
| <input type="checkbox"/> No need to address issue   | <input type="checkbox"/> Too old         | <input type="checkbox"/> Lack of machinery, equipment or materials    |
| <input type="checkbox"/> Seasons and climate        | <input type="checkbox"/> Lack of money   | <input type="checkbox"/> Regulations or legislation                   |

Other reasons \_\_\_\_\_

## ACCESS TO WATER FOR AGRICULTURAL PURPOSES

**184. During the time you have been on your property has the access to water for agricultural purposes ever been a problem?**

Yes  No → **Go to Question 192**

**185. Were you able to *successfully* address the access to water on your property?**

Yes  No → **Go to Question 187**

**186. What was the main thing you did to *successfully* address access to water?**

\_\_\_\_\_

**187. In the last 2 years have you done anything to address access to water on your property?**

Yes  No → **Go to Question 189**

**188. In managing access to water on your property do you currently have...? (You may tick more than one box)**

- |  |  |
|--|--|
| <input type="checkbox"/> Access to credit and funds to undertake the work        | <input type="checkbox"/> Practical skills to address the issue   |
| <input type="checkbox"/> Good markets and income for your products               | <input type="checkbox"/> A property able to support change       |
| <input type="checkbox"/> A belief that you could address the issue               | <input type="checkbox"/> Support from neighbours or formal group |
| <input type="checkbox"/> Optimism about addressing the issue                     | <input type="checkbox"/> Support from businesses and contactors  |
| <input type="checkbox"/> Equipment, machinery and materials to address the issue | <input type="checkbox"/> Support from friends and family         |
| <input type="checkbox"/> Favourable climate and seasonal conditions              | <input type="checkbox"/> Time available to do the work           |
| <input type="checkbox"/> The knowledge of how to address the issue               | <input type="checkbox"/> Good health so as to undertake the work |
| <input type="checkbox"/> Favourable land and water conditions on your property   | <input type="checkbox"/> People to help do the work              |

**189. In your opinion, would you say your access to water for agricultural purposes is a....**

Minor problem  Moderate problem  Major problem

**190. Would you say your ability to address this issue is...**

Very low  Low  Moderate  
 High → **Go to Q192**  Very high → **Go to Q192**

**191. Why do you say your ability to address this issue is low to moderate? (You may tick more than one box)**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Don't live on the property | <input type="checkbox"/> Cannot be fixed | <input type="checkbox"/> Topography of my land (hilly or flat)        |
| <input type="checkbox"/> Lack of labour and help    | <input type="checkbox"/> My poor health  | <input type="checkbox"/> No help or support from neighbours           |
| <input type="checkbox"/> Poor land condition        | <input type="checkbox"/> Lack of time    | <input type="checkbox"/> Lack of knowledge (don't know how to fix it) |
| <input type="checkbox"/> No need to address issue   | <input type="checkbox"/> Too old         | <input type="checkbox"/> Lack of machinery, equipment or materials    |
| <input type="checkbox"/> Seasons and climate        | <input type="checkbox"/> Lack of money   | <input type="checkbox"/> Regulations or legislation                   |

Other reasons \_\_\_\_\_

## TOTAL GRAZING PRESSURE

(grazing of domestic, feral and native animals, i.e. goats, rabbits and kangaroos)

192. During the time you have been on your property has total grazing pressure ever been a problem?

Yes

No → **Go to Question 202**

193. Were you able to *successfully* manage the total grazing pressure on your property?

Yes

No → **Go to Question 195**

194. What was the main thing you did to *successfully* manage total grazing pressure?

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195. In the last 2 years have you actively managed total grazing pressure on your property?

Yes

No → **Go to Question 197**

196. In managing total grazing pressure on your property do you currently have...? (You may tick more than one box)

Access to credit and funds to undertake the work

Practical skills to address the issue

Good markets and income for your products

A property able to support change

A belief that you could address the issue

Support from neighbours or formal group

Optimism about addressing the issue

Support from businesses and contactors

Equipment, machinery and materials to address the issue

Support from friends and family

Favourable climate and seasonal conditions

Time available to do the work

The knowledge of how to address the issue

Good health so as to undertake the work

Favourable land and water conditions on your property

People to help do the work

197. In your opinion, would you say total grazing pressure on your property is a....

Minor problem

Moderate problem

Major problem

198. In managing your total grazing pressure do you try to restrict the grazing of feral and native animals?

Yes

No

199. What area of your total property is fenced for the purpose of managing the impact of feral or native grazing animals?

\_\_\_\_\_ Acres \_\_\_\_\_ Hectares

200. Would you say your ability to address this issue is...

Very low

Low

Moderate

High → **Go to Q202**

Very high → **Go to Q202**

**201. Why do you say your ability to address this issue is low to moderate?** (You may tick more than 1 box)

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Don't live on the property | <input type="checkbox"/> Cannot be fixed | <input type="checkbox"/> Topography of my land (hilly or flat)        |
| <input type="checkbox"/> Lack of labour and help    | <input type="checkbox"/> My poor health  | <input type="checkbox"/> No help or support from neighbours           |
| <input type="checkbox"/> Poor land condition        | <input type="checkbox"/> Lack of time    | <input type="checkbox"/> Lack of knowledge (don't know how to fix it) |
| <input type="checkbox"/> No need to address issue   | <input type="checkbox"/> Too old         | <input type="checkbox"/> Lack of machinery, equipment or materials    |
| <input type="checkbox"/> Seasons and climate        | <input type="checkbox"/> Lack of money   | <input type="checkbox"/> Regulations or legislation                   |

Other reasons \_\_\_\_\_

**202. Would you like the \$30 IGA grocery voucher to be sent to you or would you like the money sent to the Royal Flying Doctor service as a donation?** (tick only one box)

- Send me \$30 IGA Voucher

What address do you want the voucher sent to? \_\_\_\_\_

\_\_\_\_\_

**OR**

- Send the money to the Royal Flying Doctor Service (RFDS)

What address do you want the RFDS receipt sent to? \_\_\_\_\_

\_\_\_\_\_

**203. Would you like Western Local Land Services to add your address to their mailing list? Your responses to this survey will remain confidential. Only your mailing address will be used for the mailing list.**

- Yes  
 No

Mailing address: \_\_\_\_\_

\_\_\_\_\_

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**THANK YOU FOR YOUR HELP. PLEASE RETURN THE  
QUESTIONNAIRE IN THE REPLY-PAID ENVELOPE BY THE  
24<sup>th</sup> OCTOBER 2014**

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