Invasive Animals Cooperative Research Centre

Enabling regional pest animal control

Lisa Robins

Australian Government
Bureau of Rural Sciences

Invasive Animals CRC

Invasive Animals Cooperative Research Centre

"Together, create and apply solutions"

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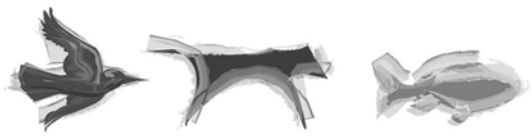

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Summary

This report provides the results of and recommendations arising from research examining the information needs of regional-level natural resource management (NRM) managers and pest animal controllers. Further, it explores the efficacy of a suite of options for building their capacity to manage the impacts of pest animals at the regional scale. It is a component of Stage 1 of the Invasive Animals CRC's 3-year *PestSmart* project, and was conducted over a 5-month period from February to June 2010.

In the research proposal, the *PestSmart* toolkit is described as a package of information that will distil the CRC's 7-year research program findings into practical planning and control actions that will improve pest animal control, and reduce their impacts both at the property and regional levels. The research was intended to inform investment decisions during the CRC's current term (to June 2012), as well as its application for an extension in the forthcoming CRC proposal round.

The research focuses on three case study regions: Lachlan NSW, Desert Channels Queensland, and Kangaroo Island South Australia. One-day workshops were hosted by regional NRM bodies, and were attended by 8-12 target end-users from a range of organisations. An options paper outlining a menu of 28 capacity building measures was distributed prior to the workshops. Participants completed surveys on information products and capacity building options during the conduct of the workshops, and engaged in structured discussions.

The research recommends changing '*PestSmart* toolkit' to 'Get *PestSmart'*, as an alternative label that implies 'actions' rather than simply 'products'. It is suggested that the 'toolkit' should be developed and promoted as a one-stop-shop (beyond just IA CRC research) for up-to-date and reliable data and information on pest animals across a wide range of topics and product types.

Respondents' feedback indicates that the 'toolkit' should be dynamic, and provide interactive engagement pathways with regional players as more than 'users' of information. It should be regionally-relevant and inform different scales and types of decision-making. Further, it should embody traditional and non-traditional knowledges, and provide a balanced perspective across (biophysical, social, economic) and within (established vs emerged species) disciplinary arenas.

The research suggests that the *PestSmart* 'toolkit' needs to be simply structured with increasing levels of detail, and careful not to exclude particular categories of information (eg project failures, highly technical reports). It should be a hybrid package incorporating some series-based elements, including for fact sheet and on best practice. The main structural platform for 'Get *PestSmart'* should be web-based (but noting the specific recommendations relating to the importance of face-to-face and interactive approaches).

Workshop deliberations indicate that the development of the 'toolkit' should give particular attention to the following aspects of information content: case study lessons on successes and failures, best practice (and 'must do' actions), pest animal ecology at regional and property scales, and impacts of pest animals and from the control options applied to manage them. A complete synopsis of suggestions in relation to information content is provided in Table 13, and should also be considered in 'toolkit' development.

With respect to information presentation, the research suggests that development of the 'toolkit' should give particular attention to a suite of face-to-face events, recipe style products on specific species, e-newsletters and e-updates, and an interactive mapping facility. 'Toolkit' development should also consider the full synopsis of suggestions on information presentation shown in Table 17. Further to the notion of an interactive mapping facility, the relevance of feedback on the regional form of 'models, decision support systems and GIS' is highlighted.

The central importance of face-to-face and interactive approaches to information exchange in some regional contexts is strongly emphasised, and reliance on hardcopy and electronic products in such cases as the primary information exchange mechanism is not recommended. A review of research on the efficacy of new technologies, such as podcasts, as vehicles for information exchange and learning is recommended, as well as trials in the specific context of pest animal management.

The research identifies that the following aspects of information content and presentation should be avoided: promoting outdated and/or unverified ideas, presenting language and ideas in ways that are unsuitable and/or oversimplified, and using complex forms of presentation when there are more simple alternatives available. A complete list of points identified by respondents on what to avoid in the development of the 'toolkit' is provided in Table 21.

The research makes an additional six recommendations with respect to building capacity across human, social, institutional and economic dimensions. In working to build regional capacity, the IA CRC should give particular consideration to the following issues: low public interest and/or apathy, over-work and burnout, poor policy direction and cross-agency coordination, and planning and expenditure driven by political terms and financial models. The research suggests the need to give special consideration to the unique social (cognitive) characteristics of capacity issues in remoter settings. Table 28 provides an overview of the full range of capacity issues identified by workshop participants.

The most supported options to build capacity were, in order, regional infrastructure and staff; flexible and adequate resourcing arrangements; team and collaborative relationship building; personal and professional development; best practice guidelines; and case studies and storytelling.

The four most preferred options for both the period to June 2012 (current IA CRC term) and from July 2012 (prospective new IA CRC term) were, in order, flexible and adequate resourcing arrangements; regional infrastructure and staff; best practice guidelines; and team and collaborative relationship building.

The fifth and sixth most preferred options for the period to June 2012 (current IA CRC term) were information and research compendia, and case studies and storytelling, but noting that no votes were scored for the former in the case of Desert Channels Qld. While the fifth and sixth most preferred options for the period from July 2012 (prospective new IA CRC term) were models, decision support systems and GIS, and computer-based information exchange, but noting that no votes were scored for the latter in the case of Lachlan NSW.

The IA CRC should refer to section 5.5.4 for further information on the implementing the most preferred options, including summary tables of the capacity issues these options were anticipated to address, and suggestions about the form they may take at regional level.

1. Introduction

1.1 Sub-project outline

This research is a sub-set of a broader project by the Invasive Animals Cooperative Research Centre (IA CRC) entitled: '*PestSmart*: Development and promotion of farmer, landcare and regional end user pest animal capacity building and management packages'. The *PestSmart* project has a 3-year timeframe, and focuses principally on wild dogs, foxes, pigs and rabbits.

The subject of this sub-project is regional end-users, namely natural resource management (NRM) managers and pest animal controllers at regional level. Farmers and landcare stakeholder groups are the focus of related but separate research. The research aims to better understand the requirements of these stakeholders in terms of their information requirements and preferred pathways for communication and capacity building.

The research was conducted over a five-month period from February to June 2010, and focuses on three case study regions in New South Wales (Lachlan), Queensland (Desert Channels) and South Australia (Kangaroo Island).

1.2 IA CRC project context[1]

The 1990s coincided with the production of numerous pest animal information products (eg BRS guides, CDs, and handbooks) funded under the Natural Heritage Trust (NHT). While there is anecdotal evidence that many of these have been useful, the efficacy of these products has not been robustly evaluated. This is indicative of a more traditional innovation model that was more expert and product driven, and was reliant on an effective state government agricultural extension service. It also coincided with a limited body of social research on the dynamics, drivers and barriers to the adoption of pest animal management practices by land managers.

The current accepted land manager adoption approach is end-user centred. This involves formative research to identify end-user needs to drive the design of an applied R&D program that will be readily adopted to reduce pest animal impacts and increase land sustainability and profitability.

The culmination of this approach, which has been applied by the IA CRC, will be a set of new animal control products, and end-user centred information toolkits on developing and implementing best practice regional and local management strategies (drawn from various demonstration projects) combined with product use manuals, delivered through an adoption strategy using partner-industry networks where possible.

The adoption of new innovations by rural land managers, including NRM and conservation practices, has been well studied, and a recent ABARE study provides contemporary insights into the important influences on farmer decision-making, participation in group actions, and preferred communication/adoption channels

[1] This section is an edited extract from the Australian Pest Animal Management Program (APAMP) project proposal prepared by Andreas Glanznig (IA CRC Chief Operating Officer)

(Oliver et al. 2009). This complements other recent research into the preferred capacity building preferences of regional NRM decision-makers (Robins 2008a). Specific social research, however, on adoption of pest animal control practices remains scant.

The value proposition for the 2010 Australian Pest Animal Management Program (APAMP) investment will be production of solid social research that identifies and validates end-user adoption drivers, barriers, preferred communication channels and obtains feedback on toolkit options (eg structure, level of information richness/depth, tailored to drivers and barriers, perceived usefulness, suggested improvements). This will be achieved through end-user social and market research to better understand end-user information, communication and capacity building requirements for pest animal management. The knowledge produced will be consolidated and reported so that it can be used in other APAMP projects and by pest animal control planners and managers.

2. Methodology

This chapter outlines the methodological approach for the research. Firstly, the work is framed within the context of the broader *PestSmart* project, and related IA CRC workshop on end-user adoption research. The key elements of the research are subsequently described in terms of selection of the case study regions, development of an options paper embodying the review of literature, conduct of regional workshops and related survey instruments, review and deliberation processes with an expert panel, and preparation of a final report for the sub-project.

2.1 *PestSmart* project

This work is a component of Stage 1 of the IA CRC's 3-year *PestSmart* project. It focuses on end-user social and market research. The Bureau of Rural Sciences (BRS) is conducting the other major sub-project in this stage. The BRS work examines the factors influencing the adoption of PAPP and BlueHealer™ technology into integrated wild dog and fox management at the regional level. The findings of this work will be used to explore options to accelerate the adoption of these technologies into management plans for reducing the impacts of wild dogs and foxes on agricultural productivity and environmental biodiversity in Australia.

The remaining stages of the *PestSmart* project consider preparation and pre-testing of end-user centred pest animal management toolkits (Stage 2), and end-user uptake of practices in the pest animal management toolkits (Stage 3).

The end-user groups proposed for the suite of *PestSmart* sub-projects, collectively, are:

- sheep and lamb SMEs;
- beef SMEs;
- landcare and other community of interest groups;
- regional NRM managers; and
- regional and local pest control officers, and state NRM agency and local council field officers (eg stock route managers).

2.2 End-user adoption research workshop

The IA CRC conducted a workshop on 19 February 2010 entitled: 'End-user Adoption Research Workshop.' Approximately 20 persons attended the meeting, principally from the IA CRC and including two Board directors (Appendix A).

The meeting discussed key drivers and barriers to adoption of pest animal control education and management packages, and commented on the draft IA CRC End User Adoption Research Plan. Participants provided feedback on the scope, methodology and potential synergies for the two major sub-projects comprising Stage 1 of the *PestSmart* project.

2.3 Selection of case study regions

The scope of this sub-project is confined to the collection and analysis of data from three case study areas. Selection of the case study areas is broadly defined by the boundaries of regional NRM organisations. This delineation is based on the premise that these organisations have responsibilities for developing and implementing regional

NRM plans designed to deliver, *inter alia*, nation-wide NRM programs like Caring for our Country (CfoC) and the former NHT, of which pest animal management is an element.

While some regional NRM organisations employ part-time or full-time pest animal control officers, this research has an interest in and recognises the much wider group of people working in any region on pest animal management, and that each has their own boundary of interest and responsibility, which may be smaller than, larger than or overlapping with NRM regions. Representatives from the diverse range of stakeholders working in the arena of pest animal control at the regional scale (eg local government, NSW Livestock Health & Pest Authorities, state agencies) were engaged in this project in each of the case study areas.

The three regions selected as case studies for this work are:

- Lachlan NSW hosted by the Lachlan Catchment Management Authority (CMA) (www.lachlan.cma.nsw.gov.au);
- Desert Channels Queensland hosted by Desert Channels Queensland Inc. (www.dcq.org.au); and
- Kangaroo Island SA hosted by the Kangaroo Island NRM Board (www.kinrm.sa.gov.au).

A number of criteria were used in selecting these regions, and the rationale for each are discussed in the text that follows:

- Pest animal control priorities identified in regional NRM plans;
- Enthusiasm for the research, and good working relationship with IA CRC;
- Existing consultation demands on prospective informants;
- Location of IA CRC demonstration sites;
- Ongoing or new IA CRC financial commitments in the region;
- Diversity of jurisdictions and regional geographies;
- Diversity of pest animals (including terrestrial and aquatic); and
- Affordability within sub-project budget.

Consideration was given as to whether regions identified pest animal control as a priority in their NRM plans, and whether pest animal control officers were likely to be keen about engaging with this research. In addition, consideration was given to whether regions had a trusting working relationship with IA CRC representatives. Participant enthusiasm was deemed important given the level of input and effort required in considering the options paper (section 2.4) and attending the workshop and responding to surveys (section 2.5). Consideration was also given to whether key regional players were prospective informants for the related BRS sub-project or more broadly suffering from consultation and workshop fatigue.

Levels of enthusiasm (or otherwise) and the nature of working relationships were determined on the advice of the IA CRC NRM Liaison Officer (Jessica Gibson) and the National Wild Dog Facilitator (Greg Mifsud). Ultimately, the region's commitment to pest animal control, participant enthusiasm and working relationships were deemed of high importance because the nature of the research is about enabling people and, as such, the types of pest animals are likely to be a second order issue.

The location of IA CRC demonstration sites and ongoing or new financial commitments to particular regions were also a factor in identifying suitable case studies (Table 1). Leveraging this research with current and projected IA CRC activities was perceived as adding value to these investments.

Table 1: IA CRC demonstration sites

State	Demo Site Focus	NRM Region	NRM Plan
NSW	Wild dogs	Lachlan*	Pest Animal Management (Management Target 12) in Catchment Plan, including dogs
	Carp	Lachlan	Improving In-stream Habitats (Management Target 22) in Catchment Plan, including carp removal
Qld	Wild dogs	Desert Channels	'The control of pest animals and plants is one of the major natural resource management issues for the DCQ region' (Protecting Our Assets, 2009)
	Pigs	NQ Dry Tropics	Regional Pest Management Strategy
	Carp	SEQ Catchments	Not specifically about carp
SA	Deer, pigs, goats & cats	Kangaroo Island NRM Board	Kangaroo Island Natural Resources Management Plan; Feral Animal Management Program
Tas	Foxes	All three regions	
Vic	Foxes	East Gippsland	Priority Weed and Pest Animal Program for Far East Gippsland and South-eastern New South Wales (pigs, deer, foxes, goats, dogs, rabbits)
WA	Foxes & cats (mainly)	South West Catchments Council	South West Natural Resource Management Strategy (Biodiversity section); foxes & cats (widespread); pigs (mainly state forest); deer & goats (small population)

* The region is conducting a project examining the affect of foxes on nesting birds

The selection of regions also aims to represent different jurisdictions and regional geographies. The three case study regions selected cover NSW, Queensland and South Australia. The institutional drivers of pest animal control differ in each of these cases, through Livestock Health & Pest Authorities and CMAs (NSW), local governments (Qld) and Integrated NRM Boards (SA). In addition, these regions respectively represent inland, rangeland and coastal geographies. They also represent mainland and island settings. It is noted that the three regions selected do not account for tropical and, to a lesser extent, periurban contexts; however, the addition of a fourth case study region was not possible.

The identified regions encompass a range of pest animals, including those of principal concern to the IA CRC research agenda (ie wild dogs, foxes, pigs and rabbits). The inclusion of carp (in Lachlan NSW) provides an aquatic dimension to the research conduct.

Finally, the criteria necessarily accounts for affordability, as the sub-project budget for travel (both in terms of time and cost) was limited. This precluded consideration of a case study in Western Australia. In any case, the WA demonstration site focuses on conservation lands, which was considered to have narrower applicability than the alternative demonstration sites.

2.4 Options paper and literature review

A plain-English report, *An Options Paper on Capacity Building for Pest Animal Control* (Robins 2010), was developed as the basis for conducting consultations with the target end-user groups (see contents page provided at Appendix B). All workshop participants received a hardcopy of the options paper prior to the workshop.

The options paper embodies the review of literature underpinning this research. It was designed to canvas views on the most effective strategies for enabling NRM managers and pest animal controllers to achieve their goals, targets and/or responsibilities with respect to controlling pest animal populations at the regional level.

The paper is framed around the Four-Capital Model (Ekins 1992), as an analytical device to clarify the scope of capacity development and facilitate structured discussion among research participants. Capacity building is therefore explored across human (knowledge; skills; experience), social (trust and reciprocity; values, attitudes and behaviour; commitment; motivation; sense of place; networks; relationships), institutional (governance arrangements) and economic (infrastructure; financial resources) dimensions (Table 2).

Table 2: Conceptual model for capacity building (Modified from Moore et al. 2006)

Human	Social		Institutional	Economic
	Cognitive (social norms)	Structural (networks)		
Knowledge Skills Experience	Trust and reciprocity Values, attitudes and behaviour Commitment Motivation Sense of place	Networks Relationships	Governance arrangements	Infrastructure Financial resources

The paper outlines a menu of options that may be relevant to building the capacity of NRM managers and pest animal controllers at regional level. The strategies are derived from PhD studies (2005-08) that examined Australia's 56 NRM regions and looked at tangible and practical ways of enhancing the capacity of their governing Boards to deliver national NRM programs (Robins 2008a). The options paper is a modified version of a discussion paper developed for the purposes of that research (Robins 2007a). Specifically, its purpose is to:

- Reflect upon capacity building measures from within and outside NRM;
- Identify levels of support and preferences for specific options; and
- Identify whether any options are inappropriate in the context of NRM managers and pest animal controllers at regional level.

The paper examines capacity building measures used in the sectors of health (Robins 2007b) and risk and emergency management (Robins 2008b) for ideas that could be applied in the context of NRM. We tend not to look to other sectors for ideas because of the complexities of NRM itself and because it is simpler to confine our thinking to our defined interest areas. Dovers (2005) argues that other 'cognate sectors' (eg public health, defence and planning), as similar fields of policy and management, may provide lessons for NRM.

The sectors of health and risk and emergency management were examined because they have much in common with NRM (Robins 2007a), including:

- institutional arrangements that vary between states;
- extensive networks of volunteers and professionals delivering national policies and programs at regional level;
- complex subject matter;
- highly uncertain operating environments;
- dependency upon sound scientifically-based information for robust decision-making; and
- strong practice-based experience.

The options paper sets out a menu of 28 capacity building options (Table 3), and indicates their effectiveness where such information is available. Twenty-two were derived from health and risk and emergency management, and the remaining six arose from consultations with NRM stakeholders during the PhD research. Table 4 shows the link between each measure (its primary and secondary purpose) and the type of capital it contributes to building. It demonstrates that most measures build more than one form of capital and helps to illustrate that enabling NRM managers and pest animal controllers at regional level will necessitate a package of measures that bridge these.

While not specifically framed in the context of pest animal control, the options are broadly relevant to many contexts within and outside the NRM arena. The menu of options is not exhaustive and could be extended through examination of other relevant sectors, such as education, planning and community development. While there are significant similarities between the sectors of health and risk and emergency management and the NRM sector there are also important differences. For these sectors, life and property are often at stake, and the consequences of an inappropriate or untimely response can be great. There are unique cultural differences between sectors, and each operates within a distinct regulatory environment. In recognition of these differences, the options paper does not advocate the direct transfer of the capacity building measures used in these sectors, rather that they are wisely transferred into the NRM setting with careful thought and further examination. Each of the capacity building options discussed in the paper varies in the extent to which it has been evaluated and tested, but all present valuable ideas that warrant discussion and possibly trial within the NRM domain.

Table 3: A brief description of the 28 capacity building options (Modified from Robins 2008c)

No.	Capacity Building Option	Brief Description
1.	Protocols	Documents (eg bilateral agreements, MoUs) used to clarify roles, define boundaries, assign responsibilities and facilitate open communication
2.	Legislative, Constitutional & Policy Frameworks	Legislative, constitutional and policy frameworks within which regional NRM bodies and Boards are established and operate
3.	Risk Standards & Guidelines	A generic framework for identifying, analysing, assessing, treating and monitoring risk
4.	Best Practice Guidelines	Guidelines that specify best practice through a process of integrating, codifying and simplifying high volumes of information
5.	Environmental Standards	Standards on aspects of environmental management systems
6.	Performance Measures & Reporting	Performance measures and reporting requirements that provide clarity and certainty in the delivery of regional plans and strategies
7.	Information Centre	A national centre (modelled on Emergency Management Australia) for improving information consolidation, standardisation and access
8.	Training Facility	A national facility (modelled on the Emergency Management Australia Institute) for improving training quality, consistency and access
9.	Regional Infrastructure & Staff	The fundamental infrastructure (eg accommodation, equipment) and human resources for supporting the regional delivery model (including servicing the Board itself)
10.	Flexible & Adequate Resourcing Arrangements	Financial arrangements that provide scope to respond to unanticipated issues and emerging priorities at the regional level
11.	Briefings and Debriefings	Exchanges focused on developing a shared understanding of objectives and outcomes, enabling reflection, reporting on outcomes and making recommendations for the future
12.	Policy Decision-making Processes	Clear and structured approaches to decision-making at national level to achieve strategic and consistent policy
13.	Quality or Process Improvement Methods	Improving service through breaking down the service into its component parts and focusing on improving each step in the process
14.	Quality Improvement or Learning Collaboratives	Groups of practitioners from different organisations coming together to work in a structured way to improve one aspect of their service
15.	Audit & Feedback	Systematic review processes for bringing about practice change through measuring improvement against criteria and the implementation of change
16.	Recognition & Service Awards	A mechanism for recognising and rewarding service to the community and the environment through conferring an award
17.	Team & Collaborative Relationship Building	Mechanisms for establishing and developing relationships, networks, teams and partnerships between regional NRM bodies and Boards and relevant individuals and entities
18.	Competency-based Training	Accredited courses providing national qualifications and statements of attainment delivered by Registered Training Organisations (public and private)
19.	Academic Detailing	An evidence-based method of continuing education designed to change behaviour involving a trainer visiting the trainee in their own business setting for a one-on-one session
20.	Exercises	Information session, walkaround, tabletop, simulation, field and future scenario planning exercises designed to improve plans and decision-making and build teams
21.	Personal & Professional Development	Structured approaches to developing personal and professional skills (eg leadership programs, fellowship programs, practice-based courses)
22.	Mentoring & Coaching	A relationship involving an experienced and trusted counsellor, or more senior & experienced individual, who advises a junior colleague, or where counselling is between equals (co-mentoring)
23	Local Opinion Leaders	A formal approach to using local opinion leaders to influence peers through group discussions, informal consultations, and revision of protocols, guidelines and processes
24.	Registers	A register for recording the availability of qualified experts prepared to provide advice or other services on a volunteer basis
25.	Information & Research Compendia	A mechanism for collating and organising information and research findings into a more accessible, usable and comprehensible form
26.	Case Studies & Storytelling	A mechanism (both written and oral) for capturing different perspectives, experiences, knowledges and practices to inform decision-making
27.	Models, DSS & GIS	Computer-based and manual methods used for prediction and the presentation of spatial data to aid decision-making processes
28.	Computer-based Knowledge Exchange	Computer-based methods of sharing knowledge (eg internet broadcasting, computer-based telephony, interactive CD-ROM)

Table 4: The relationship between the options and building different aspects of capital (modified from Robins 2008c)

CAPACITY BUILDING OPTION	CAPITAL				
	Human	Social		Institutional	Economic
		Cognitive	Structural		
1. Protocols		◊	◊	♦	♦
2. Legislative, Constitutional & Policy Frameworks		◊		♦	
3. Risk Standards & Guidelines	◊	◊		♦	♦
4. Best Practice Guidelines	♦				
5. Environmental Standards	◊	◊		♦	♦
6. Performance Measures & Reporting	◊			♦	♦
7. Information Centre	♦		◊	♦	◊
8. Training Facility	♦		◊	♦	◊
9. Regional Infrastructure & Staff	♦				♦
10. Flexible & Adequate Resourcing Arrangements	◊	◊	◊		♦
11. Briefings & Debriefings	♦	◊	◊	♦	
12. Policy Decision-making Processes		◊		♦	◊
13. Quality or Process Improvement Methods	♦	◊		♦	◊
14. Quality Improvement or Learning Collaboratives	♦	◊	♦	♦	◊
15. Audit & Feedback	♦	◊	◊	♦	◊
16. Recognition & Service Awards	◊	♦			
17. Team & Collaborative Relationship Building	◊	♦	♦		
18. Competency-based Training	♦	◊			
19. Academic Detailing	♦	◊			
20. Exercises	♦	◊	◊		
21. Personal & Professional Development	♦	◊	◊		
22. Mentoring & Coaching	♦	◊	◊		
23. Local Opinion Leaders	♦	♦	◊		
24. Registers	◊		◊	◊	♦
25. Information & Research Compendia	♦				
26. Case Studies & Storytelling	♦	◊			
27. Models, Decision Support Systems & GIS	♦				◊
28. Computer-based Knowledge Exchange	♦		◊		◊

♦ Primary purpose; ◊ Secondary purpose

2.5 Regional workshops and surveys

Within each case study area, NRM managers and pest animal controllers were invited to participate in a one-day workshop, with the aim of attracting 10-15 participants. In practice, between 8-12 people attended each event. The IA CRC NRM Liaison Officer (Jessica Gibson) and volunteer regional coordinators were instrumental in identifying key participants, seeking their agreement to participate and managing workshop logistics.

The first half of each workshop focused on seeking feedback from participants to inform development of the *PestSmart* toolkits. This aspect included gaining a better understanding of participants' use of and perspectives on a range of hardcopy and electronic/audio information products.

The second half examined capacity building options. Participants were requested to consider the options paper prior to their workshop. Surveys were distributed and completed during the workshop, and used to inform deliberations. This element of the workshop also gathered information on the nature of the participants' capacity issues.

Each workshop comprised six sessions, and followed the same elements and approaches described below.

2.5.1 Information products survey

A survey on information products (Appendix C) was conducted at the commencement of each regional workshop. Workshop participants were asked to respond to questions in relation to each of the 23 product types shown in Table 5. The first 14 information products shown are hardcopy products, and the following nine are electronic and audio products.

Table 5: Information product types surveyed

	PRODUCT TYPES
1.	Books
2.	Journal Articles
3.	Workshop Proceedings
4.	Research Reports
5.	Research Compendia & Directories
6.	Summary Booklets
7.	Guidelines
8.	Fact Sheets
9.	Brochures & Flyers
10.	Newspaper Articles
11.	Magazines (free)
12.	Magazines (paid)
13.	Newsletters (hardcopy)
14.	Artwork & Photography
15.	CDs/DVDs (non-audio)
16.	Videos/DVDs/Documentaries
17.	Models, DSS & GIS
18.	e-Newsletters (online)
19.	e-Newsletters (emailed)
20.	Websites
21.	Wiki-sites
22.	Podcasts
23.	Social Networking

The survey elicited responses on current product use and experience (in terms of technical reliability, ease of understanding, ease of access, ease of application, and motivational impact), as well as anticipated future use of the range of products. Respondents were also asked to indicate the extent to which value may be added by developing and presenting an information product as a series or as a hybrid package.

The survey provided value as a primer for the workshop sessions to follow. These sessions focused on informing the development of the *PestSmart* toolkit, specifically in terms of the content and presentation needed to have an impact on the decision-making of NRM managers and pest animal controllers at regional level, and what needed to be avoided.

Survey results for each product type are plotted (using Excel) and discussed for the three regions collectively.

2.5.2 What works, and why? – Information content

Following the products survey, each workshop dedicated half an hour to the task of trying to better understand what works in terms of the content of information products, and why. Participants were given about five minutes 'quiet-time' to write down their ideas on post-it stickers in response to the question: 'With your responses to today's survey in mind, what content is needed for the *PestSmart* toolkit to have an impact on you (as a regional level decision-maker) and your decision-making?'

Participants were encouraged to indicate the reason(s) why they thought such content was needed. In addition, they were given the option of commenting about any implications for presentation (the primary focus of the next session). The examples shown in Table 6 were presented to stimulate thinking, and provide participants with a guide for responding to the 'what' and 'why' (because) elements of question posed. Participants were encouraged to be brief, but specific with their responses.

Table 6: Examples of potential responses to the workshop question: 'What content is needed for the *PestSmart* toolkit to have an impact on you (as a regional level decision-maker) and your decision-making?'

CONTENT	PRESENTATION (OPTIONAL)
Provide **prescriptions of best practice** because I want to look for ways of improving performance	*Present this information* as **a series of short booklets** because I don't have much time for reading
Incorporate **local knowledge** because I want to learn from the experiences of practitioners	*Present this information* in **podcast** format because I can listen to them when I'm on the road
Give the **costs of alternative options** because I need to tailor responses to the available funds	*Present this information* as **a set of look up tables** because I want something that's easily accessible

Each participant contributed a single idea in the first instance, and these were progressively built upon and discussed to capture the breadth of thinking. Post-it stickers were displayed on the wall for participants to refer to and reflect upon. Some clustering of ideas was undertaken where time allowed. At the conclusion of the session, participants indicated their most favoured ideas by casting three votes using colour-coded stickers (1st=green; 2nd=amber; 3rd=red).

2.5.3 What works, and why? – Information presentation

The same process outlined in section 2.5.2 was used to explore what works for information presentation. Participants were asked the question: 'With your responses to today's survey in mind, what presentation is needed for the *PestSmart* toolkit to have an impact on you (as a regional level decision-maker) and your decision-making?' They were encouraged to indicate the reason(s) why they thought such presentation was needed. In addition, they were given the option of commenting about any implications for content (the primary focus of the previous session). The examples shown in Table 7 were presented.

Table 7: Examples of potential responses to the workshop question: 'What presentation is needed for the *PestSmart* toolkit to have an impact on you (as a regional level decision-maker) and your decision-making?'

PRESENTATION	CONTENT (OPTIONAL)
Develop some **podcasts** because I can listen to them when I'm on road	*The content could be* about **practice failures** because there's a lot to learn from what doesn't work
Set up a **chat room** for practitioners on the CRC's website because I can be in touch with others when it suits me	*The content could be* **determined by the members** because what's relevant and important will depend on who signs up
Develop an **interactive map making facility** because I'd like to be able to input information into the system	*The content could be* about **pest animal extent and distribution, project locations, and the like** because this sort of data is always changing

2.5.4 What doesn't work, and why?

The same process outlined in section 2.5.2 was used in the second session on what doesn't work, and why. Participants were asked to response the question: 'With your responses to today's survey in mind, what content and/or presentation should be avoided for the *PestSmart* toolkit to have an impact on you (as a regional level decision-maker) and your decision-making?' Participants were encouraged to indicate the reason(s) why they thought such content and/or presentation was needed. The examples shown in Table 8 were presented.

Table 8: Examples of potential responses to the workshop question: 'What content and/or presentation should be avoided for the *PestSmart* toolkit to have an impact on you (as a regional level decision-maker) and your decision-making?'

CONTENT
Don't create any stand alone **fact sheets** on foxes because it's more effective to feed into the Spotlight on Foxes series
Don't produce any more material on **principles and strategies** because this issue has been adequately covered
Don't focus on just **practice** because it's also important to provide information about policy responses
Don't emphasise the findings of biophysical research over **socio-economic** research because it's important to present an integrated perspective on the issues

PRESENTATION
Don't just provide **research reports** because I find it too difficult to extract the take home messages
Don't use **video** technology because I only have access to a DVD player
Don't make **files** larger than 5 MB because I'm on dial-up
Don't make **materials too fussy** because I photocopy in B&W

2.5.5 Using the *PestSmart* toolkit

A 40-minute diagramming exercise was designed to better understand how regional end-users intend to use the *PestSmart* toolkit and what they need the information to do.

Workshop participants were divided into two groups and provided with a large piece of butcher's paper and a set of coloured markers. Each group was asked to spend 20-25 minutes drawing a mind-map of how they envisaged using the *PestSmart* toolkit in their region.

The following rules of drawing were outlined:

- 1 person writes (and explains to the group) at a time
- Colours may be used to denote different things
- Everyone should have a go and say

A single reporter provided a description of the mind-map back to the group as a whole, with the opportunity for their group members to comment and for other workshop participants to ask questions.

2.5.6 Capacity issues

The opening session on capacity building focused on identifying the capacity issues of NRM managers and pest animal controllers at regional scale across human, social, institutional and economic dimensions.

Participants were given about five minutes 'quiet-time' to write down their ideas on post-it stickers in response to the question: 'What capacity issues do you have as regional pest animal managers and controllers?' The conceptual model presented in Table 2 was provided as a reference point for stimulating ideas and discussion, as were the specific examples shown in Table 9.

Each participant contributed a single idea in the first instance, and these were progressively built upon and discussed to capture the breadth of thinking. Post-it stickers were displayed on butcher's paper using a blank template of the conceptual model.

Table 9: Examples of capacity issues used to stimulate workshop discussions

Human	Social		Institutional	Economic
	Cognitive (social norms)	Structural (networks)		
Pest control officers have limited access to training opportunities	Pest control officers are burnt out	There aren't any structures in place for bringing the main players together	Regional NRM orgs don't have a strong mandate for pest animal control	Local councils don't have the resources to make pest animal control a priority

2.5.7 Capacity building survey

Workshop participants received the options paper prior to the workshop. They were advised that a presentation on the options in the paper would be given at the workshop. Participants were asked to at least scan the paper and familiarise themselves with the options before coming to the meeting. The invitation to the workshop also informed participants that they would be asked to respond to a survey at the workshop about their support and preferences for the capacity building strategies discussed in paper.

Two survey forms on capacity building options were developed based on the options paper (Appendix D).

The first survey asked respondents to indicate their support for each of the 28 capacity building options presented in the paper as 'Strongly Support', 'Support', 'Don't Know', 'Against' or 'Strongly Against'. This survey was filled out progressively at the workshop during the presentation of each of the 28 options. Results for each measure have been plotted (using Excel) for the region individually and for the three regions collectively.

The second survey form asked respondents to rank the six measures they most preferred (from 1, most, to 6, least) in the case of: (a) the remaining timeline of the IA CRC (between now and June 2012), and (b) any new CRC structure (from July 2012). These responses have been graphed (using Excel) to show weighted preferences (ie 6

points for the most preferred measure, scaling down to 1 point for the sixth preferred measure). This survey was filled out at the conclusion of the presentation of the 28 options (and completion of the first survey). Graphs are similarly provided for the region individually and for the three regions collectively.

2.5.8 Regional form

The final workshop session dedicated about one hour to discussing three capacity building options identified in the previous session as highly preferred amongst the workshop participants. The purpose of the session was to establish what capacity issues the preferred measures would address and what the capacity measures might look like in the context of the region.

The outcomes of preference votes in the previous session were used as a starting point for reaching agreement about which capacity building measures to discuss. Participants entered their rankings (1-6) on a blank template showing the 28 options with columns for 'now to June 2012' and 'from July 2012'. The votes were not added together, but rather used as an indicator for finding common ground.

2.6 Expert workshop

An expert workshop was convened in Canberra on 15 June 2010 to examine the collective outcomes arising from the three regional workshops. Participants in the original End-user Adoption Workshop (section 2.2; Appendix A) were invited to attend. The expert workshop was timed to coincide with the IA CRC review event (16-18 June) in Canberra. A full draft of the final report for the sub-project in the form of an IA CRC Occasional Paper was provided to the Expert Workshop participants prior to the event for consideration, and to inform workshop discussions.

The aims of the workshop were to:

- Reflect upon survey results and workshop outcomes;
- Discuss the sub-project recommendations;
- Suggest amendments to inform report finalisation; and
- Outline a process for the IA CRC to progress the research findings.

2.7 Final report

This Occasional Paper represents the final report for the sub-project. It brings together all elements of the sub-project (options paper, survey results, and regional workshop and expert workshop outcomes) and presents a suite of recommendations arising from the overall research.

The conclusions identify information products perceived by the target end-user groups as both good and bad models, provides direction on what the *PestSmart* toolkits should look like, and makes suggestions to inform investments in capacity building with respect to the remaining timeline of the IA CRC (to June 2012) and in any new CRC structure (from July 2012).

3. Information Products Survey

This chapter presents and discusses the aggregated results of the information products survey across the three case study regions. Graphical representation of data for individual regions is provided at Appendix E. Refer to Table 5 as a key for interpreting the horizontal axes (information product types) in the figures that follow.

3.1 Current use

Figure 1 shows aggregated data on current use of the range of information product types surveyed. Respondents were asked to select either 'never', 'sometimes' or 'often' in response to the question: 'Do you use this type of product to inform your work?' Respondents selecting 'never' were advised to fill out the final survey column on 'future use', and leave blank responses with respect to technical reliability, ease of understanding, ease of access, ease of application and motivational impact.

Websites (No. 20) is the only information product type used by all end-user surveyed to inform their work as NRM managers and pest animal controllers at regional level. A majority of respondents (50 per cent or more) indicated that they often make use of websites (No. 20), guidelines (No. 7) and fact sheets (No. 8). Additionally, at least one third of end-users indicated that they often used books (No. 1), journal articles (No. 2), research reports (No. 4), summary booklets (No. 6), models, decision support systems and geographical information systems (No. 17) and emailed newsletters (No. 19).

Data on current use suggests that a majority of the end-user group (50 per cent or more) never use podcasts (No. 22), social networking (No. 23), research compendia and directories (No. 5) or wiki-sites (No. 21). This may reflect the extent to which these modes of communication are currently available to support pest animal management rather than their efficacy. Additionally, only 1-2 respondents indicated a high level of use ('often') for free magazines (No. 11), paid magazines (No. 12), non-audio CDs/DVDs (No. 15).

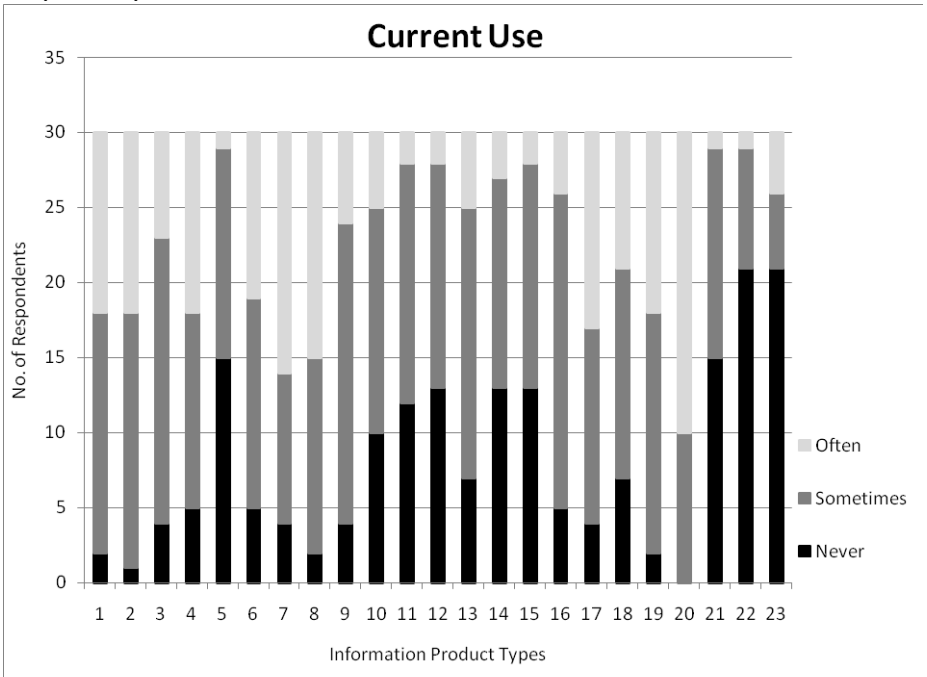

Figure 1: Current use of specific information product types by NRM managers and pest animal controllers at regional level

Products that are used 'sometimes' by a majority of the end-user group (50 per cent or more) are books (No. 1), journal articles (No. 2), workshop proceedings (No. 3), brochures and flyers (No. 9), newspaper articles (No. 10), free magazines (No. 11), hardcopy newsletters (No. 13), non-audio CDs/DVDs (No. 15), videos/DVDs/ documentaries (No. 16) and emailed newsletters (No. 19).

3.2 Technical reliability

Figure 2 shows aggregated data on the perceived technical reliability of the range of information product types surveyed. Respondents were asked to select either 'very poor', 'poor', 'satisfactory', 'very good' or 'excellent' in response to the question: 'What is your experience of this type of information product in terms of technical reliability?' A definition of 'technical reliability' was given as 'the technical and/or scientific quality and standing of the information.' The question does not apply in the case of artwork and photography (No. 14), which is shown as blank in Figure 2. No further comment is made here on information product types recorded as 'never used', as this data was discussed in section 3.1.

In general, the technical reliability of hardcopy products (Nos. 1-13) stands out in contrast to electronic and audio products (Nos. 15-23). There are four product types that were not rated 'excellent' by any survey respondent, namely newspaper articles (No. 10), paid magazines (No. 12), wiki-sites (No. 21) and podcasts (No. 22). The least technically reliable product types overall ('very poor' and 'poor') were identified as newspaper articles (No. 10) and wiki-sites (No. 21).

Journal articles (No. 2) were rated 'excellent' by almost two-thirds of respondents, and around one-third in the case of research reports (No. 4). Books (No. 1), summary booklets (No. 6) and fact sheets (No. 8) rated evenly for excellence at around one-quarter of respondents. Interestingly, guidelines (No. 7) were rated lower for technical reliability than fact sheets (No. 8).

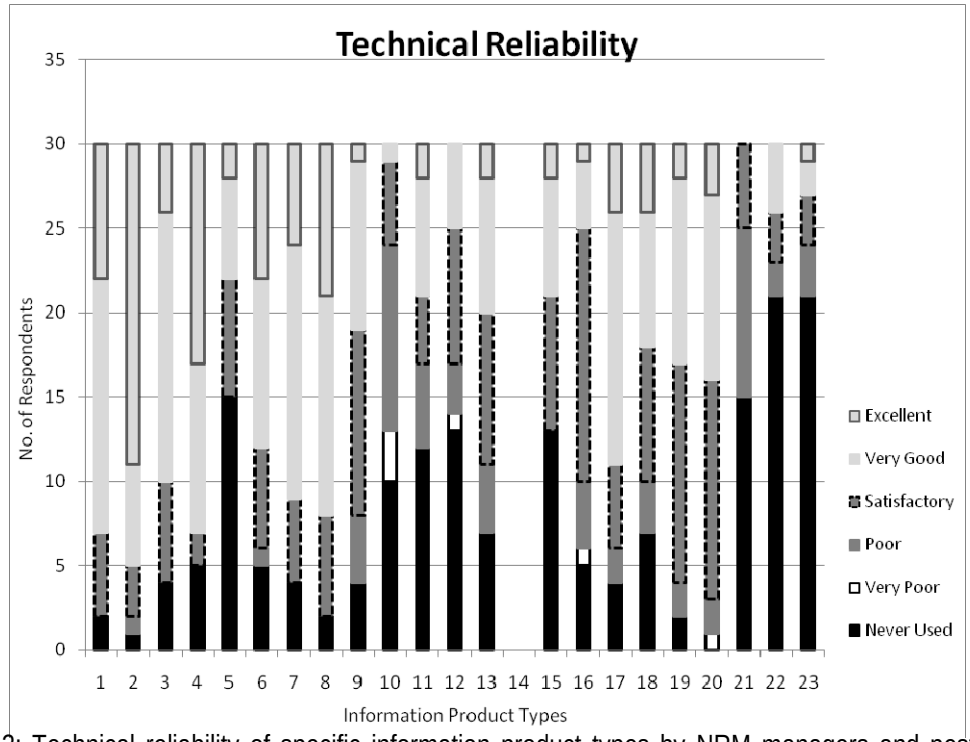

Figure 2: Technical reliability of specific information product types by NRM managers and pest animal controllers at regional level

3.3 Ease of understanding

Figure 3 shows aggregated data on the perceived ease of understanding of the range of information product types surveyed. Respondents were asked to select either 'very poor', 'poor', 'satisfactory', 'very good' or 'excellent' in response to the question: 'What is your experience of this type of information product in terms of ease of understanding?' A definition of 'ease of understanding' was given as 'the readability or comprehensibility of the language (eg technical terms, attention to editing) and style of presenting the information (eg graphs, photos).' No further comment is made here on information product types recorded as 'never used', as this data was discussed in section 3.1.

Fact sheets (No. 8) stand out in terms of ease of understanding, with 53 per cent of respondents rating them as 'excellent', and a further 37 per cent as 'very good'. Summary booklets (No. 6), guidelines (No. 7) and brochures and flyers (No. 9) also rated highly with around 40 per cent of respondents nominating 'excellent'.

No information products were rated as 'very poor' for ease of understanding, and 'poor' was selected by a small number of respondents (1-3) in the case of six product types, namely research reports (No. 4), research compendia and directories (No. 5), newspaper articles (No. 10), CDs/DVDs/documentaries (No. 15), models, decision support systems and geographical information systems (No. 17) and websites (No. 20).

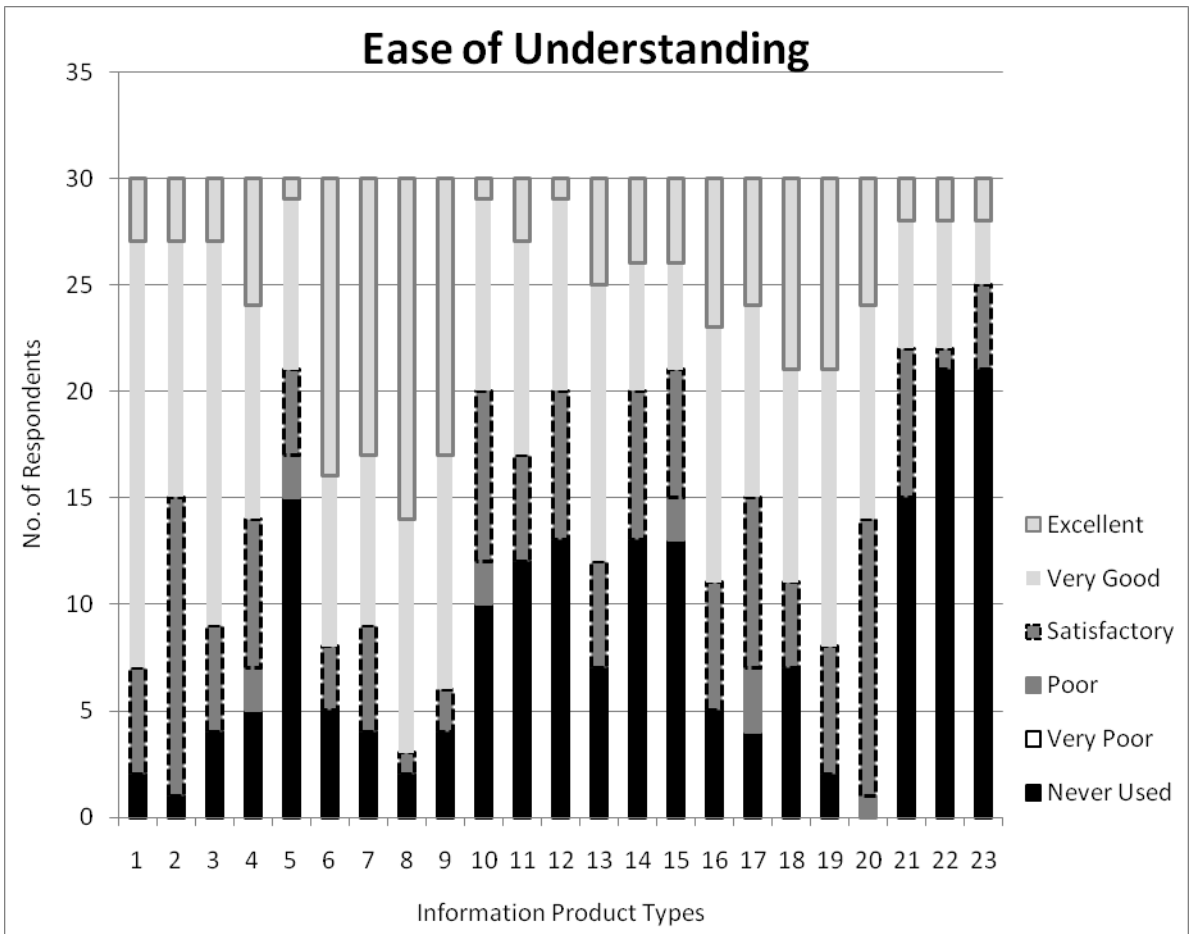

Figure 3: Ease of understanding of specific information product types by NRM managers and pest animal controllers at regional level

3.4 Ease of access

Figure 4 shows aggregated data on the perceived ease of access of the range of information product types surveyed. Respondents were asked to select either 'very poor', 'poor', 'satisfactory', 'very good' or 'excellent' in response to the question: 'What is your experience of this type of information product in terms of ease of access?' A definition of 'ease of access' was given as 'the ease of getting or finding information within the product itself.' No further comment is made here on information product types recorded as 'never used', as this data was discussed in section 3.1.

Two-thirds or more of respondents nominated 'excellent' and 'very good' in terms of ease of access for four product types, namely fact sheets (No. 8), brochures and flyers (No. 9), emailed newsletters (No. 19) and websites (No. 20). A further six products achieved the same ratings for at least half of all respondents, namely books (No. 1), workshop proceedings (No. 3), research reports (No. 4), summary reports (No. 6), guidelines (No. 7) and online newsletters (No. 18).

Seventeen product types were rated 'very poor' or 'poor' for ease of access by between one and six respondents. Journal articles (No. 2) and newspaper articles (No. 10) registered the highest number of negative votes collectively, without accounting for 'never used'.

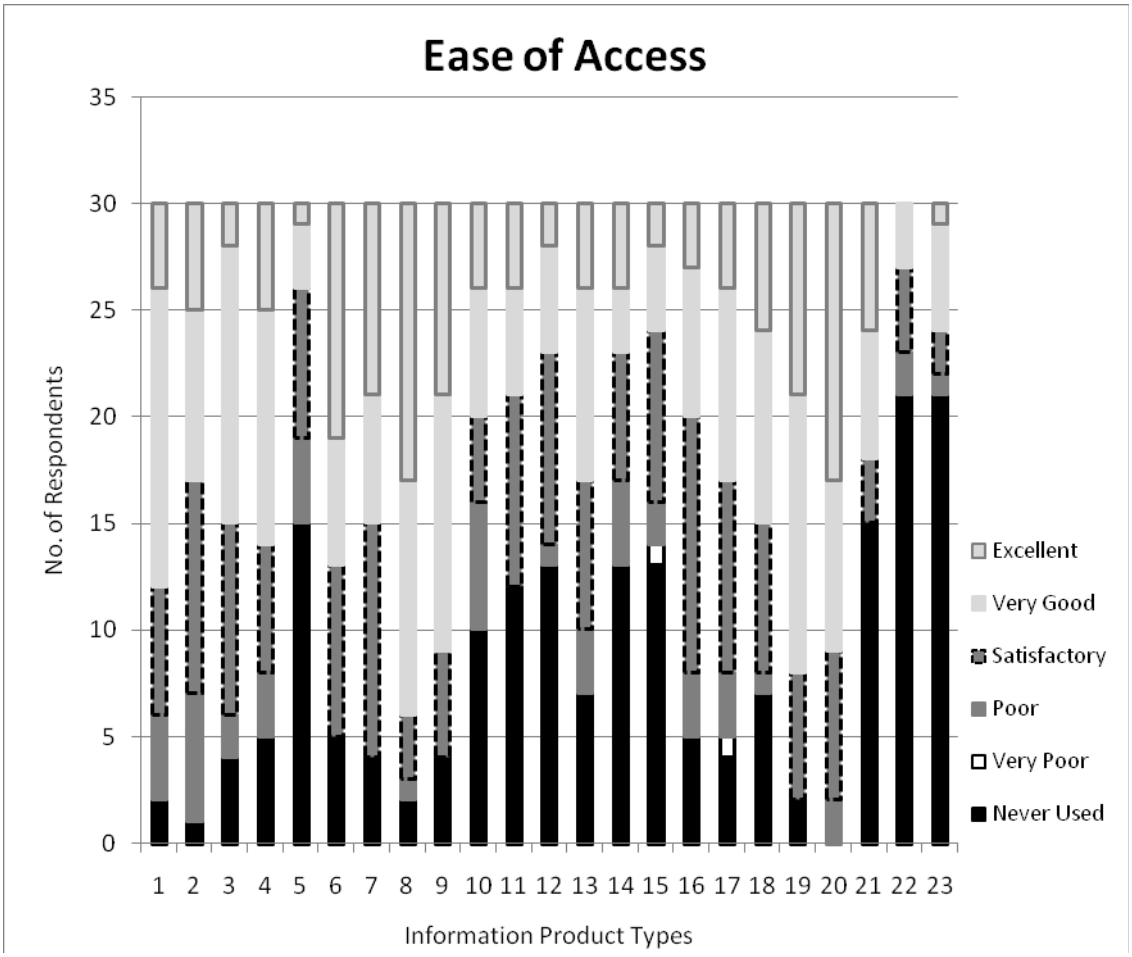

Figure 4: Ease of access of specific information product types by NRM managers and pest animal controllers at regional level

3.5 Ease of application

Figure 5 shows aggregated data on the perceived ease of application of the range of information product types surveyed. Respondents were asked to select either 'very poor', 'poor', 'satisfactory', 'very good' or 'excellent' in response to the question: 'What is your experience of this type of information product in terms of ease of application?' A definition of 'ease of application' was given as 'the ease of using or applying the information in-practice; its practical utility or efficacy.' No further comment is made here on information product types recorded as 'never used', as this data was discussed in section 3.1.

More than 80 per cent of product types registered a negative response (by between one and twelve respondents) for ease of application. Newspaper articles (No. 10) stands out as providing the poorest result for this criterion, followed by artwork and photography (No. 14) and journal articles (No. 2), which both recorded five votes.

Only a handful of product types recorded very positive responses ('excellent' and 'very good') for at least 50 per cent of the survey population, namely books (No. 1), summary booklets (No 6), guidelines (No. 7), fact sheets (No. 8) and brochures and flyers (No. 9).

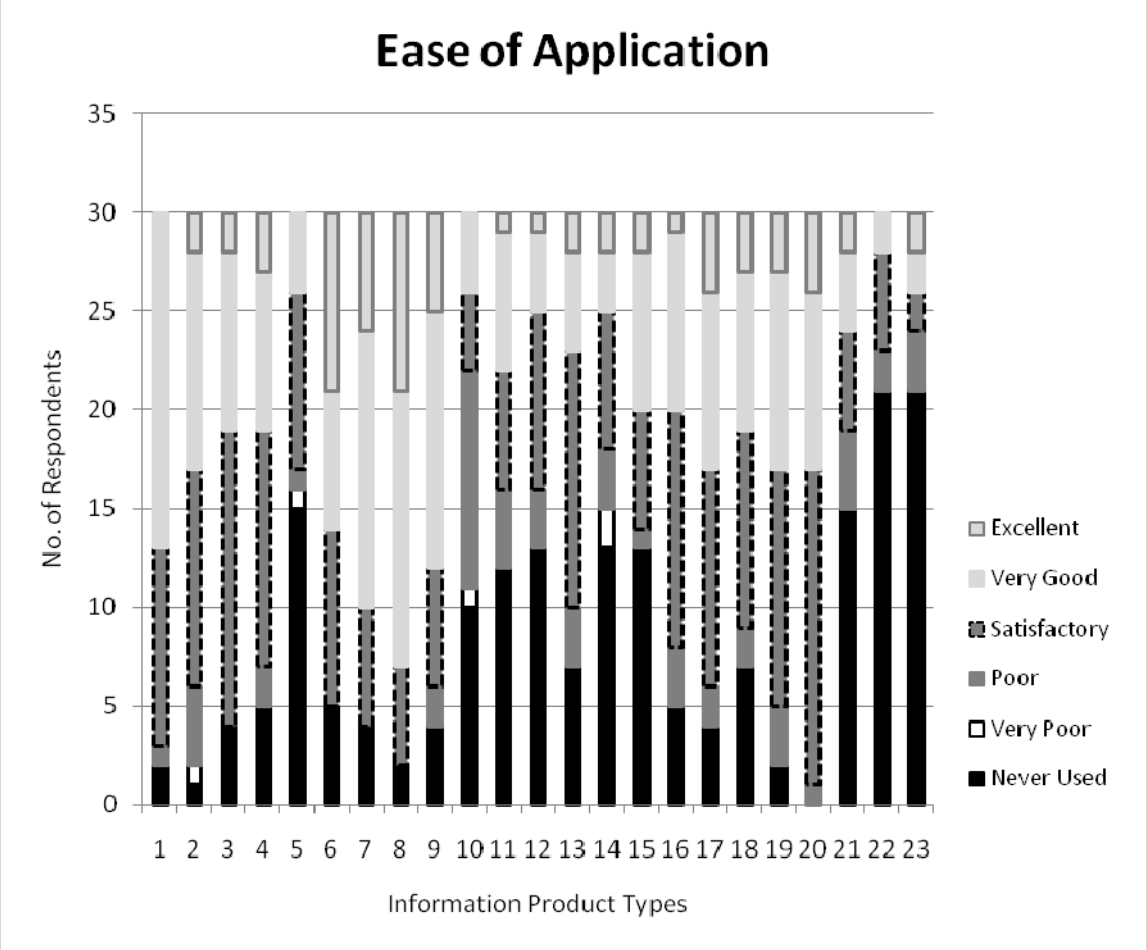

Figure 5: Ease of application of specific information product types by NRM managers and pest animal controllers at regional level

3.6 Motivational impact

Figure 6 shows aggregated data on the perceived motivational impact of the range of information product types surveyed. Respondents were asked to select either 'very poor', 'poor', 'satisfactory', 'very good' or 'excellent' in response to the question: 'What is your experience of this type of information product in terms of motivational impact?' A definition of 'motivational impact' was given as 'the degree to which the information is likely to change thinking and/or practice.' No further comment is made here on information product types recorded as 'never used', as this data was discussed in section 3.1.

Six information product types scored a very positive result ('excellent' and 'very good') for motivational impact for at least 50 per cent of respondents, namely (in order of priority) fact sheets (No. 8), journal articles (No. 2), brochures and flyers (No. 9), videos/DVDs/ documentaries (No. 16), guidelines (No. 7) and emailed newsletters (No. 19). For these six products, between 1-3 respondents nominated 'poor' or 'very poor', with the exception of fact sheets (No. 8).

Fact sheets (No. 8) and summary booklets (No. 6) were the only product types of the 23 listed that did not score any negative results. Research compendia and directories (No. 5) and podcasts (No. 22) were the only two product types without a single 'excellent' rating. In the case of podcasts (No. 22), however, it is noted that more than two-thirds of the survey cohort have never used this type of information product.

The poorest scores for motivational impact were for newspaper articles (No. 10), workshop proceedings (No. 3) and hardcopy newsletters (No. 13). Notably, both online newsletters (No. 18) and emailed newsletters (No. 19) scored more highly than hardcopy newsletters (No. 13) for all rating categories.

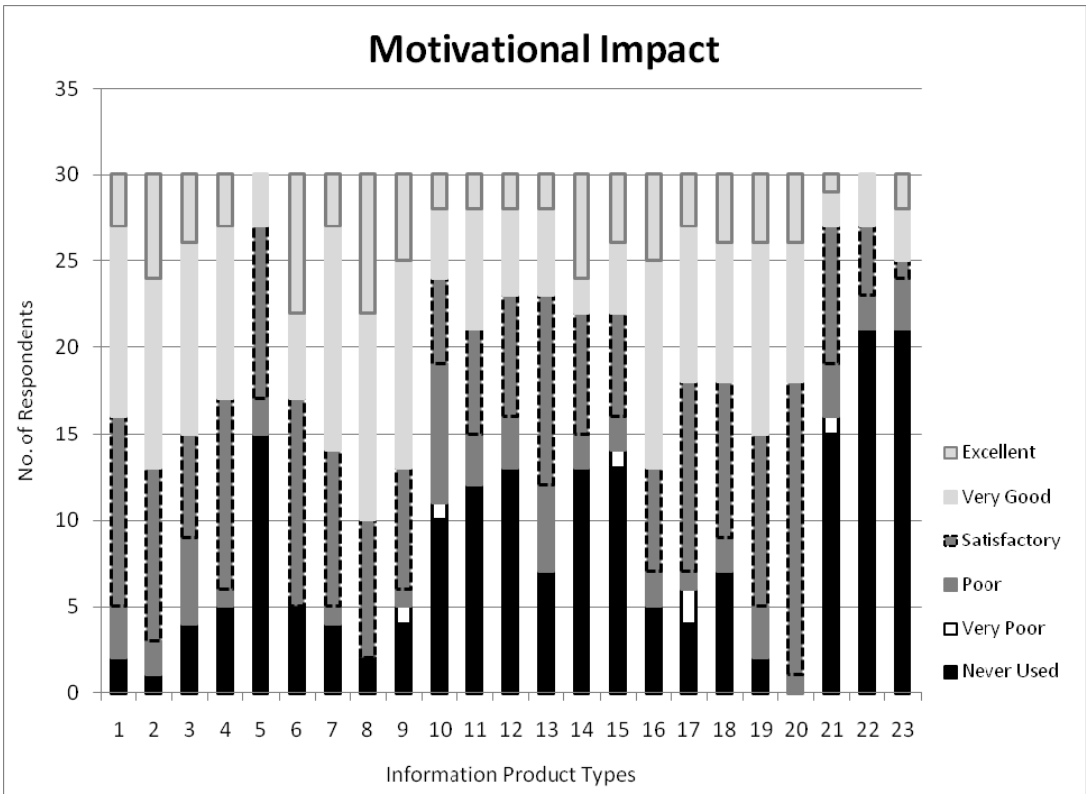

Figure 6: Motivational impact of specific information product types by NRM managers and pest animal controllers at regional level

3.7 Future use

Figure 7 shows aggregated data on anticipated future use of the range of information product types surveyed. Respondents were asked to select either 'less', 'about the same' or 'more' in response to the question: 'In 5 years time, do you expect to be using this sort of product?' In interpreting these results, it is noted that respondents who nominated 'never' in the case of 'current use' (section 3.1) could select either 'about the same' or 'more' for this question, but not 'less'[2]. For this reason, the emphasis of the commentary in this section is on data about increasing use ('more').

Fifty per cent or more of respondents indicated that they expect to make greater use of three product types in the future, namely (in priority order) models, decision support systems and geographical information systems (No. 17), websites (No. 20) and podcasts (No. 22).

In addition to these three product types, at least one-third of respondents anticipated increasing their use of journal articles (No. 2), workshop proceedings (No. 3), research reports (No. 4), summary booklets (No. 6), guidelines (No. 7), fact sheets (No. 8), brochures and flyers (No. 9), online and emailed newsletters (No. 18 and No. 19) and social networking (No. 23).

The data suggests that three product types could remain static or decline in future use, namely newspaper articles (No. 10), paid magazines (No. 12) and, to a lesser extent, books (No. 1).

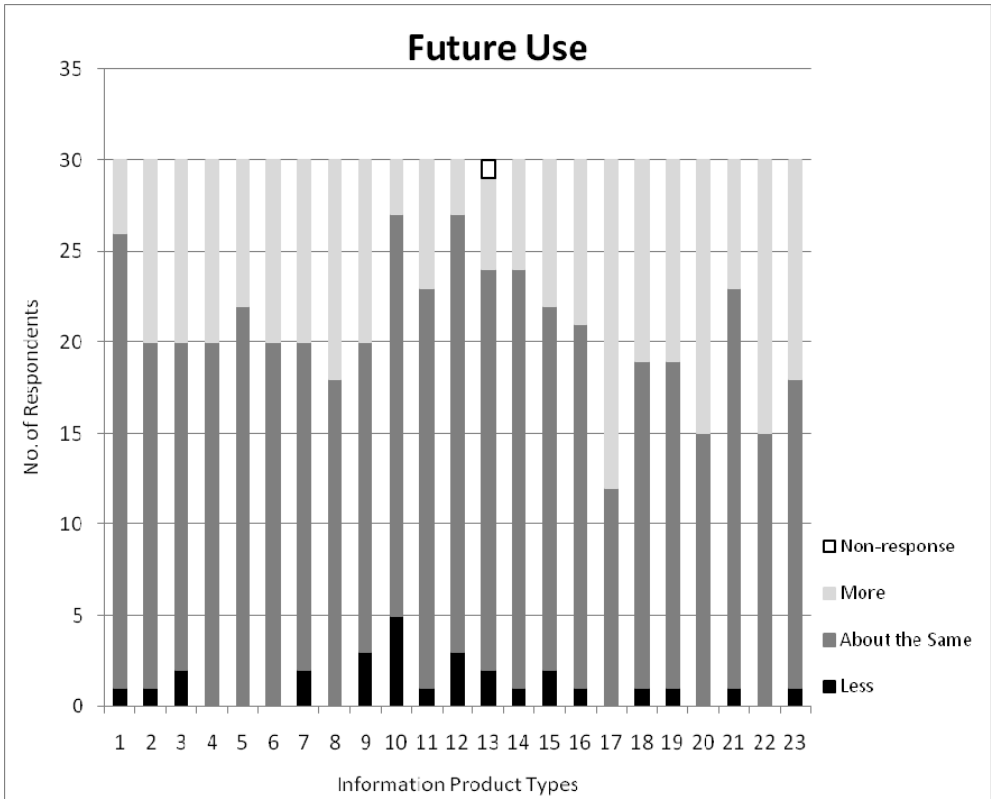

Figure 7: Future use of specific information product types by NRM managers and pest animal controllers at regional level

[2] Several respondents nominated 'less' for 'future use' when having selected 'never' for 'current use'. These data have been adjusted to 'about the same' for 'future use'.

3.8 Value adding

Figure 8 shows aggregated data on value adding with respect to the information product types surveyed. Respondents were asked to select either 'no value added', 'some value added' or 'significant value added' in response to the question: 'What value do you think is added to an information product by developing and presenting it as: (a) a series, and (b) a hybrid package?' 'A series' was described as being a set of, for example, fact sheets, books, videos or the like presented using the same format and style (produced either at once or progressively). 'A hybrid package' was described as an information product that comprises a number of product types (eg research report, video and fact sheets).

The data suggests that producing information products in series adds value for more respondents than in the case of a hybrid package. Thirty per cent of respondents considered that a hybrid package provided significant value compared to 53 per cent in the case of a series. Only one respondent nominated 'no value' for a series compared to five respondents for a hybrid package.

There would therefore seem to be a benefit in exploring opportunities for producing information in series and/or in hybrid package forms, but with greater value likely to arise from the former.

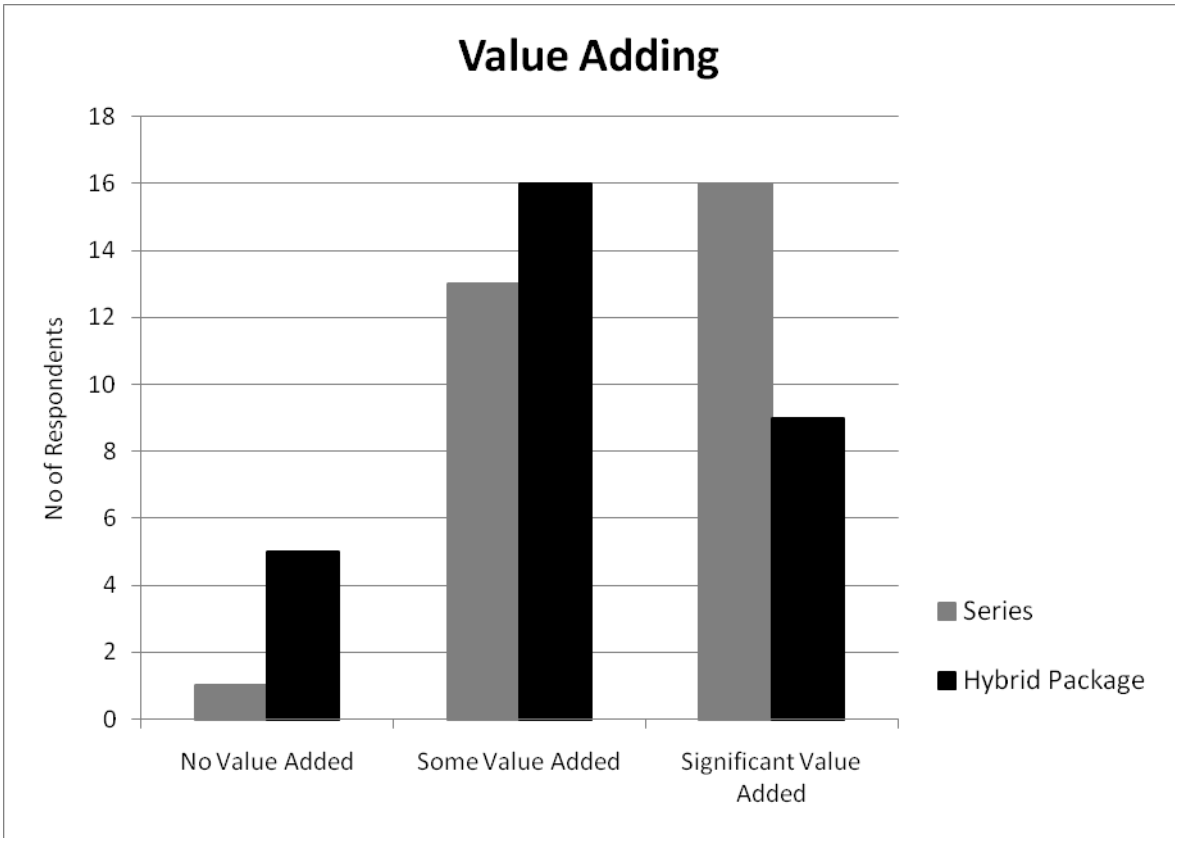

Figure 8: Value added to an information product by developing and presenting it as a series or a hybrid package

4. *PestSmart* Toolkit

This chapter explores ideas for developing the IA CRC's *PestSmart* toolkit. The information product survey discussed in chapter 3 provided a primer for workshop participants to think about what aspects of the content and presentation of different information product types work and don't work for them, and why this may be the case.

Participants were reminded that the context for feedback and discussion was in their roles as NRM managers and pest animal controllers at regional scale. This chapter also provides some insights about how these end-users anticipate using the *PestSmart* toolkit in their regional setting.

4.1 What works, and why? – Information content

It is noted that some of the items identified by participants during discussions on information content are primarily about presentation (and vice versa). They are recorded here under the session in which they were raised to maintain consistency with the workshop participants' voting preferences.

4.1.1 Lachlan NSW

The outcomes of discussions at the Lachlan NSW workshop about the content of the *PestSmart* toolkit are summarised in Table 10. Participants identified a total of 19 suggestions. The top four ideas were 'must do' actions (13 votes), successes and failures (12 votes), best practice (10 votes), and standard operating procedures (7 votes). Each of the 19 suggestions is described in the text that follows.

Table 10: Summary of Lachlan NSW suggestions about the content of the *PestSmart* toolkit, and outcomes of voting preferences

NO.	SUGGESTIONS ABOUT CONTENT	1st VOTE (3 points)	2nd VOTE (2 points)	3rd VOTE (1 point)	TOTAL VOTES (weighted)
1.	'Must Do' Actions	3	2	-	13
2.	Successes and Failures	3	1	1	12
3.	Best Practice	3	-	1	10
4.	Standard Operating Procedures	1	1	2	7
5.	Legislation	-	3	-	6
6.	Record of Investments	1	1	-	5
7.	Monitoring and Evaluation Framework	-	2	1	5
8.	Damage Thresholds	1	-	1	4
9.	Case Study Lessons	-	-	3	3
10.	Cost-Benefit Ratios	-	1	-	2
11.	Landscape-scale Factors	-	-	2	2
12.	Management Options	-	-	1	1
13.	Stakeholder Overview	-	-	-	-
14.	'What's in it for me?'	-	-	-	-
15.	Investment Case	-	-	-	-
16.	Demonstrable Evidence	-	-	-	-
17.	Field Trial Results	-	-	-	-
18.	Less Common Species	-	-	-	-
19.	Impacts on Non-target Species	-	-	-	-

1. ‘Must Do’ Actions

The *PestSmart* toolkit should focus on 3-5 ‘must do’ actions. It should allow users to identify and/or access associated tools and further information links where required. This approach is based on the view that 80 per cent of benefits will come from 20 per cent of the ideas/actions.

2. Successes and Failures

The *PestSmart* toolkit should record information about the successes and/or failures of past and current pest animal management activities. This could be presented as case studies and as a searchable online database that may be added to by verified individuals/organisations.

3. Best Practice

The *PestSmart* toolkit should identify the best methods and practices in pest animal control, and explain the reasons why. Costs and time management effects should be considered. This information could be supported by examples of successes and failures in applying such methods. These examples could be presented in the form of case studies.

4. Standard Operating Procedures

The *PestSmart* toolkit should provide concise standard operating procedures (SOPs) for each pest animal technique. This is needed to inform the delivery of consistent large/landscape scale pest animal control.

5. Legislation

The *PestSmart* toolkit should provide a list of legislation pertaining to pest animal control and describe its scope and relevance.

6. Record of Investments

The *PestSmart* toolkit should identify existing pest animal control programs and projects (operating at property or at regional level). This information will provide a record of investments and guard against duplication.

7. Monitoring and Evaluation Framework

The *PestSmart* toolkit should provide a framework for monitoring and evaluation. This will support evidence-based approaches to assessing how effective pest animal control measures have been at the landscape-scale. An M&E framework could be used to inform and refine the SOPs.

8. Damage Thresholds

The *PestSmart* toolkit should present a matrix type model for identifying damage thresholds. Damage thresholds should be specified, as the tolerance levels of stakeholders for impacts will differ. This information will allow baseline monitoring of change.

9. Case Study Lessons

The *PestSmart* toolkit should provide case studies of what works and what doesn’t with linkages to underpinning details. This could draw from IA CRC’s demonstration sites and project investments.

10. Cost-Benefit Ratios

The *PestSmart* toolkit should provide cost-benefit ratios that demonstrate that pest animal interventions will benefit land managers. The calculation of cost-benefit ratios should be informed by data from field trials and other monitoring activities.

11. Landscape-scale Factors

The *PestSmart* toolkit should outline landscape-scale considerations of pest animal control, such as re-invasion distances and speeds. This information will inform regional planning, implementation and monitoring processes.

12. Full Range of Management Options

The *PestSmart* toolkit should outline the full range of pest and game management options. This information should enable regional pest animal controllers to apply management options to their specific situation (eg conservation, commercial hunting, etc).

13. Stakeholder Overview

The *PestSmart* toolkit should provide an overview of key stakeholders across the spectrum of interest areas, including specifying their roles and responsibilities. This will enable proponents of projects and programs to readily identify interest groups and prospective partners.

14. What's in it for me?

The *PestSmart* toolkit should provide a clear, concise description of 'what's in it for me'. This information is needed to motivate the implementation of pest animal control actions. This information could be presented at the front of each 'must do' manual.

15. Investment Case

The *PestSmart* toolkit should articulate the economic case for implementing pest animal control measures. This information will enable regional NRM bodies and others to make convincing arguments for onground action, especially by individual landholders.

16. Demonstrable Evidence

The *PestSmart* toolkit should provide evidence that each type of investment in pest animal control has worked 'somewhere'. This body of demonstration sites (examples) could be used to inform future management.

17. Field Trial Results

The *PestSmart* toolkit should present findings and ideas arising from local field trials. This information will create a sense of worth from investment in field trials, and track any progress and change.

18. Less Common Species

The *PestSmart* toolkit should summarise research associated with managing the impacts of all native and introduced species, but particularly less common species. This will assist in overcoming current deficiencies in this arena, and the imbalance of information weighted to common species (eg rabbits, foxes, etc).

19. Impacts on Non-target Species

The *PestSmart* toolkit should provide information about the possible impacts of pest animal control techniques on non-target species, as well as advice on planning approaches to avoid unwanted side effects.

4.1.2 Desert Channels Qld

The outcomes of discussions at the Desert Channels Qld workshop about the content of the *PestSmart* toolkit are summarised in Table 11. Participants identified a total of 19 suggestions. The top four ideas were pest animal ecology (15 votes), region-specific content (14 votes), stakeholder engagement (6 votes) and negative case studies (4 votes). Each of the 19 suggestions is described in the text that follows.

Table 11: Summary of Desert Channels Queensland suggestions about the content of the *PestSmart* toolkit, and outcomes of voting preferences

NO.	SUGGESTIONS ABOUT CONTENT	1st VOTE (3 points)	2nd VOTE (2 points)	3rd VOTE (1 point)	TOTAL VOTES (weighted)
1.	Pest Animal Ecology	3	3	-	15
2.	Region-specific Content	4	1	-	14
3.	Stakeholder Engagement	2	-	-	6
4.	Negative Case Studies	-	2	-	4
5.	Onground Government Involvement	1	-	-	3
6.	Practical Control Options	-	1	-	2
7.	Local Contacts	-	-	2	2
8.	Social Sciences	-	1	-	2
9	Local Champions	-	-	1	1
10.	Cost-effectiveness	-	-	1	1
11.	Environmental & Cultural Impacts	-	-	1	1
12.	Evaluation	-	-	1	1
13.	Hands-on Workshops	-	-	-	-
14.	Bioregionally-focused Knowledge Bank	-	-	-	-
15.	Best Practice	-	-	-	-
16.	Impacts Emphasis	-	-	-	-
17.	Decision-making Tree	-	-	-	-
18.	New & Emerging Species	-	-	-	-
19.	Ladder of Learning	-	-	-	-

1. Pest Animal Ecology

The *PestSmart* toolkit should provide information about the ecology of pest animals (ie know your enemy).

2. Region-specific Content

The *PestSmart* toolkit should provide region-specific content because all regions are different in terms of what works and what doesn't (eg land types, animal behaviours). The information should incorporate local knowledge (eg older farmers, trappers) and be presented as case studies. It is important to transfer knowledge before it is lost.

3. Stakeholder Engagement

The *PestSmart* toolkit should be framed around the diversity of audiences (eg rangeland dwellers, government workers, greens, broader population) and support better communication and effective stakeholder engagement.

4. Negative Case Studies

The *PestSmart* toolkit should provide real-life case studies about what doesn't work in a particular area based on local knowledge (eg livestock losses arising from inaction).

5. Onground Government Involvement

The *PestSmart* toolkit should enable onground involvement of government officials to build their knowledge and experience of the region. These government officials will be better placed to make funding decisions. The region needs to improve its profile and engagement with the decision-making centres (ie Brisbane and Canberra).

6. Practical Control Options

The *PestSmart* toolkit should provide access to practical pest animal control options, including identifying their advantages and disadvantages.

7. Local Contacts

The *PestSmart* toolkit should provide access to local contacts (eg suppliers, agency staff, contractors, etc) in the form of a database.

8. Social Sciences

The *PestSmart* toolkit should provide information from the social sciences, especially about how to bring about behavioural change.

9. Local Champions

The *PestSmart* toolkit should use local knowledge and local people to learn about and communicate what does and doesn't work. Local champions are role models and key influencers that drive and make things happen.

10. Cost-effectiveness

The *PestSmart* toolkit should provide examples of the benefits and cost-effectiveness of pest animal management for the land manager (ie what happens if I don't control pest animals, and what happens if I do).

11. Environmental & Cultural Impacts

The *PestSmart* toolkit should provide information on the negative impacts of some pest animal control to the natural and cultural environment (eg warren ripping on cultural sites).

12. Evaluation

The *PestSmart* toolkit should provide information on how to measure and evaluate pest animal management.

13. Hands-on Workshops

The *PestSmart* toolkit should support hands-on workshops that are on-farm and bring people together to talk about current issues.

14. Bioregionally-focused Knowledge Bank

The *PestSmart* toolkit should provide a bank of knowledge or data hub on bioregionally-focused pest animal control. It should be user-friendly and easy to access (ie how do I identify them?, who do I contact?, what are my options?). It should be informed by local knowledge and supported by practical case studies. It should cast a wide net for new solutions.

15. Best Practice

The *PestSmart* toolkit should provide best practice and codes of practice for pest animal control, including for measuring outcomes. This information is needed to inform the region's pest animal management activities (ie what are our legislative requirements? what are our legal obligations? what do we need to do?)

16. Impacts Emphasis

The *PestSmart* toolkit should give emphasis to the impacts of pest animals rather than focusing on their total populations.

17. Decision-making Tree

The *PestSmart* toolkit should provide a decision-making tree to inform the choice of pest animal management control options. It should present alternative options and consequences.

18. New & Emerging Species

The *PestSmart* toolkit should provide data and information on new and emerging pest animal species. It is important to increase our intelligence on what is out there. It could be presented as an open and interactive database similar to Rabbitscan and Feralscan.

19. Ladder of Learning

The *PestSmart* toolkit should develop a ladder of learning (recognition of prior learning) to encourage interest and enthusiasm for working in the arena of pest animal control. This is needed because most people working in pest animal control are 'treated like the plague', so they need opportunities to build their knowledge and qualifications, and to be acknowledged and rewarded for their work.

4.1.3 Kangaroo Island SA

The outcomes of discussions at the Kangaroo Island SA workshop about the content of the *PestSmart* toolkit are summarised in Table 12. Participants identified a total of 13 suggestions. The top five ideas were program and project case studies (13 votes), impacts and benefits statements (11 votes), demonstrated or expected outcomes (9 votes), non-prescriptive best practice (8 votes) and current research summaries (7 votes). Each of the 13 suggestions is described in the text that follows.

Table 12: Summary of Kangaroo Island SA suggestions about the content of the *PestSmart* toolkit, and outcomes of voting preferences

NO.	SUGGESTIONS ABOUT CONTENT	1st VOTE (3 points)	2nd VOTE (2 points)	3rd VOTE (1 point)	TOTAL VOTES (weighted)
1.	Program & Project Case Studies	3	2	-	13
2.	Impacts and Benefits Statements	2	1	3	11
3.	Demonstrated or Expected Outcomes	3	-	-	9
4.	Non-prescriptive Best Practice	2	1	-	8
5.	Current Research Summaries	-	3	1	7
6.	Researcher Contacts	-	2	1	5
7.	Original Sources	-	-	3	3
8.	Cost-effectiveness Comparison	-	1	-	2
9.	Procedural & Equipment Checklists	-	-	1	1
10.	Stakeholder Mapping	-	-	1	1
11.	Status Report	-	-	-	-
12.	Organisational Directory	-	-	-	-
13.	Procedural 'How To'	-	-	-	-

1. Program and Project Case Studies

The *PestSmart* toolkit should present case studies that embody the details of and lessons from programs and projects on aspects of pest animal management.

2. Impacts and Benefits Statements

The *PestSmart* toolkit should provide statements on the impacts of different pest animals and the anticipated benefits arising from control options. This information may be used to persuade/dissuade the involvement of stakeholders in control activities.

3. Demonstrated or Expected Outcomes

The *PestSmart* toolkit should summarise the outcomes that have been demonstrated or may be expected from performing various control activities and actions.

4. Non-prescriptive Best Practice

The *PestSmart* toolkit should outline the range of control options as non-prescriptive best practice management with examples of their application in local contexts to demonstrate their flexible implementation.

5. Current Research Summaries

The *PestSmart* toolkit should provide summaries of current research projects on pest animal management to inform regional activities and proposal development, as well as communicate research results and lessons. New research findings should be highlighted to ensure that contemporary approaches are integrated into current activities and incorporated into proposals for new projects.

6. Researcher Contacts

The *PestSmart* toolkit should provide contact details of researchers so they may be contacted directly if required.

7. Original Sources

The *PestSmart* toolkit should provide references to the original sources or primary literature so that end-users can access more detail and confirm data interpretation.

8. Cost-effectiveness Comparison

The *PestSmart* toolkit should compare the cost-effectiveness of the full range of control options to inform choices and enable tailoring to regional or local conditions.

9. Procedural & Equipment Checklists

The *PestSmart* toolkit should provide checklists of procedures and equipment required to perform certain tasks (eg legislation, qualifications, training, etc).

10. Stakeholder Mapping

The *PestSmart* toolkit should map the ‘stakeholder landscape’ because it will assist regional end-users in taking a more holistic approach to planning, networking and communicating.

11. Status Report

The *PestSmart* toolkit should report on how far we have come in the battle with pest animals, including the gains made and future directions.

12. Organisational Directory

The *PestSmart* toolkit should provide a directory of the broader spectrum of organisations that have a role in managing pest animals.

13. Procedural ‘How To’

The *PestSmart* toolkit should provide the technical details about actual procedures to execute onground tasks (eg setting traps, fitting goat collars, etc).

4.1.4 Overview of information content

This section brings together results on workshop deliberations on the information content of the *PestSmart* toolkit. Table 13 shows 24 key points arising from across the three case study regions, and indicates voting preferences both collectively and for each individual region (in brackets).

Six of the key points arose from all three workshops, and a further seven issues in two workshops. The highest scoring items, in order, are for case study lessons on successes and failures (32 votes), best practice (18 votes), pest animal ecology at regional and property scales (17 votes) and impacts of pest animals and from the control options applied to manage them (16 votes).

The two key points that follow, region-specific content (14 votes) and 'must do' actions (13 votes), were high scoring suggestions from single regions, Desert Channels Qld and Lachlan NSW respectively. The former point is, to a large extent, embodied in the other suggestions, as well as in the summary on information presentation shown in Table 17.

While the remaining eleven points are attributed here to a single region, some are more about presentation than content, notably pathways to original sources (No.15), onground government involvement (No. 16), local role models (No. 21), pathways to learning (No. 22) and hands-on workshops (No. 23). Some of these issues feature more strongly in section 4.2 on information presentation.

It is also worth noting that some key points with a zero or low score were raised in workshops as a subset of or in the context of other issues. For example, field trial results (No. 20) were identified as a separate point in the Lachlan NSW workshop, whereas the other two workshops discussed field trial results as feeding into other items, such as case study lessons (No. 1) and current and past investments (No. 7).

Table 13: Summary results for content of the *PestSmart* toolkit with aggregate voting preferences

NO.	SYNOPSIS ON CONTENT	VOTES	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
1.	Case Study Lessons (Successes and Failures)	32	Successes and Failures (12) Case Study Lessons (3)	Negative Case Studies (4)	Program & Project Case Studies (13)
2.	Best Practice	18	Best Practice (10)	Best Practice	Non-prescriptive Best Practice (8)
3.	Pest Animal Ecology at Regional & Property Scales	17	Landscape-scale Factors (2)	Pest Animal Ecology (15)	-
4.	Impacts of Pest Animals & Control Options	16	Impacts on Non-target Species Damage Thresholds (4)	Environmental & Cultural Impacts (1) Impacts Emphasis	Impacts and Benefits Statements (11)
5.	Region-specific Content	14	-	Region-specific Content (14) Bioregionally-focused Knowledge Bank	-
6.	Must Do' Actions	13	'Must Do' Actions (13)	-	-
7.	Current & Past Investments	12	Record of Investments (5)	-	Current Research Summaries (7)

NO.	SYNOPSIS ON CONTENT	VOTES	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
8.	Operating Procedures & Checklists	10	Standard Operating Procedures (7)	Practical Control Options (2)	Procedural 'How To' Procedural & Equipment Checklists (1)
9.	Evidence of Control Outcomes	9	Demonstrable Evidence	-	Demonstrated or Expected Outcomes (9)
10.	Stakeholder Overview	7	Stakeholder Overview	Stakeholder Engagement (6)	Stakeholder Mapping (1)
11.	Organisational Directory & Key Contacts	7	-	Local Contacts (2)	Researcher Contacts (5) Organisational Directory
12.	Monitoring and Evaluation Framework	6	Monitoring and Evaluation Framework (5)	Evaluation (1)	-
13.	Legislative Frameworks & Obligations	6	Legislation (6)	-	-
14.	Investment Cases at Regional & Property Scales	5	Investment Case Cost-Benefit Ratios (2) 'What's in it for me?'	Cost-effectiveness (1)	Cost-effectiveness Comparison (2)
15.	Pathways to Original Sources	3	-	-	Original Sources (3)
16.	Onground Government Involvement	3	-	Onground Government Involvement (3)	-
17.	Social Sciences Findings	2	-	Social Sciences (2)	-
18.	Chosing Between Control Options	1	Full Range of Management Options (1)	Decision-making Tree	
19	New & Emerging Species	-	Less Common Species	New & Emerging Species	
20.	Field Trial Results	-	Field Trial Results		
21.	Local Role Models	-		Local Champions (1)	
22.	Pathways to Learning	-		Ladder of Learning	
23.	Hands-on Workshops	-		Hands-on Workshops	
24.	SoE Report Card on Pest Animals	-			Status Report

4.2 What works, and why? – Information presentation

It is noted that some of the items identified by participants during discussions on information presentation are primarily about content (and vice versa). They are recorded here under the session in which they were raised to maintain consistency with the workshop participants' voting preferences.

4.2.1 Lachlan NSW

The outcomes of discussions at the Lachlan NSW workshop about the information presentation of the *PestSmart* toolkit are summarised in Table 14. Participants identified a total of 15 suggestions. The top four ideas were ready references (17 votes), interactive mapping (10 votes), online decision support system (DSS) database (9 votes), and emailed newsletter or updates (7 votes). Each of the 15 suggestions is described in the text that follows.

Table 14: Summary of Lachlan NSW suggestions about the presentation of the *PestSmart* toolkit, and outcomes of voting preferences

NO.	SUGGESTIONS ABOUT CONTENT	1st VOTE (3 points)	2nd VOTE (2 points)	3rd VOTE (1 point)	TOTAL VOTES (weighted)
1.	Ready References	4	1	3	17
2.	Interactive Mapping	2	2	-	10
3.	Online DSS Database	2	1	1	9
4.	Emailed Newsletter or Updates	1	-	4	7
5.	Case Studies	1	1	-	5
6.	Toolkit Champions or Advocates	1	-	1	4
7.	Face-to-face Meetings	-	2	-	4
8.	Websites	1	-	-	3
9.	Technical Reports and Booklets	-	1	-	2
10.	Schools Package	-	1	-	2
11.	Materials for the Media	-	-	2	2
12.	DVD/Video Productions	-	-	1	1
13.	Copiable Information	-	-	-	-
14.	Contact Lists	-	-	-	-
15.	Cross-agency Publications	-	-	-	-

1. Ready References

The *PestSmart* toolkit should incorporate a set of ready-referenced fact sheets or recipe books. These fact sheets should provide an overview of each tool with detailed technical information to support implementation. They should provide everything that is required for getting control works up and running. This suggestion was grouped with a similar form of presentation described as a series of informative SOP guidelines (specific to each species). This was suggested as providing targeted information that was presented in a consistent and comprehensive way.

2. Interactive Mapping

The *PestSmart* toolkit should incorporate an interactive digital mapping facility. Maps of current and past distribution of pest species should provide evidence of the changing operating environment. It is necessary to understand the pest animal (how many, where, when) to inform effective management, and access to accurate maps will help this. It could also provide easily accessible information on current programs (and funding opportunities) to value add and provide points of contact/collaboration between project managers.

3. Online DSS Database

The *PestSmart* toolkit should incorporate an online database that has a decision-support tool with choice pathways (eg which carp control method is appropriate for you?, what are the limitations?, etc). This would enable filtering and selection of appropriate information according to regions, species and issues. The database needs to be available to regional NRM bodies and local government.

4. Emailed Newsletter or Updates

The *PestSmart* toolkit should incorporate an emailed newsletter or update facility. Email is effective because the information is received quickly, it is 'in your face', and may be readily passed on.

5. Case Studies

The *PestSmart* toolkit should incorporate case studies that document onground demonstrations in terms of what works. This information may be used to inform investment decisions and for evaluation purposes.

6. Toolkit Champions or Advocates

The *PestSmart* toolkit should identify, train and fund 'champions' or advocates for the toolkit. The experience (successes and failures) of these champions could be utilised to deliver short workshops based around 1-2 key 'must do' actions/SOPs at the local/regional level focused on landscape change. This approach could motivate stakeholders through using local expertise to translate the content of the toolkit.

7. Face-to-face Meetings

The *PestSmart* toolkit should be presented at face-to-face meetings. This will take the information out to farmers and land managers in-situ. It should cover the range of tools/resources (eg fact sheets, videos, contact lists) and be delivered by good (technically competent) speakers.

8. Websites

The *PestSmart* toolkit should build upon existing websites (feral.gov.au and IA CRC) as information is relatively easy to access and it is open to all users via these pathways. Consideration should be given to dial-up users and those in remote settings (where email may provide a better pathway).

9. Technical Reports and Booklets

The *PestSmart* toolkit should incorporate technical reports and booklets that are succinct and well written. Documents should be structured in layers that enable users to search for and find the level of detail they require. These reports should be made available on the web as downloadable files.

10. Schools Package

The *PestSmart* toolkit should incorporate materials suitable for use in schools. A schools package should summarise the key pest animal issues and control programs. It should be pitched at a young audience (using visual props) to develop baseline awareness.

11. Materials for the Media

The *PestSmart* toolkit should incorporate materials that support engagement with the general media, including talkback radio and television (especially landline). This material could include pest animal distribution data, population records, location of projects, and electronic linkages to stakeholder websites (eg fishing clubs).

12. DVD/Video Productions

The *PestSmart* toolkit should incorporate DVD and video productions on a range of pest animals. These pathways enable people to see real life examples of the impacts of pest animals and the outcomes of control practices.

13. Copiable Information

The *PestSmart* toolkit should be presented in such a way that information may be copied for other purposes, such as transferring a graph or picture into a regional fact sheet. 'Rights to use' could be specified as being for educational purposes.

14. Contact Lists

The *PestSmart* toolkit should incorporate detailed and easy-to-use contact lists for experts, websites, agencies, problem pests, etc. This information is generally difficult to access.

15. Cross-agency Publications

The *PestSmart* toolkit should support cross-agency publications. This could reduce the number of resources, and increase their quality. Logo badging could be limited (in recognition of ongoing agency restructuring, eg NSW AG, NSW DPI, NSW I&I).

4.2.2 Desert Channels Qld

The outcomes of discussions at the Desert Channels Qld workshop about the information presentation of the *PestSmart* toolkit are summarised in Table 15. Participants identified a total of 15 suggestions. Votes for the highest ranked idea, hands-on workshops and field days (22 votes), far exceeded that of the following three rankings: television (7 votes), interactive mapping (6 votes), and webinar (6 votes). Each of the 15 suggestions is described in the text that follows.

Table 15: Summary of Desert Channels Queensland suggestions about the presentation of the *PestSmart* toolkit, and outcomes of voting preferences

NO.	SUGGESTIONS ABOUT CONTENT	1st VOTE (3 points)	2nd VOTE (2 points)	3rd VOTE (1 point)	TOTAL VOTES (weighted)
1.	Hands-on Workshops & Field Days	7	-	1	22
2.	Television	-	3	1	7
3.	Interactive Mapping	1	1	1	6
4.	Webinair	-	3	-	6
5.	Local Champions	-	1	1	3
6.	Alert System	-	1	-	2
7.	Webpages	-	1	-	2
8.	Local Information Days	-	-	2	2
9.	Podcasts	-	-	1	1
10.	Accredited Training	-	-	-	-
11.	Learning Opportunities	-	-	-	-
12.	One-on-One Interaction	-	-	-	-
13.	Wikipedia	-	-	-	-
14.	Newsletters & Fact Sheets	-	-	-	-
15.	Booklets	-	-	-	-

1. Hands-on Workshops & Field Days

The *PestSmart* toolkit should be delivered in the form of practical, hands-on workshops and field days. While 'in the paddock' delivery has the greatest impact, it needs to be properly resourced. The science behind the workshops and field days needs to be in a form suitable for a lay-person. It is also important to accommodate people who learn by practice (not through written forms).

2. Television

The *PestSmart* toolkit should make use of television as a mode of delivery, especially through the ABC's Landline program.

3. Interactive Mapping

The *PestSmart* toolkit should present information in the form of maps (eg tracking data from collared animals). It should provide an information hub that is interactive, GIS-based and accessible to all users.

4. Webinair

The *PestSmart* toolkit should be delivered through webinair as a series of online seminars, workshops and conferences. This mode should include ways of seeing practical pest management in action. This option was perceived as a complement to hands-on workshop and field days, and a way of saving on travel costs.

5. Local Champions

The *PestSmart* toolkit should incorporate well-connected champions getting out there and presenting results on a variety of media.

6. Alert System

The *PestSmart* toolkit should have an alert system that flags 'hot topics'. This sort of flagging system was seen as a way of being more proactive about getting important and current information out to the market.

7. Webpages

The *PestSmart* toolkit should use web-based delivery (eg IA CRC, feral.org.au). There should be a link to regional contacts.

8. Local Information Days

The *PestSmart* toolkit should support regional information days that provide specific information delivered across multiple subject areas at the local level. It should be delivered by suitable agents (eg NRM body, DCQ).

9. Podcasts

The *PestSmart* toolkit should provide podcasts of interesting and informative speakers (eg local champions, workshop/symposium speakers) about their experiences and failures/successes.

10. Accredited Training

The *PestSmart* toolkit should be connected to accreditted learning opportunities at different levels of competency (eg secondary, tertiary, TAFE, etc).

11. Learning Opportunities

The *PestSmart* toolkit should provide information on the range of learning opportunities available to people involved in pest animal control (eg training options, pest management courses, where to get more information, etc).

12. One-on-One Interaction

The *PestSmart* toolkit should support face-to-face interactions because one-on-one approaches are the most effective way of transferring information.

13. Wikipedia

The *PestSmart* toolkit should feed information to Wikipedia and similar sites because people go to these sites to inform their decision-making.

14. Newsletters & Fact Sheets

The *PestSmart* toolkit should present information in newsletter and fact sheet forms because it is brief and accessible. It should be available in hardcopy.

15. Booklets

The *PestSmart* toolkit should present information in booklet form. The booklets should be brief, with large writing and lots of images.

4.2.3 Kangaroo Island SA

The outcomes of discussions at the Kangaroo Island SA workshop about the information presentation of the *PestSmart* toolkit are summarised in Table 16. Participants identified a total of 15 suggestions. The top four ideas were a suite of face-to-face events (12 votes), fact sheets or interactive DVDs on control options (8 votes), web-based forum (7 votes) and workshops (6 votes). Each of the 15 suggestions is described in the text that follows.

Table 16: Summary of Kangaroo Island SA suggestions about the presentation of the *PestSmart* toolkit, and outcomes of voting preferences

NO.	SUGGESTIONS ABOUT PRESENTATION	1st VOTE (3 points)	2nd VOTE (2 points)	3rd VOTE (1 point)	TOTAL VOTES (weighted)
1.	Suite of Face-to-Face Events	3	1	1	12
2.	Fact Sheets or Interactive DVDs	-	3	2	8
3.	Web-based Forum	1	2	-	7
4.	Workshops	-	2	2	6
5.	e-Newsletter (4-6 pgs)	1	1	-	5
6.	e-Update (1 pg)	1	1	-	5
7.	Species-Specific Formats	1	-	2	5
8.	Books on Managing Specific Species	1	-	1	4
9.	Information Folder (& Electronic Files)	1	-	-	3
10.	Online Contacts	1	-	-	3
11.	Project Officer-led Field Trips	-	-	1	1
12.	Hardcopy Literature	-	-	1	1
13.	Unpublished Literature	-	-	-	-
14.	Map Products	-	-	-	-
15.	Simple Graphics	-	-	-	-

1. Suite of Face-to-Face Events

The *PestSmart* toolkit should conduct a range of face-to-face events (eg field days, one-on-one interactions, workshops) to demonstrate and discuss what does and doesn't work.

2. Fact Sheets or Interactive DVDs

The *PestSmart* toolkit should produce fact sheets or interactive DVDs that provide detailed instructions about onground control techniques.

3. Web-based Forum

The *PestSmart* toolkit should host a web-based forum as a way of tapping into collective wisdom and knowledge (eg 'Enviroweeds' network), which could include an email network of people working in the field, posting questions, discussion pages, case studies and archive searching.

4. Workshops

The *PestSmart* toolkit should run workshops delivered by technical experts, experienced practitioners and local operators with opportunities for questions and discussion.

5. e-Newsletter (4-6 pgs)

The *PestSmart* toolkit should distribute a 4-6 page e-newsletter that may be quickly downloaded (eg few graphics) and rapidly scanned for relevant information.

6. e-Update (1-pg)
The *PestSmart* toolkit should distribute a regular (eg monthly) email that provides a concise update of key issues and directs readers to more detailed information (if required).

7. Species-Specific Formats
The *PestSmart* toolkit should present material in a species-specific format so that accessing relevant information is made easy.

8. Books on Managing Specific Species
The *PestSmart* toolkit should provide species-specific management books (divided into chapters on impacts, control options, costs and the like) so that all information is in one handy source.

9. Information Folder (& Electronic Files)
The *PestSmart* toolkit should develop a package of information in a 'spring back' folder comprising material of interest to the end-user that may be added to and/or updated (with files available on a DVD).

10. Online Contacts
The *PestSmart* toolkit should incorporate an online directory of contacts that may be readily searched by subject areas in order to identify key experts.

11. Project Officer-led Field Trips
The *PestSmart* toolkit should conduct project officer-led field trips that focus on visiting successful projects and seeing their work firsthand.

12. Hardcopy Literature
The *PestSmart* toolkit should provide information that doesn't change rapidly in hardcopy formats so that it may be on the bookshelf and referred to readily.

13. Unpublished Literature
The *PestSmart* toolkit should provide access to research on feral animals that is unpublished (ie grey literature) and therefore generally more difficult to find. This could be achieved through an expansion of feral.org.au.

14. Map Products
The *PestSmart* toolkit should provide access to map products (eg pest animal distribution, extent, impacts).

15. Simple Graphics
The *PestSmart* toolkit should provide access to a suite of simple graphics (eg diagrams, figures, charts, etc) that summarise critical information on pest animals for use in communication activities.

4.2.4 Overview of information presentation

This section brings together results on workshop deliberations on information presentation in the *PestSmart* toolkit. Table 17 shows 22 key points arising from across the three case study regions, and indicates voting preferences both collectively and for each individual region (in brackets). Cross-referencing is shown with some key points made in Table 13 (on information content), but not aggregated in the 'votes' column.

Four of the key points arose from all three workshops, and a further seven issues in two workshops. The highest scoring items, in order, are for a suite of face-to-face events (47 votes), recipe style products on specific species (25 votes), e-newsletters and e-updates (17 votes) and an interactive mapping facility (16 votes).

Desert Channels Qld and, to a lesser extent, Kangaroo Island SA have a strong preference for face-to-face information exchange and learning. This is reflected beyond the highest rating suggestion (No. 1), notably web-based learning (No. 5), media formats (No. 6) and local champions (No. 8). While case studies feature in this synopsis at No. 10, it is noted that case study lessons (successes and failures) rated the highest in Table 13 on information content, and was suggested by all regions.

Table 17: Summary results for presentation of the *PestSmart* toolkit with aggregate voting preferences

NO.	SYNOPSIS ON PRESENTATION	VOTES	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
1.	Suite of Face-to-Face Events	47	Face-to-face Meetings (4)	Hands-on Workshops & Field Days (22) Local Information Days (2) One-on-One Interaction	Suite of Face-to-Face Events (12) Workshops (6) Project Officer-led Field Trips (1)
2.	Recipe Style Products on Specific Species	25	Ready References (17)	-	Fact Sheets or Interactive DVDs (8) Books on Managing Specific Species (4) Species-Specific Formats (5)
3.	e-Newsletters & e-Updates	17	Emailed Newsletter or Updates (7)	(Hardcopy Newsletters)	e-Newsletter (4-6 pgs) (5) e-Update (1 pg) (5)
4.	Interactive Mapping Facility	16	Interactive Mapping (10)	Interactive Mapping (6)	Map Products
5.	Web-based Learning	13	-	Webinair (6)	Web-based Forum (7)
6.	Media Formats	9	Material for the Media (2)	Television (7)	-
7.	Online DSS for Control Options	9	Online DSS Database (9)	[see also Table 13: No. 18, 0 votes]	-
8.	Local Champions	7	Toolkit Champions or Advocates (4)	Local Champions (3) [see also Table 13: No. 21, 1 vote]	-
9	Websites	5	Websites (3)	Webpages (2)	-
10.	Case Studies	5	Case Studies (5) [see also Table 13: No. 1, 15 votes]	[see also Table 13: No. 1, 4 votes]	[see also Table 13: No. 1, 13 votes]
11.	Contacts Database	4	Contact Lists	[see also Table 13: No. 11, 2 votes]	Online Contacts (3) [see also Table 13: No. 11, 5 votes]
12.	Research Reports, Summary Booklets & Fact Sheets	3	Technical Reports and Booklets (2) Cross-agency Publications	Booklets Fact Sheets	Hardcopy Literature (1)
13.	Information Package (Updateable)	3	-	-	Information Folder (& Electronic Files) (3)
14.	Audio(-visual) products	2	DVD/Video Productions (1)	Podcasts (1)	-
15.	Schools Package	2	Schools Package (2)	-	-
16.	Online Alert System	2	-	Alert System (2)	-
17.	Copiable Information	-	Copiable Information	-	-

NO.	SYNOPSIS ON PRESENTATION	VOTES		Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
18.	Accredited Training	-	-		Accredited Training	-
19.	Database on Learning Opportunities	-	-		Learning Opportunities	-
20.	Feed Information into Wiki-sites	-	-		Wikipedia	-
21.	Online Bibliography	-	-		-	Unpublished Literature
22.	Graphics	-	-		-	Simple Graphics

4.3 What doesn't work, and why?

Workshops considered information content and presentation aspects of the *PestSmart* toolkit in the same session when deliberating on what doesn't work and why.

4.3.1 Lachlan NSW

The outcomes of discussions at the Lachlan NSW workshop about the content and presentation of the *PestSmart* toolkit that should be avoided are summarised in Table 18. Participants identified a total of 22 suggestions. The two ideas that stood out were about the need to avoid complicated structures (19 votes) and unsubstantiated control ideas (11 votes). Each of the 22 suggestions is described in the text that follows.

Table 18: Summary of Lachlan NSW suggestions about content and presentation of the *PestSmart* toolkit that should be avoided, and outcomes of voting preferences

NO.	SUGGESTIONS ABOUT CONTENT & PRESENTATION TO AVOID	1st VOTE (3 points)	2nd VOTE (2 points)	3rd VOTE (1 point)	TOTAL VOTES (weighted)
1.	Complicated Structures	4	2	3	19
2.	Unsubstantiated Control Ideas	2	2	1	11
3.	Quick Fixes	1	1	-	5
4.	Overpowering Styles	1	-	-	3
5.	Electronic Bombardment	1	-	-	3
6.	Unattributed Information	1	-	-	3
7.	Omitting Human Relevance	1	-	-	3
8.	Large Text Blocks	-	1	1	3
9.	Unreliable Information	-	1	1	3
10.	Being All Things	-	1	1	3
11.	Agricultural Impacts Bias	-	1	-	2
12.	Established Species Bias	-	1	-	2
13.	Email Links Without 'Teasers'	-	1	-	2
14.	Detailed First Tier Information	-	-	2	2
15.	Boring Presenters	-	-	1	1
16.	Oversimplifying the Facts	-	-	1	1
17.	Logos	-	-	1	1
18.	Bound Formats	-	-	-	-
19.	General Guidelines	-	-	-	-
20.	Long Newsletters	-	-	-	-
21.	Impractical Information	-	-	-	-
22.	Detailed Research Upfront	-	-	-	-

1. Complicated Structures

Don't present information in a complicated manner (eg website that requires clicking through several pages before reaching the information needed). Three 'clicks' and you're out. Long navigation pathways are annoying and time-consuming. Follow the KISS principle (keep it simple, stupid).

2. Unsubstantiated Control Ideas

Don't give ideas for control without good, detailed information to support them through all stages from project proposal through to implementation (eg costs, timeframes, staff requirements, contractors).

3. Quick Fixes

Avoid promoting quick fixes. It is important to frame the long-term nature of pest animal control problems, including seasonal changes or control benefits that cannot be maintained without sustained motivation and effort.

4. Overpowering Styles

Don't make the content or its presentation overpowering (too long, too tedious, too trivial or too technical). The toolkit's messages need to be hands-on, relevant, interactive and to the point.

5. Electronic Bombardment

Don't bombard end-users with too many emails (either subscribed or unsubscribed). Perhaps one email per month is enough.

6. Unattributed Information

Don't make content that is 'ownerless' or not attributed to someone. It is important to have a contact to go to if the user has a question or requires further information.

7. Omitting Human Relevance

Don't present pest issues without linking to the underpinning or supporting human issues and social implications, including the reasons why pests are there in the first place.

8. Large Text Blocks

Don't have large blocks of text, but rather integrate text with images and video demonstrations of techniques (eg less than three minute 'how to' snapshots).

9. Unreliable Information

Don't present information that is unreliable or unverified. Information needs to be peer-reviewed and from a trustworthy source.

10. Being All Things

Don't try to publish a document that is 'all things to all people' because the 80/20 rule applies to most activities/job.

11. Agricultural Impacts Bias

Don't just focus on the impacts that the main pest animals have on agricultural production (crops and livestock). It is important to give equal weight to conservation and ecosystem aspects.

12. Established Species Bias

Don't focus on established species to the detriment of providing information on emerging species.

13. Email Links Without ‘Teasers’

Don’t have links to information in emails without some sort of ‘teaser’ to make the user follow it (eg have a summary to make the user interested enough to ‘click’). Feral Flyer is a good example as it encourages the user to flick through to relevant stories and news.

14. Detailed First Tier Information

Don’t have too much information in the first tier or layer. Resources should be layered with links to direct users to finer scales of detail.

15. Boring Presenters

Don’t allow boring people to present outcomes, no matter how clever they are.

16. Oversimplifying the Facts

Don’t oversimplify the facts. The user should be able to skip through information and find the level of detail suited to their needs.

17. Logos

Don’t plaster information with logos as they are bound to change with agency restructuring and shifts in programs. It is advantageous to create resources that have as long a shelf-life as possible.

18. Bound Formats

Don’t publish in a solid, bound format. Using a ring-binder (or similar format) will allow for information to be readily updated and kept current.

19. General Guidelines

Avoid general guidelines that don’t provide specific information about application. For example, information about carp screens in the absence of design criteria can lead to too many ‘gates in the river’.

20. Long Newsletters

Don’t make newsletters more than two pages long as it takes too long to read (and download).

21. Impractical Information

Don’t make information so scientific that it becomes impractical and unrealistic from the perspective of onground management.

22. Detailed Research Upfront

Don’t give emphasis to detailed scientific research upfront because it is difficult and time-consuming to extract relevant information. It is preferable for this sort of information to be referenced or appendicised through a layering approach.

4.3.2 Desert Channels Qld

The outcomes of discussions at the Desert Channels Qld workshop about the content and presentation of the *PestSmart* toolkit that should be avoided are summarised in Table 19. Participants identified a total of 14 suggestions. The idea that stood out was about the need to avoid using outdated information (19 votes). Other popular suggestions included the need to avoid omitting contact links (7 votes), using jargon and assuming too much (5 votes), and allowing an unacceptable amount of time to elapse between interactions (5 votes). Each of the 14 suggestions is described in the text that follows.

Table 19: Summary of Desert Channels Queensland suggestions about content and presentation of the *PestSmart* toolkit that should be avoided, and outcomes of voting preferences

NO.	SUGGESTIONS ABOUT CONTENT & PRESENTATION TO AVOID	1st VOTE (3 points)	2nd VOTE (2 points)	3rd VOTE (1 point)	TOTAL VOTES (weighted)
1.	Outdated Information	5	2	-	19
2.	Omitting Contact Links	-	3	1	7
3.	Jargon & Assuming Knowledge	1	-	2	5
4.	Omitting Technical Information	1	-	2	5
5.	Interaction Lag Times	-	2	-	4
6.	Cluttered Webpages	1	-	-	3
7.	Omitting Technical Links	-	1	-	2
8.	Lengthy DVDs	-	-	1	1
9.	Missing Non-computer Users	-	-	-	-
10.	Large Group Delivery	-	-	-	-
11.	Information Overload	-	-	-	-
12.	Inexperienced Presenters	-	-	-	-
13.	Non-user-friendly Formats	-	-	-	-
14.	Over-using Science	-	-	-	-

1. Outdated Information

Don't use information and materials that are out-dated. Information must be relevant, reliable and informative.

2. Omitting Contact Links

Don't leave out links to contacts.

3. Jargon & Assuming Knowledge

Avoid using jargon and be careful about assuming the reader's prior knowledge or understanding of specific terms (communicate to the lowest common denominator). Don't leave out the basics.

4. Omitting Technical Information

Don't leave out the more (boring) technical information about pest animal management that is needed by professional workers (eg codes of practice, legislation, animal welfare, emerging species).

5. Interaction Lag Times

Don't leave it too long between workshops and follow up activities.

6. Cluttered Webpages

Don't create cluttered webpages that are too technical and difficult to navigate.

7. Omitting Technical Links

Don't leave out links to more detailed technical information.

8. Lengthy DVDs

Avoid producing DVDs that go for too long.

9. Missing Non-computer Users

Don't leave out non-computer users (eg older generations) when deciding on the preferred modes of information delivery.

10. Large Group Delivery

Avoid large groups for information delivery because smaller groups are more personal and interactive.

11. Information Overload

Avoid information overload because everyone is very busy.

12. Inexperienced Presenters

Don't use inexperienced people (eg university students) to present information through seminars and the like.

13. Non-user-friendly Formats

Avoid presenting information in formats that aren't user-friendly.

14. Over-using Science

Avoid over-using scientific information in all media formats so that it is kept real and relevant to the target audience. Some readers are put off by copious references and the like.

4.3.3 Kangaroo Island SA

The outcomes of discussions at the Kangaroo Island SA workshop about the content and presentation of the *PestSmart* toolkit that should be avoided are summarised in Table 20. Participants identified a total of 17 suggestions. The most popular ideas were about the need to avoid producing control procedures that are highly prescriptive (11 votes), not publishing or 'keeping quiet' about project failures (10 votes), and producing glossy newsletters that end up in the rubbish bin (9 votes). Each of the 17 suggestions is described in the text that follows.

Table 20: Summary of Kangaroo Island SA suggestions about content and presentation of the *PestSmart* toolkit that should be avoided, and outcomes of voting preferences

NO.	SUGGESTIONS ABOUT CONTENT & PRESENTATION TO AVOID	1st VOTE (3 points)	2nd VOTE (2 points)	3rd VOTE (1 point)	TOTAL VOTES (weighted)
1.	Highly Prescriptive Control Procedures	2	2	1	11
2.	Keeping Failures Unpublished	2	1	2	10
3.	Glossy Newsletters	2	1	1	9
4.	Overly-technical Language	1	2	-	7
5.	Design-focused Materials	1	1	-	5
6.	Synopsis-free Reporting	-	2	1	5
7.	A Single Level of Technical Content	1	-	-	3
8.	Over-contextualising the Problem	1	-	-	3
9.	Complex Flowcharts	-	1	-	2
10.	One Form of Presentation	-	-	2	2
11.	Poor Presenters	-	-	2	2
12.	Small Print Runs of Books	-	-	1	1
13.	Ungrounded Theory	-	-	-	-
14.	Odd Formats	-	-	-	-
15.	Unlabelled CDs	-	-	-	-
16.	Ignoring Photocopying & Vision Impairment Considerations	-	-	-	-
17.	Ineffectual Communication	-	-	-	-

1. Highly Prescriptive Control Procedures

Avoid using highly prescriptive control procedures because pest animal control needs to be tailored and adaptively managed to suit variable social, biophysical and economic conditions.

2. Keeping Failures Unpublished

Avoid keeping failures unpublished because the data and information are valuable for informing current and future activities.

3. Glossy Newsletters

Don't send out thousands of free glossy newsletters because they are rarely read, waste resources and often fail to provide useful information.

4. Overly-technical Language

Avoid using overly-technical terminology so that information and materials will appeal to a wider audience.

5. Design-focused Materials

Avoid producing paper-based materials that focus on design rather than effectively using space and result in excessive paper consumption.

6. Synopsis-free Reporting

Avoid publishing the results of research (in whatever form) without a summary of the key findings and implications.

7. A Single Level of Technical Content

Don't focus on just a single level of technical content as different end-users need to be able to access the level of detail that matches their specific needs.

8. Over-contextualising the Problem

Don't delve into the history, extent and consequence of the problem as end-users should already know this and this information is otherwise readily accessible.

9. Complex Flowcharts

Don't use complex flowcharts because end-users find them confusing.

10. One Form of Presentation

Don't limit information delivery to just one form of presentation as information transfer will be greater when multiple forms are used.

11. Poor Presenters

Don't use poor presenters as this is not an effective way of communicating information or engaging with an audience.

12. Small Print Runs of Books

Don't do small print runs of books because an electronic version is no substitute for a hardcopy.

13. Ungrounded Theory

Don't provide the broad theory without an understanding of the complexities or environments or issues.

14. Odd Formats

Don't produce reports in odd formats because they don't fit on library shelves.

15. Unlabelled CDs
Don't send out CDs without labels because they end up in an anonymous stack and never get looked at again.

16. Ignoring Photocopying & Vision Impairment Considerations
Don't ignore considerations of B&W photocopying and the limitations of end-users with vision impairment, including colour blindness.

17. Ineffectual Communication
Don't stop communicating effectively.

4.3.4 Overview of 'what to avoid'

This section brings together results on workshop deliberations about the content and presentation of the *PestSmart* toolkit that should be avoided. Table 21 shows 16 key points arising from across the three case study regions, and indicates voting preferences both collectively and for each individual region (in brackets).

Seven of the key points arose from all three workshops, and a further six issues in two workshops, leaving only three points derived from a single forum. The highest scoring cohort of suggestions on what to avoid are promoting outdated and/or unverified ideas (33 votes), presenting language and ideas in ways that are unsuitable and/or oversimplified (21 votes), and using complex forms of presentation when there are more simple alternatives available (21 votes).

The next cohort (scoring 12-15 votes) relate to the need to avoid making some information unavailable (including about project failures) (15 votes), having pathways to information and authors that are absent, unclear or unattractive (14 votes), and presenting information that is too long and/or cluttered, and without shortcut pathways to key findings/messages (12 votes).

The need to avoid being too prescriptive or impractical was raised in two workshops (11 votes), while all fora made mention of refraining from communicating in ways that were untimely and poorly contrived and targeted (10 votes). Discussion around hardcopy formats focused on striking the right balance between wastage and supporting legitimate uses (10 votes). These sentiments were further reflected in discussions about finding a balance between design elements (eg white-space, the dominance given of multi-agency logos) and product function and impact (9 votes).

Regional end-users expressed a strong desire to be able to access information at differing levels of detail. It was argued therefore that the toolkit needed to avoid structuring information without distinct tiers or layers from more basic to increasing levels of detail (5 votes). Lachlan NSW raised the issue of subject and disciplinary biases (4 votes) needing to be managed, such as agriculture (vs non-agricultural) settings and established (vs emerging) pest animal species.

Poor presenters (3 votes) were identified as a trap to steadfastly avoid. The tendency to fail to make the connection between people and the impacts of pest animals (3 votes) was suggested at Lachlan NSW as a mistake to avoid. Finally, it was recommended that the toolkit avoid relying on any one form of presentation (2 votes) if it wishes to attract and be used by a diversity of interests, and that some users and uses could be inadvertently excluded if consideration is not given to special needs (eg non-computer users, colour-blindness, B&W photocopying).

Table 21: Summary results for content and presentation of the *PestSmart* toolkit that should be avoided, with aggregate voting preferences

NO.	SYNOPSIS ON WHAT TO AVOID	VOTES	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
1.	Promoting Outdated &/or Unvalidated Ideas	33	Unsubstantiated Control Ideas (11) Unreliable Information (3)	Outdated Information (19)	Ungrounded Theory
2.	Unsuitable &/or Oversimplified Language and Ideas	21	Oversimplifying the Facts (1) Quick Fixes (5) General Guidelines	Jargon & Assuming Knowledge (5)	Overly-technical Language (7) Over-contextualising the Problem (3)
3.	'Complexity' When 'Simplicity' Will Do	21	Complicated Structures (19)	Non-user-friendly Formats Over-using Science	Complex Flowcharts (2)
4.	Making Some Information Unavailable	15	-	Omitting Technical Information (5)	Keeping Failures Unpublished (10)
5.	Absent, Unclear or Unattractive Pathways to Information & Authors	14	Unattributed Information (3) Email Links Without 'Teasers' (2)	Omitting Technical Links (2) Omitting Contact Links (7)	Unlabelled CDs
6.	Being Too Long, Cluttered & Without Shortcuts	12	Long Newsletters Large Text Blocks (3)	Lengthy DVDs (1) Cluttered Webpages (3)	Synopsis-free Reporting (5)
7.	Being too prescriptive or impractical	11	Impractical Information	-	Highly Prescriptive Control Procedures (11)
8.	Poorly Targeted & Untimely Communication	10	Electronic Bombardment (3) Being All Things (3)	Information Overload Interaction Lag Times (4) Large Group Delivery	Ineffectual Communication
9.	Imbalanced & Ill-considered Investments in Hardcopy Formats	10	Bound Formats	-	Small Print Runs of Books (1) Glossy Newsletters (9) Odd Formats
10.	Putting 'Style' (& Logos) Before Function & Impact	9	Overpowering Styles (3) Logos (1)	-	Design-focused Materials (5)
11.	Structuring Information Without Distinct Tiers (of Increasing Detail)	5	Detailed Research Upfront Detailed First Tier Information (2)	-	A Single Level of Technical Content (3)
12.	Subject & Disciplinary Biases	4	Agricultural Impacts Bias (2) Established Species Bias (2)	-	-
13.	Poor Presenters	3	Boring Presenters (1)	Inexperienced Presenters	Poor Presenters (2)
14	Omitting Human Relevance	3	Omitting Human Relevance (3)	-	-
15.	Reliance on One Presentation Form	2	-	-	One Form of Presentation (2)
16.	Not Accounting for Special Needs	-	-	Missing Non-computer Users	Ignoring Photocopying & Vision Impairment Considerations

4.4 Using the *PestSmart* toolkit

This section summarises the outcomes of a diagramming exercise on using the *PestSmart* toolkit. Participants at each workshop were split into two groups for the purposes of this exercise. Individual group results are outlined for each region, and an overview is presented at the end of the section. Photographs of the mind-maps produced are provided at Appendix F.

4.4.1 Lachlan NSW

Group 1

- suit multiple end-users by being flexibly structured (different scales for land managers, schools, communities, CMAs)
- provide links with other groups (eg Weeds CRC, etc)
- provide practical guidelines for onground actions (eg landholders)
- feedback into the toolkit (eg from champions) to inform others in managing demonstration sites, preparing case studies, etc (at different scales)
- inform prioritisation of pest impacts and control methods (by categories: terrestrial, aquatic, invertebrates, emerging, etc)
- inform the Lachlan Pest Animal Strategy and its Pest Animal Reference Group
- support promotional activities (inform all groups about the toolkit, such as schools, CMAs, pest groups, government agencies)
- support PestPlan
- deliver information that can be used to promote land use and practice change
- demonstrate the link between control and landscape restoration

Group 2

- be a central point of reference
- focus on CRC research but also link to other work on pest animals (a one-stop-shop)
- provide information for developing materials for field days, fairs, extension and the like
- inform pest authorities and practitioners
- inform prioritisation processes (eg CfoC, NSW PAC, NSW Govt, DECCW)
- summarise research on emerging species to inform regional target setting and to guide federal decision-making
- inform up-wards to decision-makers (who usually dictate what Lachlan CMA can do) to influence outcomes
- incorporate positive and negative outcomes from MERI (monitoring, evaluation, reporting and improvement) processes into toolkit
- evolve by allowing for feedback
- have a mechanism that enables end-users to be involved
- have information accessible to the public (external website) and via an internal domain (intranet)

4.4.2 Desert Channels Qld

Group 1
Using a wild pig as a metaphor, the toolkit should:

- evolve and improve with new material and updating of existing material (mouth)
- collect technical and local knowledge through an open, flexible arrangement that allows changes in information to occur all the time (head and ears)
- sniff out and communicate what is already happening on ground (nose)
- support the diversity regional stakeholders and partners in chewing over the detail of their NRM plans (teeth).
- keep well grounded in the practical realities of pest animal management (four feet)
    - accreditation for people working onground; small group workshops to support targeted skills development and information exchange
    - timely workshop follow up to build on learning and networks
    - interactive learning through websites, webinars and knowledge sharing activities
    - field days designed for onground and hands-on work, and linked to what happens elsewhere
- seek and allocate limited resources to best practice, research and cutting edge science, as well as to demonstrating the benefits of monitoring and evaluation (tail)
- discard what's not needed like out-dated information, time-wasting activities, boring presenters (waste products)

Group 2

- be principally structured around a webpage
- provide pest facts
- provide technical newsletters for use by schools, local government, landholders, and others
- inform regional, state and national plans
- provide mapping capability directly or through links to related webpages
- enable access to more detailed information
- identify legislation through database and/or links to key website(s)
- access information on codes of practice and duty of care
- find useful information about most 'pest animal' things through webpage links
- identify contact through a contacts database
- hold and participate in information days, face-to-face work with landholders, and webinars
- inform interactions with the media
- use case studies to inform decision-making
- find out results arising from demonstration sites
- utilise and learn from local champions
- utilise social science to change in behaviours
- inform research priority setting processes of the IA CRC and others so that research agendas are driven locally rather than centrally determined
- get information on preferred control methods, cost-benefit analysis and impacts on the bottomline
- access pest alerts to inform work priorities and planning (eg new pests, surveillance, notification, response and recovery)

4.4.3 Kangaroo Island SA

Group 1

- be interactive and have capacity for regions to contribute information
- inform on-ground works
- provide the science and technology, and test whether what we are doing is correct and innovative
- engage and encourage community stakeholder involvement through providing information on running workshops, training opportunities, and the like
- provide 'how to' guides on control options (eg poisons, trapping) and where to go for more information
- provide enduring and up-to-date methods
- deliver coordinated messages via delivery chain – transfer to agencies (eg PIRSA, NRM, DEH, KI Council) who will tailor resource to stakeholders (eg farmers, periurban landholders, schools, contractors, tourists, businesses, community committees, NGOs, and urban communities/ individuals)
- inform debate among stakeholders about what constitutes a pest animal and finding an agreed way forward
- tell end-users how to assess and prioritise pest animal species for control
- be about the process, not just the answers
- provide options for achieving a community-based approach with outcomes that satisfy a larger group of people
- have access to risk assessments to inform decision-making, and stakeholder engagement

Group 2

- use as an information base to develop strategies and specific tactics for onground operations
- provide a strategic framework to inform development of integrated regional scale strategies and directed efforts
- identify funding sources and alternative resourcing options
- present information on best practice and preferred management strategies and onground techniques
- pass information onto those operating at smaller scales (eg landholders, committees, etc)
- use as a basis for educational activities (for agency staff and other stakeholders)
- inform training and professional development for people involved in different aspects of management at local scale and regional scale
- be interactive and flexible so that information may be added
- improve opportunities for collaboration
- provide ready-made extension materials for knowledge transfer and training
- propagate new research into new tools (eg case studies)
- enable the identification of research gaps to 'inform up'
- use as a starting point for working out how and where to develop further information

4.4.4 Overview of *PestSmart* toolkit use

This section summarises the outcomes of the diagramming exercise across the three case study regions (and the six groupings). Table 22 identifies 28 key points arising from the exercise, and provides a snapshot of how regional end-users intend to use the *PestSmart* toolkit and what they need the information to do.

Importantly, all regions characterised the *PestSmart* toolkit as being a central repository and first port of call (No. 1) for seeking information about pest animal management, and that their use would be interactive and flexible (No. 2) such that the toolkit evolved (rather than remained static over time) and responded to their particular interests, needs and contexts.

Two regions anticipated using the toolkit to learn from traditional and non-traditional knowledge sources, with particular mention of local knowledge (No. 3). This sentiment is further reflected in the desire to contribute feedback and input local content (No. 4) to the toolkit, which spanned ideas like case studies on local champions, local research priorities and spatial data for map products.

All regions discussed using the toolkit to access up-to-date and reliable data and information (No. 5) across a wide range of topics and product types (eg maps, guidelines, codes, fact sheets, legislation, case studies, demonstration sites, risk assessments). In using the toolkit, end-users expected out-of-date and unverified information and materials to be sifted out.

While Desert Channels Qld was the only group to explicitly identify using the toolkit to access information from basic to highly technical levels of detail (No. 6), this point was raised in the other workshops outside of the diagramming exercise. The issue of content detail is linked with the expectation that the toolkit would inform decision-making at different scales (No. 7).

A number of points were raised in relation to using the toolkit to inform decision-making processes. Two workshops suggested that the toolkit would be used (directly by others) to inform higher-level plans, priorities and resource allocations at the state and national levels (No. 8). At the regional level, it would be used to inform individual regional plans as well as improve integration across regional plans (No. 9), including the setting of targets for pest animal control. It was suggested that the toolkit could inform and incorporate the positive and negative outcomes arising from MERI (monitoring, evaluation, reporting and improvement) processes (No. 10) to drive adaptive management.

Informing a range of other regional processes (eg resource allocation, project proposals, control prioritisation) (No. 11) was identified by all workshops as a valuable use of the toolkit, while Lachlan NSW explicitly mentioned informing the work of local/regional committees (No. 12). ‘Upwards’ influencing by regional stakeholders to higher-level decision-makers (No. 13) was perceived as an important use of the toolkit, including in matters like the setting of research priorities and program frameworks.

Table 22: Synopsis of workshop outcomes on how regional end-users intend to use the *PestSmart* toolkit and what they need the information to do

NO.	SYNOPSIS OF KEY POINTS ABOUT 'USE'	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
1.	Be a central repository and first stop (one-stop-shop)	X	X	X
2.	Enable interactive and flexible use (eg mapping facility, online forum)	X	X	X
3.	Learn from traditional and non-traditional knowledge sources, including local champions	X	X	-
4.	Contribute feedback and input local content	X	X	X
5.	Access up-to-date, reliable data and information (eg maps, guidelines, codes, fact sheets, legislation, case studies, demonstration sites, risk assessments)	X	X	X
6.	Access information at different levels of detail from basic to highly technical	-	X	-
7.	Inform decision-making at a range of scales	X	X	X
8.	Inform higher-level plans, priorities and resource allocations at the state and national levels	-	X	X
9.	Inform and integrate across regional plans, including target-setting	X	X	X
10.	Inform and incorporate outcomes of MERI processes (positive and negative)	X	X	X
11.	Inform other regional processes (eg resource allocation, project proposals, control prioritisation)	X	X	X
12.	Inform work of local/regional committees	X	-	-
13.	Influence upwards to higher-level decision-makers (eg research priorities, program frameworks)	X	-	X
14.	Contact and explore collaborative opportunities with other experts/stakeholders	X	X	X
15.	Learn about what's happening beyond the region (eg projects, grants, issues)	-	X	X
16.	Provide information/materials for personal learning	X	X	X
17.	Provide information/materials for distributing to other regional pest controllers (eg agencies, local government, NRM staff)	X	X	X
18.	Provide information/materials for direct use by other stakeholders (eg schools, landholders, media)	-	X	X
19.	Inform the development of locally-produced materials (eg field days, fairs, extension)	X	-	X
20.	Support and feed into structured learning activities (eg training, education, conferences, webinar)	-	X	X
21.	Access opportunities for hands-on interactions and learning (eg field days, demonstration sites)	-	X	X
22.	Access accreditated training opportunities	-	X	X
23.	Demonstrate impacts and control options	X	X	-
24.	Inform choice and application of control methods	X	X	X
25.	Support promotion of pest animal control activities and behavioural/practice change	X	X	X
26.	Access pest alert facility (eg new pests, surveillence, notifications)	-	X	-
27.	Enable more coordinated and greater consistency in the messages communicated to stakeholders	-	-	X
28.	Inform and support community engagement processes	-	-	X

In all cases, regions identified using the toolkit to make contact with other experts and stakeholders (within and outside their region) and to explore opportunities for collaboration and partnerships (No. 14). The two remoter regions, Desert Channels Qld and Kangaroo Island SA, explicitly mentioned wanting to know about happenings beyond the region (No. 15), such as complementary projects, grant availability and emerging issues.

The use of information and materials drawn from the toolkit was framed as being for personal learning (No. 16), for distributing to other regional pest controllers (eg agencies, local government, NRM staff) (No. 17), for direct use by other stakeholders (eg schools, landholders, media) (No. 18), and for developing locally-produced materials (eg field days, fairs, extension) (No. 19).

Desert Channels Qld and Kangaroo Island SA expressed the expectation that the toolkit will support and feed into structured learning activities (eg training, education, conferences, webinar) (No. 20), and that they will be able to access opportunities for hands-on interactions and learning (eg field days, demonstration sites) (No. 21). There was some interest expressed in accredited training (No. 22) and using the toolkit to find out about what opportunities are available.

Regional end-users anticipated using the toolkit to demonstrate the impacts of pest animals and the expected outcomes of control options (No. 23), and to inform their choice and application of specific control methods (No. 24). It was perceived that use of the toolkit should underpin the promotion of pest animal control activities and lead to changes in behaviour and practice (No. 25). Desert Channels Qld suggested that access to a pest alert facility (No. 26) would enable regional end-users to manage more proactively (eg new pests, surveillance, notifications).

The final two points were raised by Kangaroo Island SA, but have broader applicability. Participants thought the toolkit could be used to enable a more coordinated and consistent approach (across responsible agencies) to communicating messages to stakeholders in the region (No. 27), and that it could also be used to inform and support community engagement processes (No. 28).

5. Capacity Building

This chapter reports results arising from the second part of the workshop focused on capacity building.

5.1 Capacity issues

This section summarises the perceived capacity issues of NRM managers and pest animal controllers at regional level across human, social, institutional and economic dimensions. The presentation of results and discussion draws from the conceptual model presented in the capacity building options paper. The following annotations are used to indicate the source information: Lachlan NSW (L), Desert Channels Qld (D) and Kangaroo Island SA (K).

5.1.1 Human

Workshop deliberations across the three case study regions identified 11 points about the human dimension of capacity (Table 23). These points are concerned with issues relating to knowledge, skills and experience.

The number of staff available (L, D), coupled with the high input required to work with landholders and volunteers (L, K), placed limitations on the capacity of regional NRM managers and pest animal controllers to achieve a level of delivery commensurate with the scale of the problems. Program delivery was also hampered by access to experts (L), including the high cost of sourcing external advice.

The difficulties in attracting and retaining staff (D, K) relate to the broader NRM setting (eg program funding cycles, institutional instability, etc) and to specific features of working in the pest animal arena. One regional workshop pointed to a mismatch between duties and pay (D) as a significant detractor to working as an onground pest animal controller. Opportunities for staff training (L, D) are limited in terms of options, distance and cost, as well as finding the time to attend. These staffing and training issues seem to be more pronounced in remoter settings.

There was some discussion about knowledge and technical gaps (L, K) as an impediment to pest animal control, with the perceived low status of pest research and its researchers (L) as a contributing factor. While access to consistent and reliable information (L) was raised in the case of Lachlan NSW, the other fora expressed greater concern about misinformation (K) circulating within the community and media, and ill-informed decision-makers (D).

Table 23: The human dimension of capacity issues of regional NRM managers and pest animal controllers

SYNOPSIS FOR HUMAN ISSUES	Lachlan NSW [L]	Desert Channels Qld [D]	Kangaroo Island SA [K]
Staffing levels to deliver programs [L, D] High inputs to work with landholders & volunteers [L, K] Access to experts [L] Attracting & retaining staff [D, K] Mismatch between duties and pay [D] Training availability [L, D] Knowledge & technical gaps [L, K] Low status of pest research (& researchers) [L] Access to consistent & reliable information [L] Misinformation [K] Ill-informed decision-makers [D]	Staffing levels impede effective program development and delivery Few extension officers to initiate projects and engage with farmers and landholder groups Limited availability of short courses and specialist training Pest animal research is a low priority in the tertiary sector Significant variation in information on NRM websites Opportunity to better access experts to inform project design and monitoring	Inadequate access to continuous and ongoing training for pest animal officers Decisions by policy-makers are not well informed by onground experience There is a mismatch between the remunerations and responsibilities of RLOs Limited capacity to attract and, especially, retain skilled workers Inadequate human resources (skills and experience) relative to the scale and complexity of the problems	Volunteers require supervision to build knowledge, skills and experience There is a lot of misinformation circulating within the community High staff turnover leads to loss of corporate knowledge There are knowledge gaps and technical challenges to controlling pest animals Eradication is technically possible in island environments

5.1.2 Social (cognitive)

Workshop deliberations across the three case study regions identified 15 points about the cognitive (social norms) aspects of the social dimension of capacity (Table 24). These points are concerned with issues relating to trust and reciprocity; values, attitudes and behaviours; commitment; motivation; and sense of place.

There were a number of issues raised that relate to pest animals in the broader social setting. Firstly, perceptions were said to differ widely on the nature of the pest problem (K), including what constitutes a 'pest'. Concern was expressed across all workshops about low levels of public interest and high levels of apathy (L, D, K). Sub-optimal decision-making in the pest animal arena was perceived as arising from undue political (L) and media (L) influences. It was suggested that there was a need to look for ways of striking a better match between urban and rural interests (L).

All workshops highlighted the problem of pest animal staff being over-worked and burnout (L, D, K). Lachlan NSW reported feeling pressure to get jobs done despite adequate funding (L). Participants reported expectations of always being 'on the job' (D, K), as well as having to provide social-related services (D), including for landholders suffering depression. These issues were especially pronounced in smaller town and remote settings.

Lack of institutional support and recognition was reported to drive low morale (D, K), while compliance duties were constrained by social pressures to 'turn a blind eye' (D). Pest controllers also reported being hamstrung by landholders blaming agencies for problems (D, K) coupled with misconceptions about the role of agencies (D, K) in managing pests.

Old paradigms (D, K) were reported to hold great sway and impede the implementation of onground control measures. The commitment of absentee landholders (D, K) to addressing pest animal issues on their properties was questioned, including for large tracts of land in foreign ownership. It was noted, however, that pest animal controllers have built landholder trust and motivation over a long period time and that this needs to be capitalised upon rather than eroded (L).

Table 24: The social (cognitive) dimension of capacity issues of regional NRM managers and pest animal controllers

SYNOPSIS FOR COGNITIVE ISSUES (social norms)	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
Differing perceptions of the problem [K] Low interest and/or apathy of public [L, D, K] Political- and media-driven decisions [L] Matching urban and rural interests [L] Over-work & burnout [L, D, K] Expectations not matched with funds [L] Expectations of always being 'on the job' [D, K] Demand for social-related services [D] Low morale from lack of support and recognition [D, K] Social pressures to 'turn a blind eye' [D] Blaming agencies for problems [D, K] Misconception about the role of agencies [D, K] Power of old paradigms [D, K] Commitment of absentee landholders [D, K] Not eroding landholder trust & motivation [L]	Staff are over-worked and worn out Insufficient public pressure on governments to address pest issues Poor decisions that can arise from political conflicts Priorities in pest management too driven by media Culture of no funding but an expectation that issues will be addressed Opportunity to produce positive outcomes that appeal to city and town dwellers NRM orgs have a good basis for trust and motivation amongst land managers	Old paradigms and practices stop people from thinking (and doing) outside of the square Lack of commitment by absentee landholders to managing their property and contributing to the region Community apathy that the problem is too big to fix Community expectations that pest animal workers are always available and on the job Low morale of pest animal workers from lack of commitment to and recognition of their efforts and dedication Pest animal workers are workshopped out Social pressures are a barrier to satisfying work obligations (eg issuing fines) There are basic misconceptions about what conservation agencies do High social demand to provide 'Beyond Blue' services	There are differences in perceptions of what is a pest animal Pest animal controllers are committed and work beyond 9-5 Pest animal controllers get limited support and recognition It is difficult to change people's long held views even if science proves otherwise The community blames NPWS as the cause of feral animal problems There is community apathy that needs to be overcome Absentee landholders have limited interest and commitment to managing their land

5.1.3 Social (structural)

Workshop deliberations across the three case study regions identified only a handful of points about the structural aspects of the social dimension of capacity (Table 25). These points are concerned with issues relating to networks and relationships.

Working relationships between major institutional actors (L, K) in the region were said to impede onground outcomes, particularly arising from discontinuities between strategic plans and institutional priorities. The barriers presented by distance (L, D) were considered a significant constraint to establishing and maintaining relationships, and to the sorts of partnerships that were feasible and practicable.

Participants reported that the sharing of ideas and lessons was constrained by the number and type of opportunities available (L, D); establishing sister projects were suggested as an example (L). While associated with distance, the absence of opportunities related to limited recognition of and/or low prioritisation given to the need to share ideas and lessons with others.

It was noted that creating and maintaining relationships in rural and, especially, remote settings necessitated a high level of one-on-one interaction (D), which has implications for progressing onground implementation in particular. Kangaroo Island SA noted that strong intra-community networks (K) are a typical feature of small communities that can work in favour of delivering outcomes for pest animal management.

Table 25: The social (structural) dimension of capacity issues of regional NRM managers and pest animal controllers

SYNOPSIS FOR STRUCTURAL ISSUES (networks)	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
Working relationships between institutional actors [L, K] Distance constrains interactions [L, D] Limited opportunities to share ideas and lessons [L, D] High demand for one-on-one interaction [D] Strength of intra-community networks [K]	Onground outcomes impeded by working relationships b/w major players Pest animal agencies across catchment have limited contact Distance creates significant barriers Opportunity to develop sister projects to share ideas and lessons	Distance is a barrier to participation in learning and networking activities High demand for one-on-one interaction	Networks can be strong features of small communities

5.1.4 Institutional

Table 26 outlines 12 key points arising from workshop discussions about the institutional dimension of capacity. These points are concerned with issues relating to governance arrangements, such as legislation, constitutions, mandates and policies.

In some cases, laws and legislative mandates for pest animal control were deemed to be inadequate (K), such as for emerging species. Where compliance powers were in place, workshop participants pointed to limitations in their ability to act (eg resources) or reluctance to put powers into effect (D, K). Local governments were characterised as

too threatened by their power base to effectively respond to challenging situations or act against the interests of their local constituents (D).

In all case study regions, poor policy direction and limited or no cross-agency coordination was said to impede efforts to control the impacts of pest animals (L, D, K). This was exacerbated by institutional instability and boundaries that both change and overlap (L, D). Institutional support for pest animal control was reported to be low, and management responses described as reactive (L, K).

Institutional priorities were perceived as being driven by political interests rather than science (K). Regional players were described as having poor access to decision-makers to influence priority setting and the allocation of funds (L), and that the latter lacked transparency (L). Further, it was considered that the priorities set by funding bodies were misaligned with those of NRM agencies (K).

Workshop discussions noted that the narrow reporting criteria (L) set by funding bodies precluded recording and recognition of the full suite of benefits arising from pest animal control activities. In addition, the inflexibility of project contracts had many drawbacks, especially limiting the ability of pest controller to respond to change (L).

Table 26: The institutional dimension of capacity issues of regional NRM managers and pest animal controllers

SYNOPSIS FOR INSTITUTIONAL	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
Inadequate laws & legislative mandate [K] Limited ability or reluctance to use compliance powers [D, K] Local governments too threatened by power base to act [D] Poor policy direction & cross-agency coordination [L, D, K] Institutional instability and inconsistent boundaries [L, D] Low institutional support and reactive management [L, K] Political interests rather than science driving institutional priorities [K] Poor access to decision-makers [L] Lack of funding transparency [L] Misalignment between priorities of funding bodies and NRM agencies [K] Narrow reporting criteria [L] Inflexible contracts and inability to respond to change [L]	Lack of stability (staff, funds, etc) Lack of policy/mgt support for pest animal control, esp. declared species Most management is reactive not proactive Lack of transparency in funding availability and allocations No avenues for accessing and influencing government decision-making Limitations of govt reporting formats for recognising multiple benefits Lack of contract flexibility and responsiveness to change	Local governments won't tackle issues that challenge their constituency (and power base) Reluctance to use compliance powers Diversity of NRM boundaries create barriers to managing pest animals Inadequate regional coordination of pest animal planning and management	No state legislative mandate for some pest animals Limited ability to enforce legislation where mandate exists Stronger laws need to restrict the movement of pests Pest animal control not a DEH priority No single agency with responsibility driving pest animal control across regions Mismatch between priorities of NRM agencies and funding bodies Institutional priorities driven by political interests rather than science

5.1.5 Economic

Twelve key points are outlined in Table 27 arising from workshop discussions about the economic dimension of capacity. These points are concerned with issues relating to financial resources and infrastructure (eg pest control equipment, vehicles, information technology and the like).

Available funds for staff and onground works (L, K) were described as a significant limiting factor for controlling the impacts of pest animals at the regional level. The competition for funds (L) was viewed as adding to this constraint, as was the affordability of experts (D), travel (K) and equipment (L).

The adequacy of infrastructure was raised with respect to information technology (D) and the management of pest animal movements (D, K), both in terms of physical barriers and biosecurity systems. There was also a perception of preferential access to infrastructure 'by a select few' (L).

All regions identified political terms and financial models driving planning and expenditure (L, D, K) as detrimental to achieving optimal outcomes. Resources for follow up activities or to respond to emergencies (D) were said to be very limited. Controlling pest animal impacts were also noted as being constrained by the financial resources of landholders (D), and closely linked to the economic impacts of climatic events (L), notably drought, flooding and bushfires.

Table 27: The economic dimension of capacity issues of regional NRM managers and pest animal controllers

SYNOPSIS FOR ECONOMIC	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
Limited funds for staff and onground works [L, K] Competition for funds [L] High cost of experts [D] Affordability of travel [K] High cost of equipment [L] Inadequate IT infrastructure [D] Infrastructure to manage pest movements [D, K] Preferential access to infrastructure [L] Planning and expenditure driven by political terms and financial models [L, D, K] Few resources for follow up or emergencies [D] Financial limitations of landholders [D] Economics impacts of climatic events [L]	Limited funds available High competition for grants Software, tools are very expensive Infrastructure is limited to a select few Climatic conditions (eg drought, flood, fire) have an economic impost Inefficiencies arising from working within financial year models	Inadequate electronic-based infrastructure to support information exchange and networking Limited resources of landholders to actively engage in pest animal management Few resources allocated to follow up or emergency activities Absence of large-scale barriers to prevent the movement of pest animals High cost of accessing expert advice and onground support Three-year funding cycles impede long-term planning and delivery	Mismatch of short-term funding for long-term objectives Funding availability to employ staff dedicated to pest animal control Lack of infrastructure for effective biosecurity Affordability of attending off-island events

5.1.6 Overview of capacity issues

The key points about capacity issues across human, social, institutional and economic dimensions are collated in Table 28, with annotations indicating the source of each comment. In addition to the analysis presented earlier, there are three main points in the data to highlight.

The first is to note the points identified across all regions: (1) low interest and/or apathy of the public (social: cognitive), (2) over-work and burnout (social: cognitive), (3) poor policy direction and cross-agency coordination (institutional), and (4) planning and expenditure driven by political terms and financial models. This is not to suggest that these points necessarily represent the greatest impediment to managing the impacts of pest animals, but to imply that these issues may be universal ones for regional actors.

The second point to make is the similarities between Desert Channels Qld and Kangaroo Island SA in the case of the social (cognitive) issues identified: (1) expectations of always being 'on the job', (2) low morale from lack of support and recognition, (3) blaming agencies for problems, (4) misconception about the role of agencies, (5) the power of old paradigms, and (6) commitment of absentee landholders. Some, but not necessarily all, of these issues relate to operating in the context of a small and remote community.

It is important to state that points identified in only one region may be equally relevant to other regions, and may have arisen given more time for discussion. That said, it is worth noting the remaining points identified in two workshops as potentially indicative of issues experienced more broadly.

Of the 13 points to follow, only two were made by the combination of Desert Channels Qld and Kangaroo Island SA (as having remoteness as a common feature), namely attracting and retaining staff (human), and infrastructure to manage pest movements (economic).

For human-related capacity issues, the points are: (1) staffing levels to deliver programs, (2) high inputs to work with landholders and volunteers, (3) attracting and retaining staff, (4) training availability, and (5) knowledge and technical gaps.

There are no further points for social (cognitive), but an additional three for social (structural), namely working relationships between major regional actors, distance constrains interactions, and limited opportunities to share ideas and lessons. Finally, the two economic issues identified were limited funds for staff and onground works, and infrastructure to manage pest movements.

Table 28: Synopsis of capacity issues of regional NRM managers and pest animal controllers

Human	Social		Institutional	Economic
	Cognitive (social norms)	Structural (networks)		
Staffing levels to deliver programs [L, D]	Differing perceptions of the problem [K]	Working relationships between major regional actors [L, K]	Inadequate laws & legislative mandate [K]	Limited funds for staff and onground works [L, K]
High inputs to work with landholders & volunteers [L, K]	Low interest and/or apathy of public [L, D, K]	Distance constrains interactions [L, D]	Limited ability or reluctance to use compliance powers [D, K]	Competition for funds [L]
Access to experts [L]	Political- and media-driven decisions [L]	Limited opportunities to share ideas and lessons [L, D]	Local governments too threatened by power base to act [D]	High cost of experts [D]
Attracting & retaining staff [D, K]	Matching urban and rural interests [L]	High demand for one-on-one interaction [D]	Poor policy direction & cross-agency coordination [L, D, K]	Affordability of travel [K]
Mismatch between duties and pay [D]	Over-work & burnout [L, D, K]	Strength of intra-community networks [K]	Institutional instability and inconsistent boundaries [L, D]	High cost of equipment [L]
Training availability [L, D]	Expectations not matched with funds [L]		Low institutional support and reactive management [L, K]	Inadequate IT infrastructure [D]
Knowledge & technical gaps [L, K]	Expectations of always being 'on the job' [D, K]		Political interests rather than science driving institutional priorities [K]	Infrastructure to manage pest movements [D, K]
Low status of pest research (& researchers) [L]	Demand for social-related services [D]		Poor access to decision-makers [L]	Preferential access to infrastructure [L]
Access to consistent & reliable information [L]	Low morale from lack of support and recognition [D, K]		Lack of funding transparency [L]	Planning and expenditure driven by political terms and financial models [L, D, K]
Misinformation [K]	Social pressures to 'turn a blind eye' [D]		Misalignment between priorities of funding bodies and NRM agencies [K]	Few resources for follow up or emergencies [D]
Ill-informed decision-makers [D]	Blaming agencies for problems [D, K]		Narrow reporting criteria [L]	Financial limitations of landholders [D]
	Misconception about the role of agencies [D, K]		Inflexible contracts and inability to respond to change [L]	Economics impacts of climatic events [L]
	Power of old paradigms [D, K]			
	Commitment of absentee landholders [D, K]			
	Not eroding landholder trust & motivation [L]			

5.2 Capacity building options – Support

This section presents and discusses results on end-user support for individual capacity building options. Refer to Table 3 as a key for interpreting the horizontal axes (capacity building options) in the figures that follow.

5.2.1 Lachlan NSW

Eleven respondents completed a survey to elicit levels of support for each of the 28 capacity building options (Figure 9). The most strongly supported option was team and collaborative relationship building (No. 17), followed by best practice guidelines (No. 4) and regional infrastructure and staff (No. 9).

At least eight respondents (73 per cent or more), indicated a positive response ('Strongly Support' and 'Support') in the case of 19 options. Of the 9 remaining options, computer-based knowledge exchange (No. 28) was the least favoured, followed by quality or process improvement methods (No. 13) and audit and feedback (No. 15).

Environmental standards (No. 5) and academic detailing (No. 19) generated the highest level of uncertainty ('Don't Know').

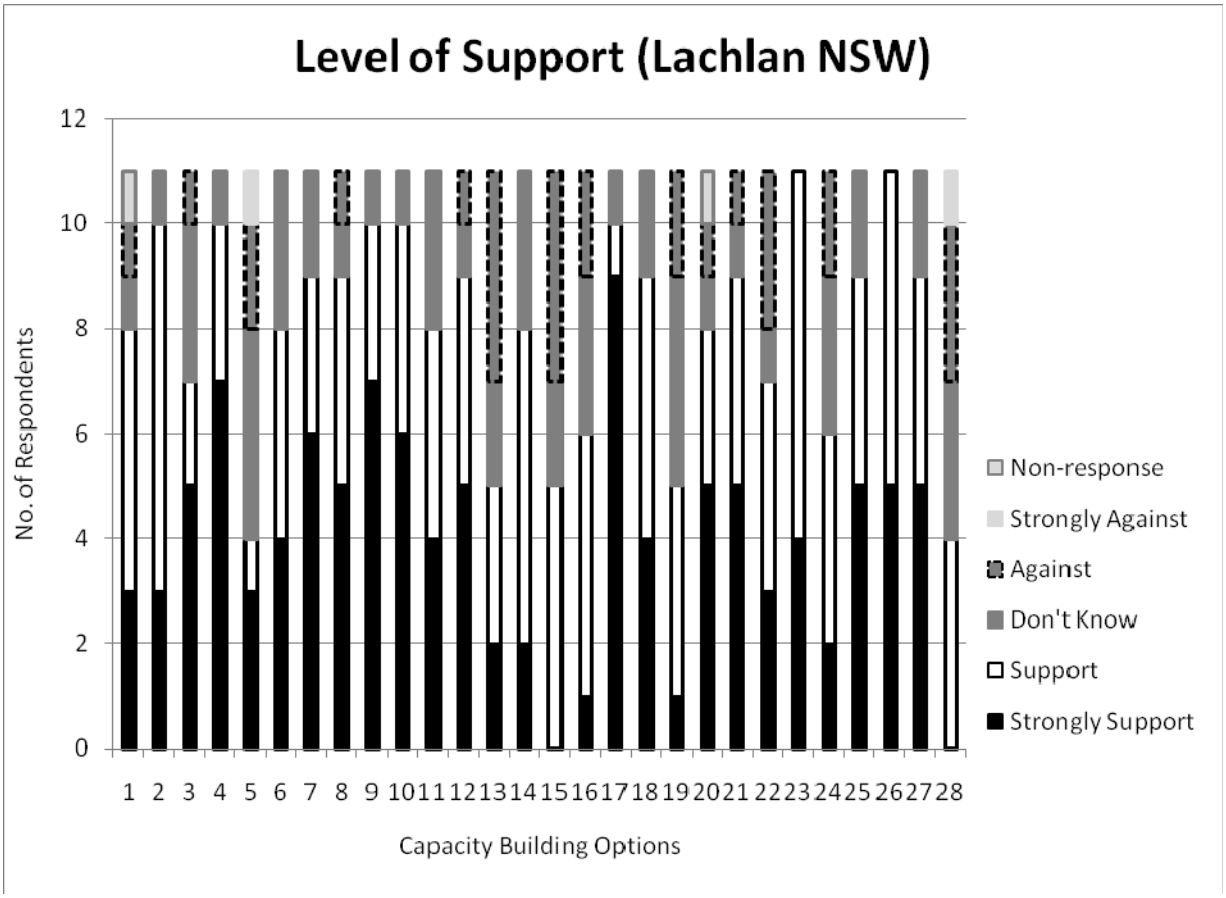

Figure 9: Support for specific options as a way of building the capacity of NRM managers and pest animal controllers to manage the impacts of pest animals at the regional level (Lachlan NSW)

5.2.2 Desert Channels Qld

Seven respondents completed a survey to elicit levels of support for each of the 28 capacity building options (Figure 10). The most strongly supported option was mentoring and coaching (No. 22).

No negative responses ('Against' or 'Strongly Against') were indicated in the case of 12 options. Of the 16 remaining options, policy decision-making processes (No. 12) and quality or process improvement methods (No. 13) were the least favoured.

The greatest uncertainty ('Don't Know') was recorded for academic detailing (No. 19), followed in equal measure by audit and feedback (No. 5) and computer-based knowledge exchange (No. 28).

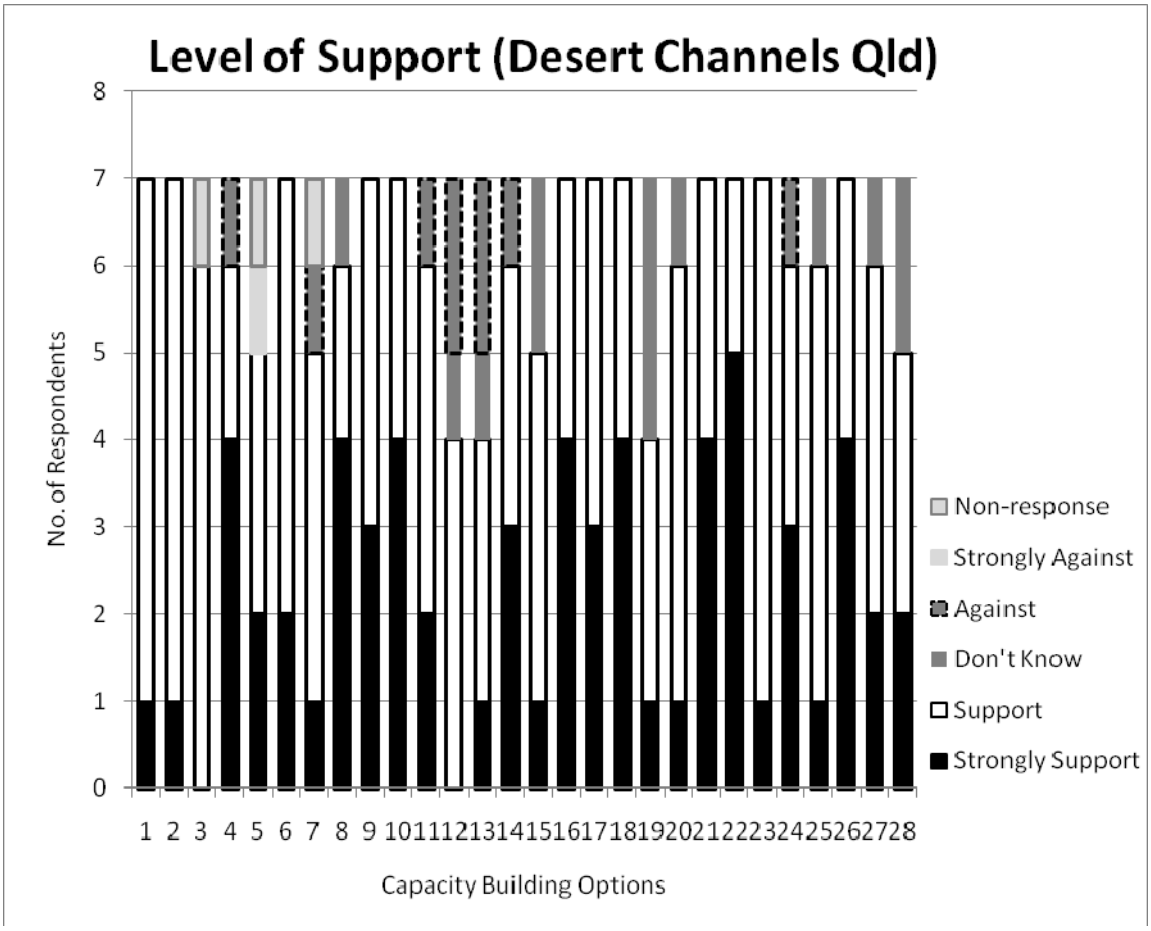

Figure 10: Support for specific options as a way of building the capacity of NRM managers and pest animal controllers to manage the impacts of pest animals at the regional level (Desert Channels Qld)

5.2.3 Kangaroo Island SA

Ten respondents completed a survey to elicit levels of support for each of the 28 capacity building options (Figure 11). The most strongly supported option was regional infrastructure and staff (No. 9), followed closely by flexible and adequate resourcing arrangements (No. 10).

Positive responses ('Strongly Support' and 'Support') were recorded in the case of only four other options, namely protocols (No. 1), team and collaborative relationship building (No. 17), personal and professional development (No. 21) and information and research compendia (No. 25).

More than one respondent selected 'Don't Know' in the case of 15 options, the highest two of which were quality or process improvement methods (No. 13), academic detailing (No. 19) and risk standards and guidelines (No. 4).

More than one respondent was opposed to nine options, but none were 'Strongly Against', most notably for recognition and service awards (No. 16), training facility (No. 8) and audit and feedback (No. 15).

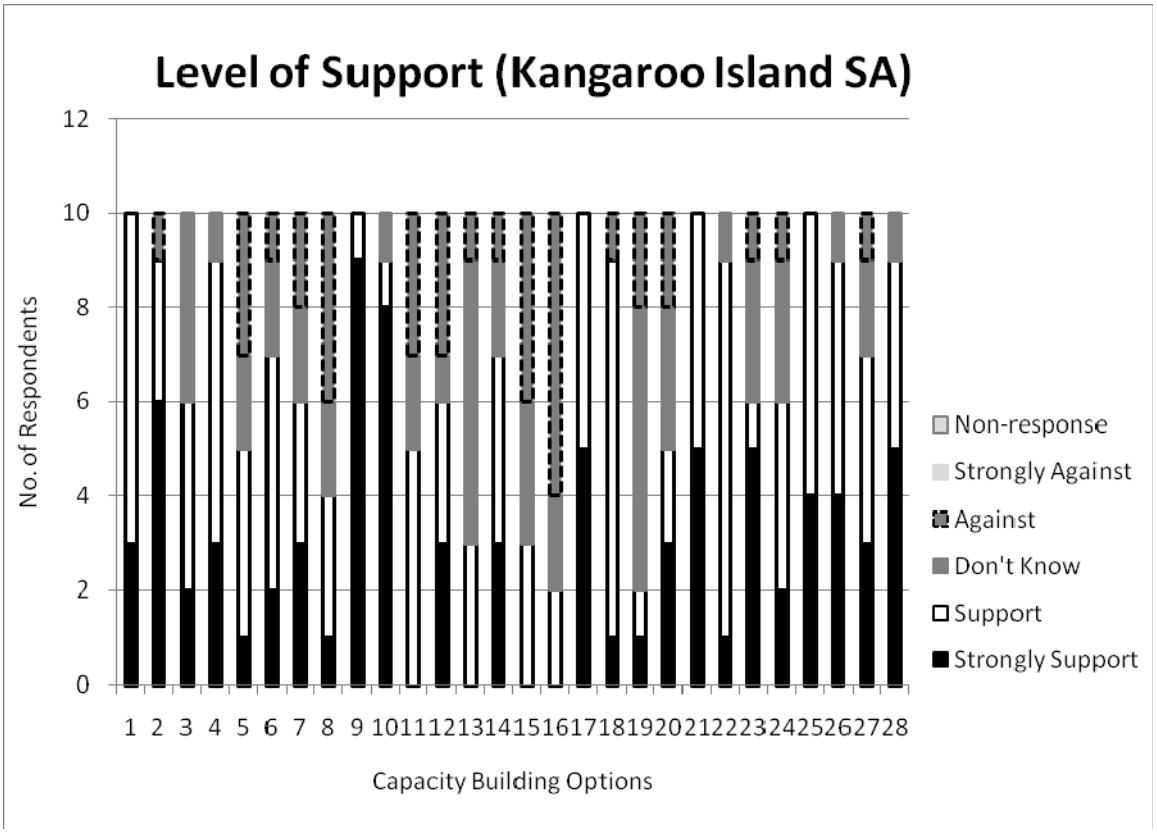

Figure 11: Support for specific options as a way of building the capacity of NRM managers and pest animal controllers to manage the impacts of pest animals at the regional level (Kangaroo Island SA)

5.2.4 Overview of support for capacity options

Aggregated results on support for capacity building options are shown in Figure 12 for the 28 respondents. The most strongly supported options overall are regional infrastructure and staff (No. 9), flexible and adequate resourcing arrangements (No. 10) and team and collaborative relationship building (No. 17).

The next cohort of popular options is personal and professional development (No. 21), best practice guidelines (No. 4) and case studies and storytelling (No. 26).

The lowest levels of support were registered for audit and feedback (No. 15), environmental standards (No. 5), recognition and service awards (No. 16) and quality or process improvement methods (No. 13). Only two options recorded 'Strongly Against' votes, two in the case of environmental standards (No 5) and one for computer-based knowledge exchange (No. 28).

The greatest uncertainty ('Don't Know') was recorded for academic detailing (No. 19), followed by quality or process improvement methods (No. 13).

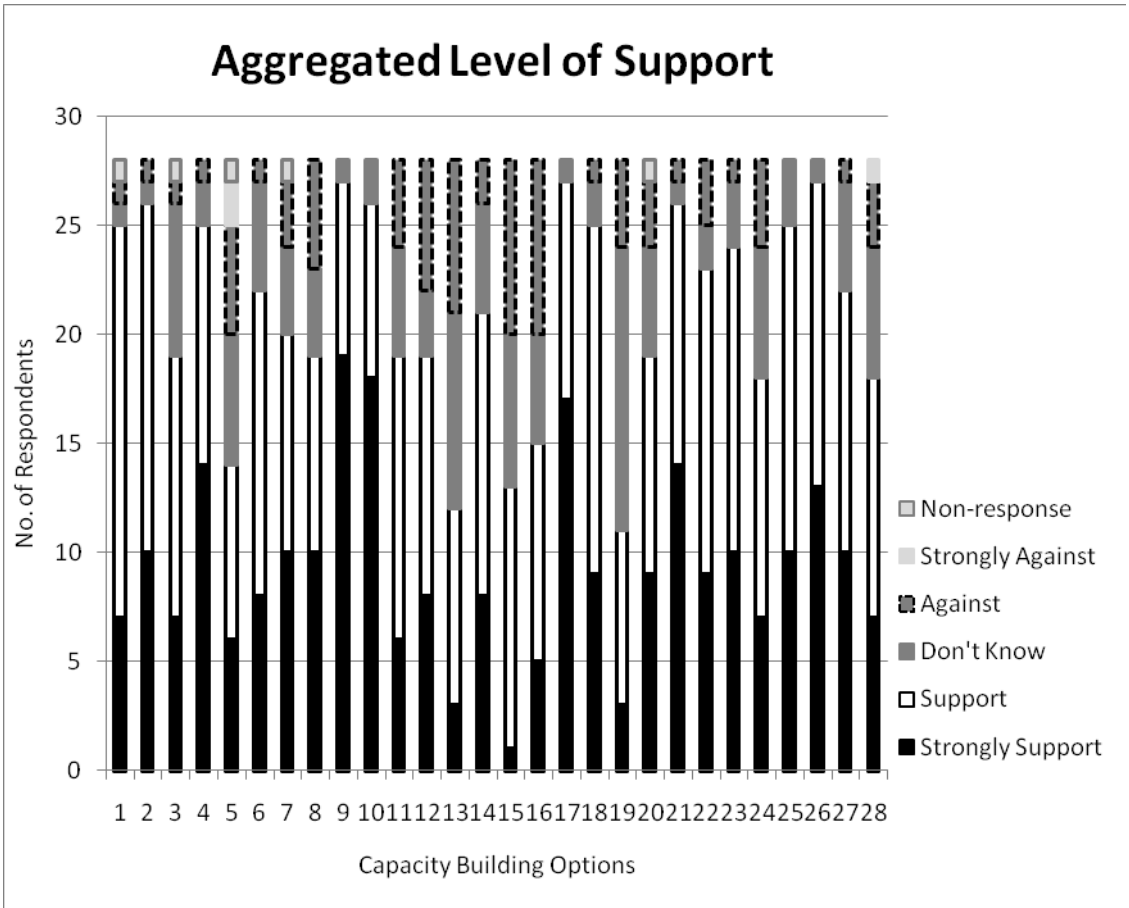

Figure 12: Aggregate support (three case study regions) for specific options as a way of building the capacity of NRM managers and pest animal controllers to manage the impacts of pest animals at the regional level

5.3 Capacity building options – Preferences

This section presents and discusses results on end-user preferences for individual capacity building options. Refer to Table 3 as a key for interpreting the horizontal axes (capacity building options) in the figures that follow.

5.3.1 Lachlan NSW

Five capacity building options stand out in the preferences identified by workshop participants in Lachlan NSW for the current term of the IA CRC (Figure 13). Regional infrastructure and staff (No. 9) rated most highly with a weighted score of 31, and was closely followed by best practice guidelines (No. 4) at 30.5, with a higher unweighted score of 7. A further three options that scored highly were flexible and adequate resourcing arrangements (No. 10; 24 votes), information and research compendia (No. 25; 20.5 votes), and team and collaborative relationship building (No. 17; 19 votes).

No preference votes were cast in the case of four options: audit and feedback (No. 15), recognition and service awards (No. 16), local opinion leaders (No. 23) and computer-based information exchange (No. 28).

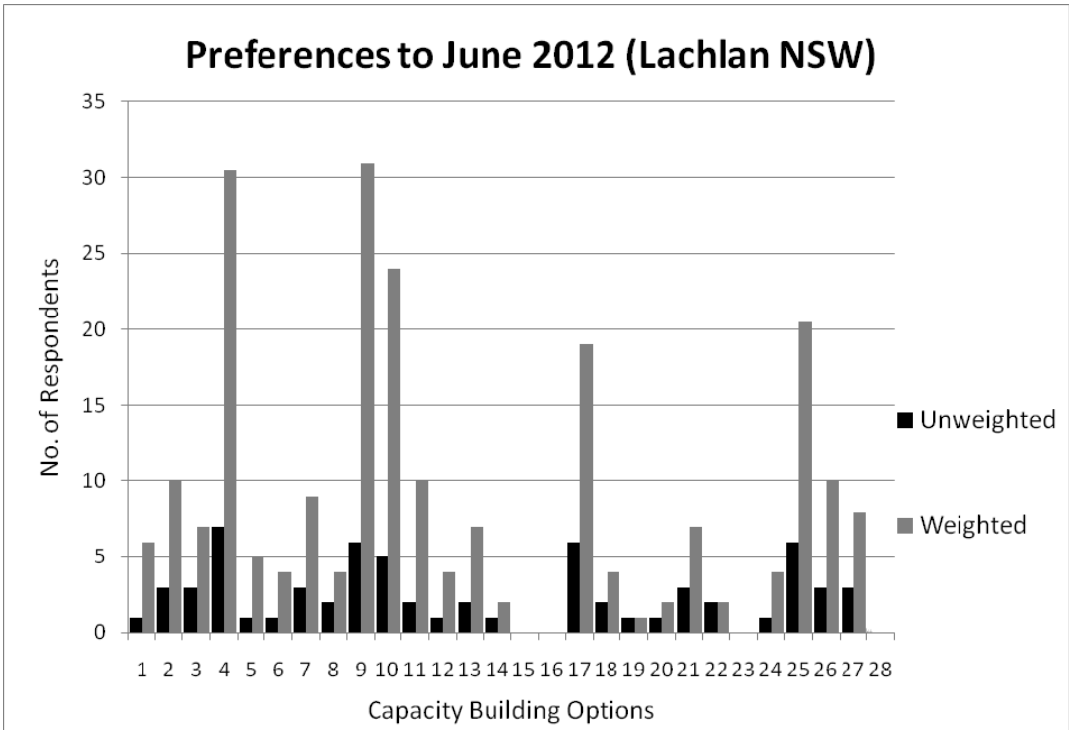

Figure 13: Preferences for capacity building options for the current term of the Invasive Animals CRC (to June 2012), Lachlan NSW

There are some marked differences in longer-term preferences indicated by workshop participants in the event of a 7-year extension to the IA CRC (Figure 14). While the first rated option is the same (regional infrastructure and staff; No. 9), its weighted score is 5 votes higher. Best practice guidelines (No. 4) dropped to third preference, and the weight given to flexible and adequate resourcing arrangements (No. 10) substantially increased (from 24 to 33 votes). Team and collaborative relationship building (No. 17) remained about the same, whereas information and research compendia (No. 25) declined significantly from 20.5 votes to only 8.

Preferences for information centre (No. 7; 14 votes) and training facility (No. 8; 12 votes) are greater over the longer-term investment scenario. Local opinion leaders (No. 23), which previously received no preferences, increased substantially to 9 votes, while preferences for protocols (No. 1) and academic detailing (No. 19) declined to zero.

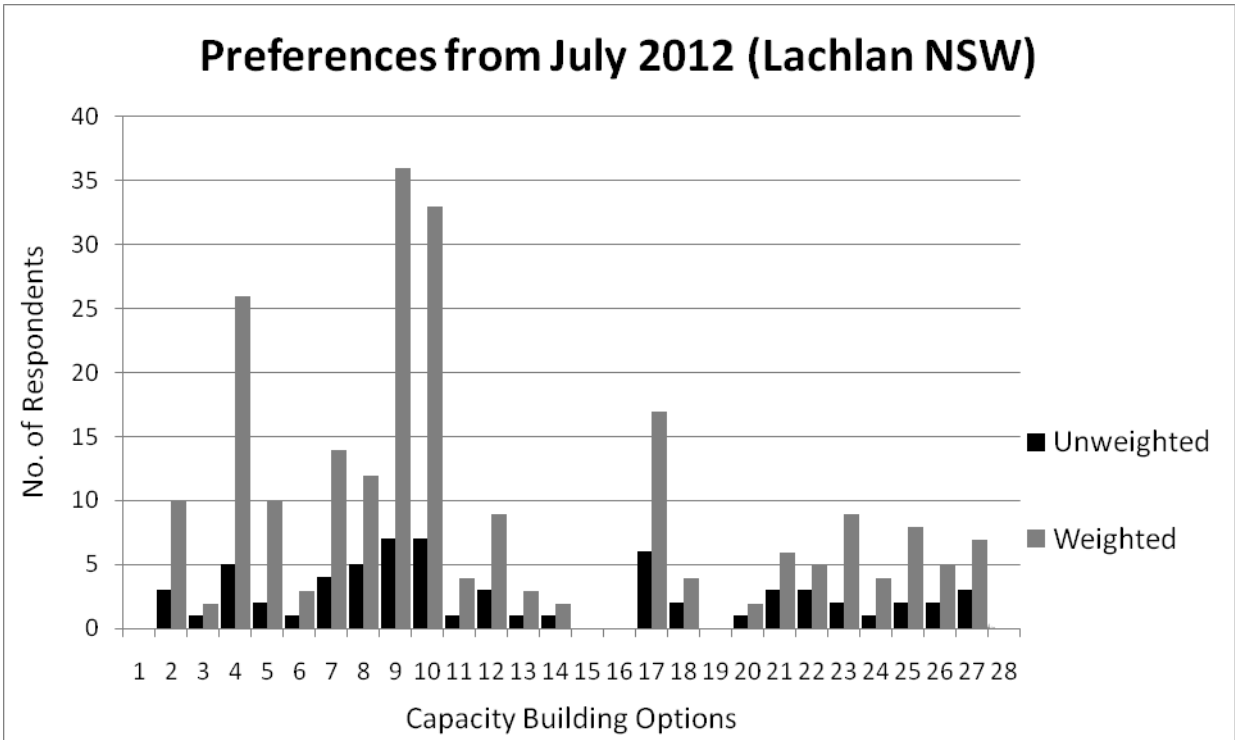

Figure 14: Preferences for capacity building options for a further 7-year term of the Invasive Animals CRC (from July 2012), Lachlan NSW

5.3.2 Desert Channels Qld

Weighted responses for Desert Channels Qld over the current term of the IA CRC indicate equal highest preference for best practice guidelines (No. 4; 12 votes) and models, decision support systems and GIS (No. 27; 12 votes), with case studies and storytelling (No. 26; 11 votes) a close third (Figure 15). A further six options were allocated a weighted total of 10 votes, namely protocols (No. 1), flexible and adequate resourcing arrangements (No. 10), recognition and service awards (No. 16), team and collaborative relationship building (No. 17), personal and professional development (No. 21) and computer-based knowledge exchange (No. 28).

Several options were not allocated any preference votes; however, this partly reflects the small size of the survey population. No preference votes were cast in the case of ten options: legislative, constitutional and policy frameworks (No. 2), performance measures and reporting (No. 6), information centre (No. 7), training facility (No. 8), policy decision-making processes (No. 12), audit and feedback (No. 15), academic detailing (No. 19), exercises (No. 20), registers (No. 24) and information and research compendia (No. 25)

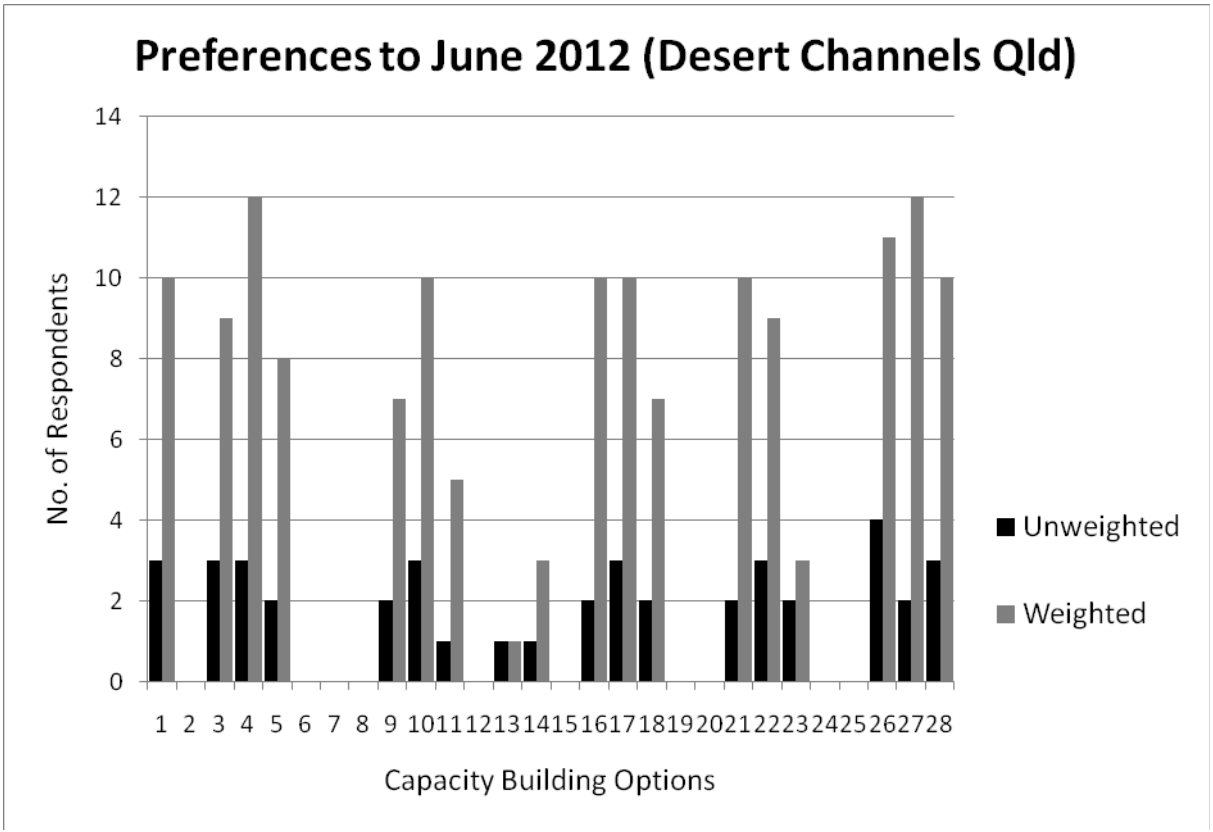

Figure 15: Preferences for capacity building options for the current term of the Invasive Animals CRC (to June 2012), Desert Channels Qld

The longer-term preferences for capacity options indicate some pronounced differences (Figure 16); however, this is most often attributable to the change in voting preference of a single respondent and reflects the small survey cohort for Desert Channels Qld.

The top preference has shifted to case studies and storytelling (No. 26; 15 votes), which was previously ranked third. Risk standards and guidelines (No. 3; from 9 to 14 votes) moved to second place, edging ahead of best practice guidelines (No. 4; 12 votes), the votes for which remained unchanged.

Voting preferences stayed more or less static (10-12 votes) for models, decision support systems and GIS (No. 27), computer-based knowledge exchange (No. 28) and team and collaborative relationship building (No. 17).

The following options slipped by between 4 and 7 votes: protocols (No. 1), flexible and adequate resourcing arrangements (No. 10), briefings and debriefings (No. 11), recognition and service awards (No. 16), personal and professional development (No. 21) and mentoring and coaching (No. 22).

Scores of 5 or more were recorded in the case of three options that rated zero for the earlier time period: performance measures and reporting (9 votes), training facility (9 votes) and policy decision-making processes (5 votes).

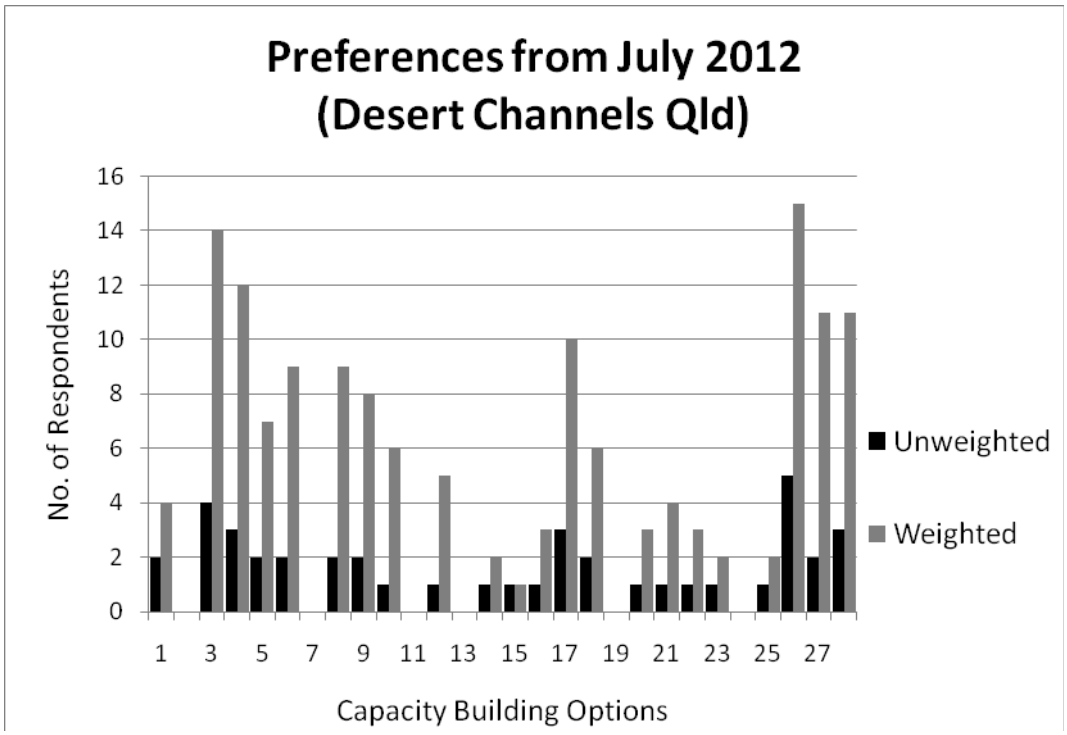

Figure 16: Preferences for capacity building options for a further 7-year term of the Invasive Animals CRC (from July 2012), Desert Channels Qld

5.3.3 Kangaroo Island SA

Weighted responses for Kangaroo Island SA over the current term of the IA CRC show highest preference for flexible and adequate resourcing arrangements (No. 10; 34 votes), followed closely by regional infrastructure and staff (No. 9; 29 votes).

The next cohort of preferences (between 16 and 19 votes) is best practice guidelines (No. 4), computer-based knowledge exchange (No. 28) and team and collaborative relationship building (No. 17).

A further four options received between 11 and 14 votes cast by 3-4 respondents, namely information and research compendia (No. 25), personal and professional development (No. 21), local opinion leaders (No. 23) and case studies and storytelling (No. 26).

The following eight options recorded a zero score: risk standards and guidelines (No. 3), environmental standards (No. 5), training facility (No. 8), briefings and debriefings (No. 11), policy decision-making processes (No. 12), quality or process improvement methods (No. 13), quality improvement or learning collaboratives (No. 14) and recognition and service awards (No. 16).

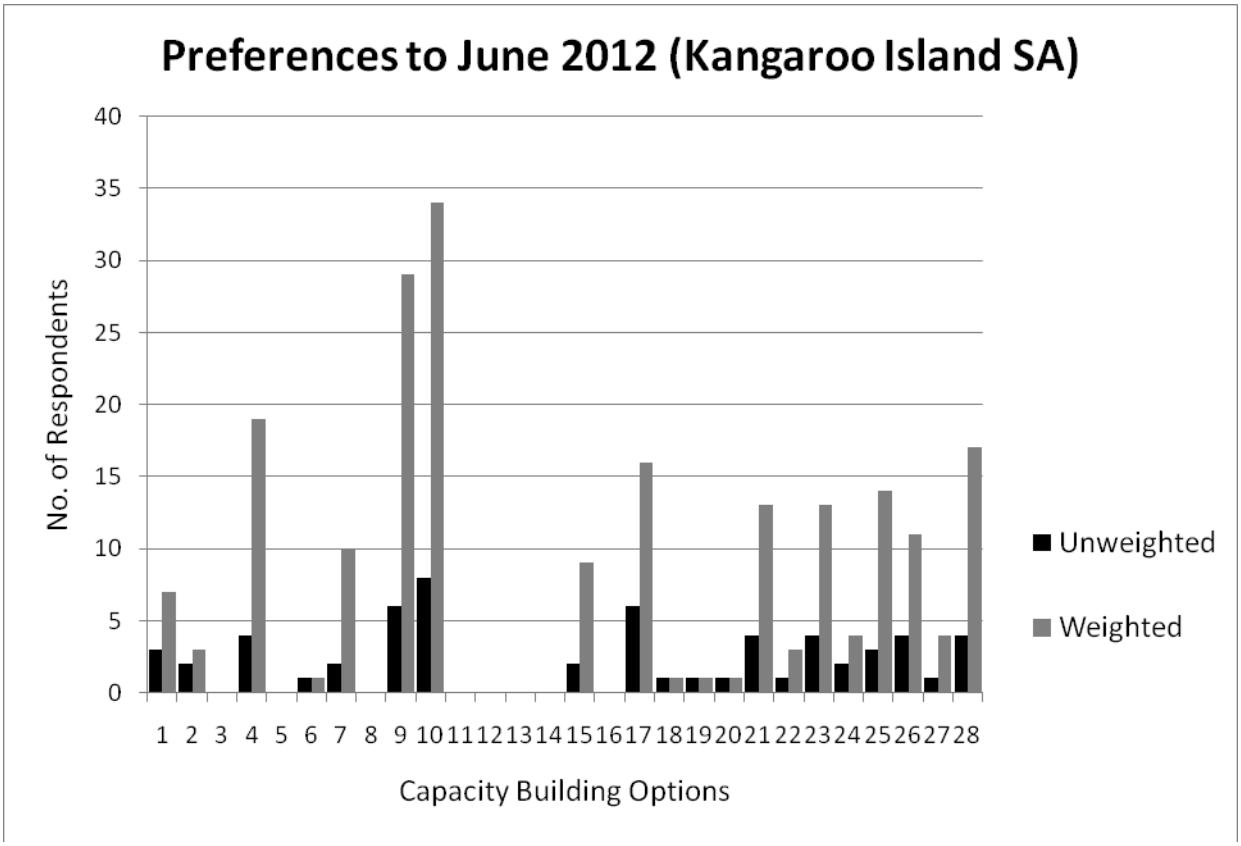

Figure 17: Preferences for capacity building options for the current term of the Invasive Animals CRC (to June 2012), Kangaroo Island SA

The longer timeframe for implementation of options served to strengthen the top two preferences recorded for Kangaroo Island SA. Ranked first, flexible and adequate resourcing arrangements (No. 10) increased from 34 to 41 votes, and second placed regional infrastructure and staff (No. 9) rose from 29 to 35 votes.

Best practice guidelines (No. 4) increased its share of unweighted votes (from 4 to 5 respondents) but with a decreased weighted score (19 to 11 votes). Preferences for computer-based knowledge exchange (No. 28) remained high but static (16 votes), while team and collaborative relationship building (No. 17) shrunk from 16 to 9 votes.

Four options scored 12-13 votes, and therefore higher than best practice guidelines (No. 4), namely legislative, constitutional and policy frameworks (No. 2), information centre (No. 7), local opinion leaders (No. 23) and information and research compendia (No. 25).

While previously scoring zero, training facility (No. 8) and quality improvement or learning collaboratives (No. 14) ranked in the longer term, but due to the voting preferences of a single respondent.

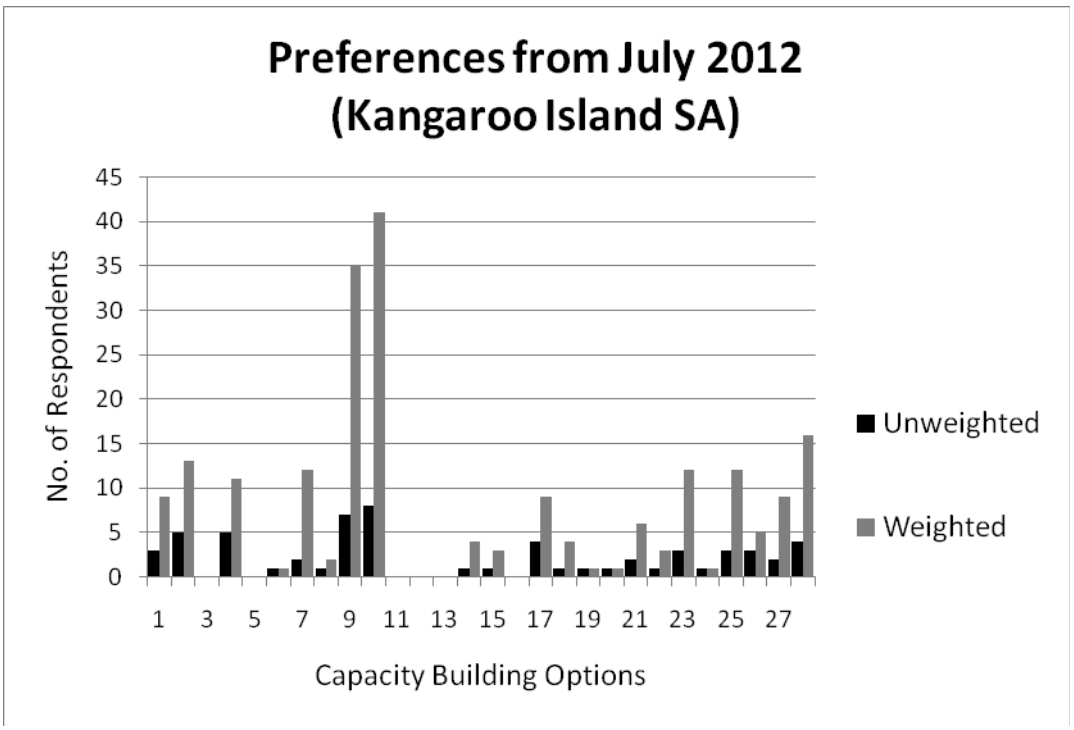

Figure 18: Preferences for capacity building options for a further 7-year term of the Invasive Animals CRC (from July 2012), Kangaroo Island SA

5.3.4 Overview of preferences for capacity options

Figure 19 shows aggregated preferences for capacity options across the three case study regions for the immediate term of the IA CRC to June 2012.

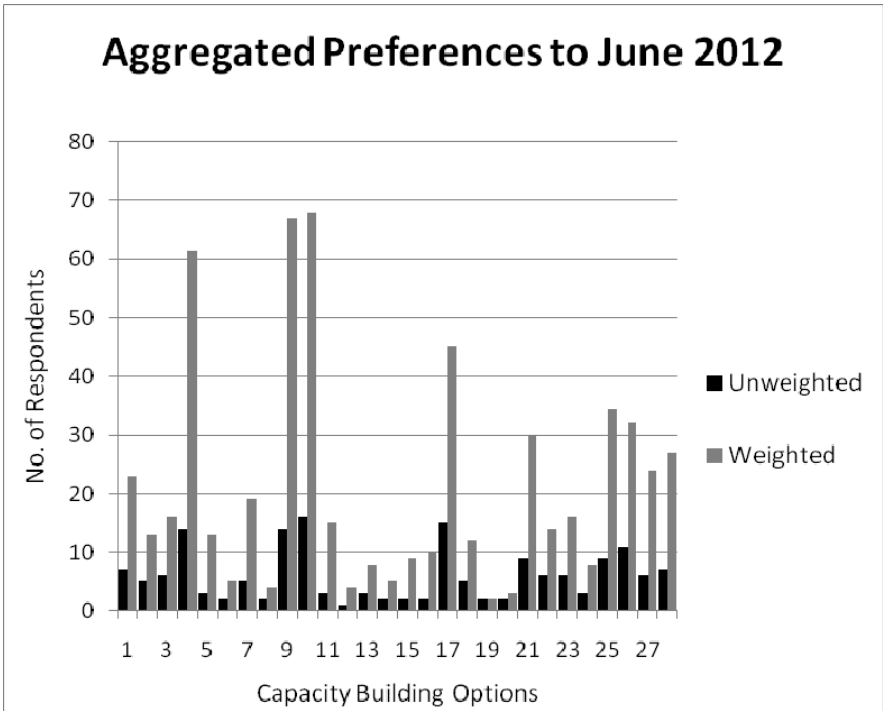

Figure 19: Aggregated preferences for capacity building options for the current term of the Invasive Animals CRC (to June 2012)

The highest preferences for this period are for flexible and adequate resourcing arrangements (No. 10; 68 votes) and regional infrastructure and staff (No. 9; 67 votes), representing unweighted votes of 16 and 14 respondents respectively. In third and fourth positions are best practice guidelines (No. 4) at 61.5 votes, and team and collaborative relationship building (No. 17) at 45 votes, with commensurate unweighted respondents at 14 and 15 respectively.

The next cohort comprises information and research compendia (No. 25; 34.5 votes), case studies and storytelling (No. 26; 32 votes) and personal and professional development (No. 21; 30 votes), representing the voting preferences of between 9 and 11 individual respondents.

A further group of options were ranked by 6 to 7 individuals, and scored between 23 to 27 votes in aggregate, namely models, decision support systems and GIS (No. 27), computer-based knowledge exchange (No. 28) and protocols (No. 1). The distribution of votes between regions for these top 10 options is shown in Table 29. It is relevant to note that information and research compendia (ranked 5th) did not score any votes for Desert Channels Qld, as was the case for computer-based knowledge exchange (ranked 8th) in Lachlan NSW.

Table 29: Top ten preferences for capacity building options (to June 2012) showing votes in total and by region.

RANK	CAPACITY OPTION	NO.	TOTAL VOTES	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
1.	Flexible & Adequate Resourcing Arrangements	10	68	24	10	34
2.	Regional Infrastructure & Staff	9	67	31	7	29
3.	Best Practice Guidelines	4	61.5	30.5	12	19
4.	Team & Collaborative Relationship Building	17	45	19	10	16
5.	Information & Research Compendia	25	34.5	20.5	-	14
6.	Case Studies & Storytelling	26	32	10	11	11
7.	Personal & Professional Development	21	30	7	10	13
8.	Computer-based Knowledge Exchange	27	27	-	10	17
9.	Models, Decision Support Systems & GIS	28	24	8	12	4
10.	Protocols	1	23	6	10	7

Further to Figure 19, a cluster of six options were selected by 5 to 6 individuals, but scored at a lower aggregate level of 12 to 19 votes. In order of aggregate score, these options are information centre (No. 7), risk standards and guidelines (No. 3), local opinion leaders (No. 23), mentoring and coaching (No. 22), legislative, constitutional and policy frameworks (No. 2) and competency-based training (No. 18).

The remaining 11 options were selected by between 1 and 3 individuals. There was no case in which an option scored zero. Of these options, briefings and debriefings was the highest ranking (15 votes), while policy decision-making processes (No. 12) was the lowest in terms of unweighted score (1 respondent) and academic detailing in terms of weighted score (2 votes).

Figure 20 shows that the picture in the longer-term from July 2012 does not change substantially in terms of the highest scoring preferences.

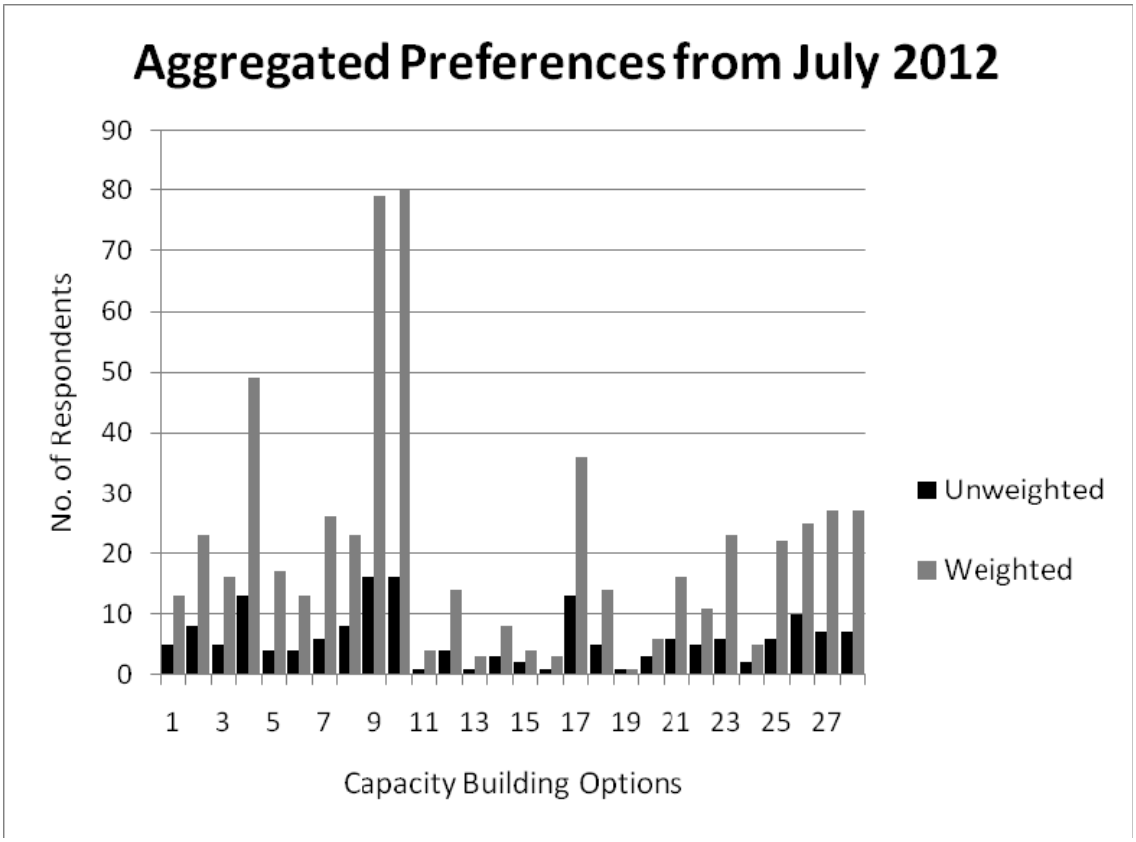

Figure 20: Aggregated preferences for capacity building options for a further 7-year term of the Invasive Animals CRC (from July 2012)

The top preferences remain in the same order, however, some strengthen and others weaken: flexible and adequate resourcing arrangements (No. 10; 68 up to 80 votes); regional infrastructure and staff (No. 9; 67 up to 79 votes), best practice guidelines (No. 4; 61.5 down to 49 votes) and team and collaborative relationship building (No. 17; 45 down to 36 votes).

Table 30 shows that models, decision support systems and GIS (No. 27) and computer-based knowledge exchange (No. 28) have increased in ranking to equal fifth place, followed by information centre (No. 7) as a new entry to the top ten preferences. Case studies and storytelling (No. 26) scored almost as many votes (25 but down from 32 votes), and represents a greater number of individual respondents (10).

Positive changes are apparent for training facility (No. 8) increasing from 4 to 23 votes (2 to 8 respondents), legislative, constitutional and policy frameworks (No. 2) increasing from 13 to 23 votes (5 to 8 respondents), and policy decision-making processes (No. 12) increasing from 4 to 14 votes (1 to 4 respondents).

On the negative side, support over the longer timeframe slipped for information and research compendia (No. 25; 34.5 to 22 votes), personal and professional development (No. 21; 30 to 16 votes), protocols (No. 1; 23 to 13 votes) and briefings and debriefings (No. 11; 15 to 4 votes).

Table 30: Top ten preferences for capacity building options (from July 2012) showing votes in total and by region. Bold type denotes new entrants relative to the period to June 2012.

RANK	CAPACITY OPTION	NO.	TOTAL VOTES	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
1.	Flexible & Adequate Resourcing Arrangements	10	80	33	6	41
2.	Regional Infrastructure & Staff	9	79	36	8	35
3.	Best Practice Guidelines	4	49	26	12	11
4.	Team & Collaborative Relationship Building	17	36	17	10	9
5.	Computer-based Knowledge Exchange	27	27	-	11	16
	Models, Decision Support Systems & GIS	28	27	7	11	9
6.	**Information Centre**	7	26	14	-	12
7.	Case Studies & Storytelling	26	25	5	15	5
8.	**Legislative, Constitutional & Policy Frameworks**	2	23	10	-	13
	Training Facility	8	23	12	9	2
	Local Opinion Leaders	23	23	9	2	12
9.	Information & Research Compendia	25	22	8	2	12
10.	**Environmental Standards**	5	17	10	7	-

5.4 Capacity building options – Regional form

This section presents the results of discussions focused on three options in terms of the capacity issues they are likely to address and what form they may take in the context of the region. Workshop participants debated and agreed upon which three options to discuss. While this process was informed by preference votes from the earlier session, participants did not necessarily chose to discuss the top three preferences. The groups indicated no particular distinguishing features in the form of these options in the immediate term (to June 2012) compared to a longer-term roll-out period.

5.4.1 Lachlan NSW

1. Regional Infrastructure and Staff (No. 9)

This option was perceived as addressing the following capacity issues:

- accessing specialist people to establish and drive suitable programs (the right person in the right place at the right time)
- enabling regional coordinators to get together
- addressing limitations of working within OH&S and risk assessment issues (reduced scope for field officers to work alone)
- increasing staff retention times
- relieving pressure on staff and resources
- improving project sustainability (through staff continuity)

This option was perceived as taking the following form in the context of Lachlan NSW:

- may be a building or just people
- transfer of skills to the region
- access to a specialised person with extension and pest animal skills
- scientists close to city centres (eg Canberra, Sydney) commit to travelling to regions frequently
- de-centralised staff spending time in the regions (a couple of days per week)
- staff floating from office-to-office to share expertise and providing continuity, including working with farmers or established groups
- a locally-based facilitator acting as a gatekeeper for local groups; not necessarily having all the knowledge but knowing who to talk to
- shared staffing arrangements, but noting administrative and structural complexity that can arise for staff wearing 'two hats'
- more people wearing 'two hats' ('go-betweens') without adding to existing workloads and responsibilities
- more NRM coordinator positions under the IA CRC umbrella
- co-manage objectives or projects through joint CMA and IA CRC arrangements
- better connections to IA CRC regardless of its longevity
- an ongoing relationship with the IA CRC with shared responsibility and ownership

2. Flexible and Adequate Resourcing Arrangement (No. 10)

This option was perceived as addressing the following capacity issues:

- improving responsiveness to unexpected and emerging issues, and changes in polarity (eg switch to trout control when numbers of carp reduce during drought)
- having access to resources during delays/changes in funding conditions
- simplifying accounting processes
- enabling approvals at local level (rather than going all the way to the top)
- spacing projects over 3-5 years (or sufficient timeframe) compared to current restraint of ~12 month timeframes
- adapting to changes in economic climate (throughout cycle from approval to reporting)
- maintaining social networks, credibility and relationships

This option was perceived as taking the following form in the context of Lachlan NSW:

- projects incorporate capacity building from the outset, and have deliverable, practical outcomes
- IA CRC use their research outcomes to better 'lever' and steer federal agencies (CfoC)
- IA CRC leverage upwards by advising federal agencies on what to fund (not the other way around)
- a high profile champion to pressure the federal government to increase the profile and priority of pest animal issues
- *PestSmart* toolkit used to trigger higher resourcing by identifying long-term control targets (and timelines) for key pest animals
- a major IA CRC project that examines the benefits of utilising 'climatic windows' for pest animal control
- a critical review of past investments in pest animal control to better understand the consequences of inflexible and/or inadequate resources on outcomes
- a comparison of projects to identify lessons from success and failure relating to resource flexibility and adequacy
- identification and implementation of structures to support adaptive management (with IA CRC supporting NRM regions)

- development of response plans that can be activated if new pest species arise or outbreaks of existing species occur
- establishment of a long-term emergency funding pool for regions to access in the event of invasions or outbreaks (federally-funded with IA CRC representation)

3. Best Practice Guidelines (No. 4)

This option was perceived as addressing the following capacity issues:
- creating standards for people to follow
- knowing what best practice is
- putting in place a consistent, acceptable, legal approach
- providing a defensible position and cover in the event of mishaps
- providing OH&S training material, especially for chemical use
- assisting with monitoring
- accounting for different scales (eg paddock, property, catchment, region, etc)

This option was perceived as taking the following form in the context of Lachlan NSW:
- identification of best practice in the context of the region
- embodiment of the 80:20 rule (address the core issues and outcomes)
- communication tools that look and feel the same
- align with the monitoring systems of organisations
- account for on- and off-site impacts
- incorporation of spatial scale and intensity of control (impact of thresholds)
- resource series (best practice for management of carp in a dam, in a creek, in a river, in a catchment, in a wetland)
- regularly updated (informed by user feedback)
- video products to support and extend delivery and training (eg 30-40 sec clips)
- a hybrid package
- an IA CRC project that examines species recovery (resilience)
- guideline topics identified by IA CRC but developed by a panel comprising researchers, end-users, writers/communications expert and practitioners
- decision-making frameworks within the guideline (what to do?)
- adapted to different audiences (short vs long versions)
- captures what is already out there (use a best practice process for producing the best practice guidelines)
- field days that bring the guidelines to life and change practice (not just words)
- a database of skills that taps into the experience of retirees (link to registers idea)

5.4.2 Desert Channels Qld

1. Best Practice Guidelines (No. 4)

This option was perceived as addressing the following capacity issues:
- stopping wastage of funds by putting everyone on the same page
- keeping information up-to-date
- making information accessible
- negating the need for extra training (because guidelines are self-explanatory)
- providing direction on how to best deal with a situation
- setting regional operators in the right direction and keeping within the law

This option was perceived as taking the following form in the context of Desert Channels Qld:

- a DVD
- embodiment of a bank of knowledge, including local knowledge
- an information source for new officers and residents
- tiers of information (from 1 page to more detailed)
- local champions standing up and telling/showing people what works, including drawing from demonstration sites
- easily accessible web-based information
- the case for landholder action (benefits:costs)
- regionally-relevant case studies to support best practice (across pest animals, environments and scales)

2. Models, Decision Support Systems & GIS (No. 27)

This option was perceived as addressing the following capacity issues:

- improving communication because a picture paints 1000 words
- enabling immediate engagement and participation
- providing a good planning tool
- providing information to inform presentations
- holding data (eg historical) from which users can extract information
- running scenarios and showing trends (which makes it a powerful tool)
- providing tools for future planning
- building capacity of individuals

This option was perceived as taking the following form in the context of Desert Channels Qld:

- pull data across organisations
- designed for different levels of user skills, not for technical people
- engagement tool that provides aerial view of properties to inform management
- monitoring and reporting component to inform planning, project proposals, contract obligations, etc
- geo-referencing of map products to data, photographs, reports, and the like
- tools for property planning
- in-the-field data collection using GPS to feed into map products (eg pest extent)
- data access agreements ('Pest Central') between contributing organisations
- regions as data suppliers not just users
- local knowledge for accurate and up-to-date maps
- ground-truthing by locals

3. Team & Collaborative Relationship Building (No. 17)

This option was perceived as addressing the following capacity issues:

- sharing scarce resources and project outputs
- ensuring players are working towards the same goals rather against one another
- maintaining and expanding networks, and pulling in new people
- raising awareness and education
- breaking new ground rather than always going to the same places and working with the same groups
- encouraging new blood and ideas
- moving beyond the usual (homogenous) players
- bridging the 'them' and 'us' mentality
- bringing together teams
- removing the blame game

This option was perceived as taking the following form in the context of Desert Channels Qld:

- mentoring opportunities
- utilises experienced people within organisations
- explores and sells the benefits of cooperation between agencies (eg costs, experience, equipment, etc)
- people changing and moving up through the system
- giving credit where it's due
- better strategic plans
- better working relationships across territorial lines (eg local government, within and between states, regional NRM organisations)
- shared limited resources and less duplication
- united teams that produce results
- strong leadership fostered
- quiet achievers supported
- big picture thinking (knowing how individuals contribute to higher level management outcomes)
- informing up to get better decisions and onground outcomes
- local stakeholders regularly getting together for training and knowledge transfer
- better selection criteria and pay conditions for RLOs
- information sharing groups (eg Shire Rural Lands Officers Group)

5.4.3 Kangaroo Island SA

1. Regional Staff & Infrastructure (No. 9)

This option was perceived as addressing the following capacity issues:

- reducing reliance on expert visitors from the cities
- reducing the incidence of staff leaving before end of contract, and the adverse knock-on effects (eg completing projects and meeting reporting requirements)
- developing deeper understanding of local issues so that decisions reflect local conditions and knowledge
- having reasonable infrastructure will enable the region to attract good staff
- providing employment opportunities on the island where the choices are limited
- keeping good staff when the pool of potential employees is small
- building a pool of credible local talent (not pushing decisions from 'the outside')

This option was perceived as taking the following form in the context of Kangaroo Island SA:

- computers and mobile phones that work properly
- professional development for staff
- websites and networks of people who are working in the same field
- interactive fora to keep in touch with others 'outside'
- consistent and dependable funding to allow longer-term employment contracts
- decentralised
- equipment sharing and/or hiring
- staff networking beyond the island
- inter-agency activity and collaborations
- pest animal symposia for practitioners as a state instead of national event (face-to-face, lower cost)
- list of contacts, including a pool of casual contract workers
- video conferencing and skype conferences (suitable technology after limitations have been identified)

- local decision-making about local issues
- increased autonomy for the regional office
- conduct research on impacts associated with infrastructure and staff (eg access to specialist staff, high staff turnover), including in remote settings
- use research findings to lobby for longer-term employment contracts
- set up a fund with extra resources to cover periods of high staff turnover

2. Flexible & Adequate Resourcing Arrangements (No. 10)

This option was perceived as addressing the following capacity issues:

- allowing choice of best ways of building capacity so regions can finance what they need and want
- enabling local decision-making
- maintaining staff and corporate knowledge, including relationships built with the community
- increasing workforce stability
- developing local skills
- enabling people to work across a range of interests
- allowing regions to take advantage of unforseen opportunities (eg fire, flood, drought, threats)
- providing career paths
- addressing the constraint of discontinuity in funding
- allowing adaptive management (not being tied to one particular outcome or funding goal)

This option was perceived as taking the following form in the context of Kangaroo Island SA:

- longer-term and flexible contracts
- redirection of funds to training needs at the local and regional scale
- greater flexibility in funding programs
- continuation of 'long term' project funding under IA CRC (compared to 6 months funding from the state agencies)
- opportunities to apply for additional funding
- IA CRC promoting and lobbying (eg state and federal governments, individuals, big business) to support more appropriate funding regimes
- review the 'graveyard' and collate evidence of the impacts of short-term funding on long-term projects
- present case studies of impacts of short-term funding and use to lobby and put pressure on funding bodies
- streamlined reporting and application processes commensurate with contract size and project duration
- accreditation for successful candidates (recognising groups that have successfully completed and reported on projects) to add weight to subsequent applications for funding
- research to look outside of 'NRM' for ways of improving funding models (eg how to account for good track records in project delivery)
- pooled resources (eg traps, collars, equipment) that can be accessed by others when a project finishes (via a list or database)

3. Best Practice Guidelines (No. 4)

This option was perceived as addressing the following capacity issues:

- summarising complex research into a very readable and practical format
- reducing duplication of effort (everyone not having to work it out for themselves)
- increasing the capacity for incorporation of local knowledge
- helping combat the effects of staff turnover by capturing information in the one spot and providing new staff with information
- giving a mandate when applying for funding
- helping to justify actions

This option was perceived as taking the following form in the context of Kangaroo Island SA:

- workshops and field days with practical demonstrations
- incorporates local knowledge
- not too simplistic or prescriptive so that it can be adapted to the local environment
- presented with case studies
- constantly changing and dynamic
- incorporates trials of best practice management strategies
- feedback facility (online)
- gets information out in a variety of ways to suit particular audiences
- research that adds to best practice to fill the gaps
- keeps up-to-date with new research findings
- recommendations for pest animal control according to seasons, conditions, etc
- best practice 'toolbox' that accounts for local environments and circumstances
- online fora or interactive fora/components that allow posting of queries and comments
- face-to-face delivery with demonstration of practical applications

5.5.4 Overview of regional form of capacity options

This section draws across the three workshops to provide a synopsis of the options discussed in terms of the capacity issues they are perceived to address and their form at regional scale. The options are presented according to the preference order shown in Table 29.

Flexible & Adequate Resourcing Arrangements (No. 10)

The provision of flexible and adequate resourcing arrangements was expected to make a contribution to capacity issues across all dimensions of the conceptual model (Table 31). With respect to human issues, it was perceived as addressing the need for local skills development (K), as well as contributing to greater workforce stability (K) and, with it, retention of corporate knowledge (K). It was also thought to open career paths (K) for regional staff.

Flexible and adequate resourcing arrangements were considered to contribute to addressing a number of social issues, namely maintaining local credibility (L) and networks and relationships (L, K), as well as enabling people to work across a range of interests (K).

From an institutional perspective, this option was anticipated to bring about more locally-directed funding choices and approvals (L, K), simplified accounting processes (L) and greater responsiveness to unexpected and emerging problems and opportunities (L, K). Regions anticipated being better placed to manage resources in an integrated and adaptive way (K).

For economic issues, the option was perceived as providing longer-term project funding (L), as well as addressing funding discontinuities (K) and allowing for access to funds during delays and changes in program conditions (L).

Table 31: Synopsis of capacity issues addressed by flexible and adequate resourcing arrangements

Human	Social		Institutional	Economic
	Cognitive (social norms)	Structural (networks)		
Enable local skills development [K] Staff stability [K] Corporate knowledge retention [K] Provide career paths [K]	Ability to maintain local credibility [L]	Scope to maintain networks and relationships [L, K] People working across a range of interests [K]	Locally directed funding choices and approvals [L, K] Simplified accounting processes [L] Responsiveness to unexpected and emerging problems & opportunities [L, K] Support integrated and adaptive management [K]	Access to funds during delays & changes in conditions [L] Longer-term project funding [L] Address funding discontinuities [K]

Table 32 provides a synopsis of discussions across the two regions about the form of flexible and adequate resourcing arrangements. Resourcing arrangements were characterised in terms of more flexible programs (K), top-up funding opportunities (K), pooled resources (K), funding redirection (K), a long-term emergency funding pool (L) and streamlined reporting and application processes (K).

This option was perceived to improve flexibility and longevity of contracts for both staff and projects (K), with specific mention of continued 'long-term' IA CRC project funding (K). An accreditation process was suggested for giving status to 'successful' project proponents (K), and thereby enhancing their prospects of future funding. The option was further described as creating structures to support adaptive management (L), including a suggestion to put in place response plans for new pests or outbreaks of existing species (L).

This option was characterised as the IA CRC better 'levering' and steering federal agencies and programs (L, K), including using the *PestSmart* toolkit as a trigger for higher resourcing (L). A champion advocate was viewed as an effective approach to increasing the profile of pest animal issues and resourcing levels (L). It was further argued that there was a role for the IA CRC to conduct research on the costs and benefits of flexible and adequate resourcing arrangements (L, K), such as reviewing of past investments and identifying ways of improving funding models. Case studies showcasing project lessons (successes and failures) relating to resource flexibility and adequacy (L, K) were proposed.

Table 32: Synopsis of discussions about the form of flexible and adequate resourcing arrangements

NO.	SYNOPSIS OF KEY POINTS ABOUT 'REGIONAL FORM'	Lachlan NSW	Kangaroo Island SA
1.	More flexibility in funding programs	-	X
2.	Top-up funding opportunities	-	X
3.	Pooled resources	-	X
4.	Ability to redirect funds (eg to regional training)	-	X
5.	Long-term emergency funding pool	X	-
6.	Streamlined reporting and application processes	-	X
7.	Longer-term and flexible contracts (staff & projects)	-	X
8.	Continuation of 'long-term' IA CRC project funding	-	X
9.	Accredited status as 'successful' project proponents	-	X
10.	Structures to support adaptive management	X	-
11.	Response plans for new pests or outbreaks	X	-
12.	IA CRC better 'lever' and steer federal agencies & programs	X	X
13.	Toolkit as a trigger for higher resourcing	X	-
14.	Champion to increase pest animal issues & resourcing	X	-
15.	IA CRC to research costs and benefits of flexible and adequate resourcing arrangements (eg review of past investments, improving funding models)	X	X
16.	Case studies (project success and failure lessons) relating to resource flexibility and adequacy	X	X

Regional Infrastructure and Staff (No. 9)

The provision of regional infrastructure and staff was expected to address issues across all dimensions of the capacity conceptual model (Table 33). In terms of human issues, it was perceived to address the problem of attracting and retaining good staff (L, K), especially in terms of staying to end-of-contract (K). While providing access to specialists (L), this option was also perceived as reducing reliance on external expertise (K), building a pool of local talent (K) and engendering a deeper understanding of local issues (K).

From a social perspective, this option was perceived as addressing the pressure on and workload of staff (L), as well as enabling regional coordinators to come together (L). Several institutional factors were identified. More staff was suggested as providing scope to satisfy OH&S and risk assessment issues (L), such as requirements for field officers to work in pairs. Greater staff stability and longevity was also expected to improve the region's record in project completion and reporting (K), as well as better align decisions with the local context (K).

Regions would like to be in a position to offer prospective and current staff an attractive choice of employment opportunities (K), and would like to experience less pressure and demand on their resource base. Addressing the region's infrastructure and staffing issues was thought to improve the long-term sustainability of its activities (L).

Table 33: Synopsis of capacity issues addressed by regional infrastructure and staff

Human	Social		Institutional	Economic
	Cognitive (social norms)	Structural (networks)		
Access to specialists [L] Reduce reliance on external expertise [K] Staff staying to end-of-contract [K] Deeper understanding of local issues [K] Attract and retain good staff [L, K] Build pool of local talent [K]	Reduce pressure on and workload of staff [L]	Regional coordinators coming together [L]	Improvement in project completion and reporting [K] Alignment of decisions with local context [K] Scope to satisfy OH&S and risk assessment issues [L]	Choice of attractive employment opportunities [K] Reduced pressure on resources [L] Improve project sustainability [L]

Table 34 provides a synopsis of discussions across the two regions about the form of regional infrastructure and staff. This option was characterised as transferring skills to regions (L), and providing access to specialists and networking beyond regions (L, K). Such exchanges were described as being facilitated through practice-based networks (K), interactive fora (eg video and skype conferences) (K), inter-agency activity and collaborations (K), professional development (eg state symposia for practitioners) (K), and websites (K).

This option was further described as regions with greater autonomy (K) and decentralisation of staff and decision-making power (L, K), with access to suitable and reliable equipment (K). It was suggested that staff could be shared between regions (floating staff between offices) (L), with more people wearing 'two hats' (go-betweens) (L). This could be extended to sharing and hiring resources (L, K). While a regional facilitator was seen as necessary in a knowledge gatekeeper capacity (L), this could be supplemented by creating further IA CRC NRM coordinator positions (L) and having frequent visits to regions by city-based scientists (L). Access to a contacts list (eg casual contract workers) (K) was identified as useful.

It was suggested that the IA CRC initiate formal arrangements with regions (L), such as co-managed projects, staff sharing, and the like. The IA CRC was also seen to have a particular role in conducting research on the impacts associated with infrastructure and staff (K), especially in remote settings. Further, it could use research findings to lobby for change in this arena (K), including funds to underpin longer-term contracts (K), and the establishment of a pool of emergency funds (eg as a stop-gap during high staff turnover) (K).

Table 34: Synopsis of discussions about the form of regional infrastructure and staff

NO.	SYNOPSIS OF KEY POINTS ABOUT 'REGIONAL FORM'	Lachlan NSW	Kangaroo Island SA
1.	Skills transfer to regions	X	-
2.	Access to specialists and networking beyond regions	X	X
3.	Practice-based networks	-	X
4.	Interactive fora	-	X
5.	Inter-agency activity and collaborations	-	X
6.	Professional development	-	X
7.	Websites	-	X
8.	Increased regional autonomy	-	X
9.	Decentralisation of staff and decision-making power	X	X
10.	Suitable and reliable equipment	-	X
11.	Staff sharing (floating staff between offices)	X	-
12.	More people wearing 'two hats' (go-betweens)	X	-
13.	Resource sharing and hiring	X	X
14.	A regional facilitator as knowledge gatekeeper	X	-
15.	More IA CRC NRM coordinator positions	X	-
16.	Frequent visits by city-based scientists	X	-
17.	Contacts list		X
18.	Formal arrangements between IA CRC and regions	X	-
19.	IA CRC to research impacts associated with infrastructure and staff	-	X
20.	IA CRC to lobby for change based on research evidence	-	X
21.	Funds to underpin longer-term contracts	-	X
22.	Pool of emergency funds (eg high staff turnover)	-	X

Best Practice Guidelines (No. 4)

The provision of best practice guidelines was expected to address a number of human-related capacity issues (Table 35). They would address the issues of defining best practice and accessibility of this information to end-users (L, D, K), as well as ensuring its currency and reliability (D, K). A guidelines framework was expected to aid end-users in cutting through the complexity of best practice to arrive at simple and practical approaches (K) at different scales of operation (L). In doing so, the guidelines were expected to incorporate and align with local knowledge (K). Best practice guidelines were thought to provide regions with a means of combating knowledge loss from staff turnover (K), and providing ready-made training material (L, K) for new staff and other stakeholders.

In terms of social issues, best practice guidelines were anticipated to support dialogue and interactions between stakeholders, bringing about greater convergence of perspectives and expectations associated with pest animal control (D), as well as better alignment of strategic directions (D).

From an institutional perspective, workshop participants indicated that best practice guidelines would provide a more defensible approach (L, K) to existing and proposed activities, including informing monitoring (L) and ensuring that legal obligations were understood and satisfied (L, D). Guidelines were also thought to address the economic issues of reducing funds wastage and duplication of effort (D, K), reducing the need for training-related expenses (D), and providing a mandate to request funds (K).

Table 35: Synopsis of capacity issues addressed by best practice guidelines

Human	Social		Institutional	Economic
	Cognitive (social norms)	Structural (networks)		
Best practice defined & accessible [L, D, K] Current & reliable information [D, K] Provision of training material [L, K] Framework for reconciling different scales [L] Complexity made simple and practical [K] Incorporation of local knowledge [K] Combat knowledge loss from staff turnover [K]	Convergence of stakeholder expectations [D]	Convergence in strategic directions of regional players [D]	A defensible approach [L, K] Inform monitoring [L] Meet legal obligations [L, D]	Reduced funds wastage & duplication of effort [D, K] Reduced training expenses [D] Mandate to request funds [K]

Table 36 provides a synopsis of discussions across the three regions about the form of best practice guidelines. Guideline were described as something developed by a panel of stakeholders rather than the IA CRC in isolation (L), as well as dynamic, evolving and regularly updated (L, K) and informed by user feedback (eg online facility) (L, K).

Best practice guidelines were described as non-prescriptive and adaptable to the region (L, K), and as a species-focused resource series at different scales (L). Emphasis was given to layering (the bank) of knowledge (L, D, K), including issues, impacts, cost-benefits, outcomes and recommendations. Guidelines were expected to incorporate decision-making frameworks (L), trial and demonstration site results (D, K) local knowledge (D, K) and regional case studies (D, K), as well as support regional monitoring efforts (L). Producing the guidelines was expected to identify gaps to inform the IA CRC's ongoing program of research (L, K).

Best practice guidelines were described as (part of) a hybrid package with the same look and feel (L) with component parts that are tailored for different audiences (L, K). The guidelines would be readily accessible from the web (D), and supported by interactive online fora (K), and field days, practice demonstrations and workshops (L, D, K). Local champions (D) were anticipated to play a strong extension role. The need for materials to support training and educational activities was also expressed (eg video, DVD) (L, D). Guidelines could be supported by access to experts in best practice, including volunteers, through the establishment of a skills register (L).

Table 36: Synopsis of discussions about the form of best practice guidelines

NO.	SYNOPSIS OF KEY POINTS ABOUT 'REGIONAL FORM'	Lachlan NSW	Desert Channels Qld	Kangaroo Island SA
1.	Guideline development by panel (not just IA CRC)	X	-	-
2.	Dynamic, evolving & regularly updated	X	-	X
3.	Informed by user feedback (eg online facility)	X	-	X
4.	Non-prescriptive best practice adaptable to the region	X	-	X
5.	Species-focused resource series at different scales	X	-	
6.	Layered bank of knowledge (issues, impacts, cost-benefits, outcomes, recommendations)	X	X	X
7.	Incorporates decision-making frameworks	X	-	-
8.	Incorporates trial & demonstration site results	-	X	X
9.	Local knowledge embedded	-	X	X
10.	Regional case studies	-	X	X
11.	Supports regional monitoring	X	-	-
12.	Ongoing research to fill gaps (eg species recovery)	X	-	X
13.	A hybrid package (looks and feels the same)	X	-	-
14.	Tailoring for different audiences	X	-	X
15.	Web-based (readily accessible)	-	X	-
16.	Interactive online fora	-	-	X
17.	Field days, practice demonstrations & workshops	X	X	X
18.	Extended by local champions	-	X	-
19.	Training and educational materials (eg video, DVD)	X	X	-
20.	Skills register	X	-	-

Team & Collaborative Relationship Building (No. 17)

This section summarises the outcomes from discussions with Desert Channels Qld. Table 37 shows that team and collaborative relationship building has the potential to address issues across the spectrum of dimensions. In terms of human issues, workshop participants characterised this option as contributing to sharing project learnings, engaging with new people, developing awareness and education, and generating new ideas.

The option was perceived as making a significant contribution to addressing social issues. In terms of cognitive aspects, it was framed as breaking new ground, bridging the 'them' and 'us' mentality, and removing the blame game. At the structural level, it was characterised as maintaining and expanding networks, moving beyond the usual (homogenous) players and bringing together teams. Two points were raised in terms for institutional and economic issues respectively, namely players working towards shared goals and sharing scarce resources.

Table 37: Synopsis of capacity issues addressed by team and collaborative relationship building

Human	Social		Institutional	Economic
	Cognitive (social norms)	Structural (networks)		
Sharing project learnings	Breaking new ground	Network maintenance & expansion	Players working towards shared goals	Sharing scarce resources
Engaging with new people	Bridging the 'them' and 'us' mentality	Moving beyond the usual (homogenous) players		
Developing awareness and education	Removing the blame game	Bringing together teams		
Generating new ideas				

Table 38 provides a synopsis of the form of team and collaborative relationship building. This option was described as big picture thinking fostered by strong leadership, including informing up from the region to higher levels of decision-making. United teams producing better results, including improvements in strategic plans and cross-boundary working relationships, were anticipated to emerge.

The option was further characterised as sharing limited resources and reducing the incidence of duplication. Identifying and promoting the benefits of cooperation was also identified as a potential area of research. It was suggested that the option could comprise mentoring opportunities and information sharing groups (such as Shire Rural Lands Officers Group), as well as utilisation of expertise within organisations.

Team and collaborative relationship building was described as supporting staff development (or 'growth') and promotion, including giving due credit and facilitating quiet achievers. Specific mention was made of improving the selection criteria and pay conditions for RLOs.

Table 38: Synopsis of discussions about the form of team and collaborative relationship building

NO.	SYNOPSIS OF KEY POINTS ABOUT 'REGIONAL FORM'
1.	Big picture thinking
2.	Strong leadership fostered
3.	Informing up
4.	United teams that produce results
5.	Better strategic plans
6.	Better cross-boundary working relationships
7.	Shared limited resources
8.	Less duplication
9.	Research and promote the benefits of cooperation
10.	Mentoring opportunities
11.	Information sharing groups
12.	Use experienced people within organisations
13.	People 'growing' and getting promoted
14.	Giving due credit
15.	Quiet achievers supported
16.	Better selection criteria and pay conditions for RLOs

Models, Decision Support Systems & GIS (No. 28)

This section summarises the outcomes from discussions with Desert Channels Qld. Table 39 shows that the capacity issues addressed by models, decision support systems and GIS are of a human and institutional nature. From a human perspective, the option was described as making a contribution to information and knowledge through data storage and retrieval. It was further said to realise more effective communication, strong engagement and participation, and build stakeholder capacity. In institutional terms, models, decision support systems and GIS were perceived as supporting better planning outcomes.

Table 39: Synopsis of capacity issues addressed by models, decision support systems and GIS

Human	Social		Institutional	Economic
	Cognitive (social norms)	Structural (networks)		
More effective communication			Better planning outcomes	
Strong engagement & participation				
Data storage & retrieval facility				
Build stakeholder capacity				

Table 40 provides a synopsis of the regional form of models, decision support systems and GIS articulated by workshop participants at Desert Channels Qld. This option was characterised as being designed for non-technical users and able to be applied as an engagement tool, including for property planning and with aerial views of properties to inform management.

The regions were described as data suppliers and users, which extended to in-the-field data collection (eg using GPS). Local knowledge was perceived as integral to creating accurate and up-to-date maps, as was the need for ground-truthing by locals.

The option was characterised as pulling data across organisations and, at the same time, addressing issues around data access agreements. Significant benefits were seen to arise from providing capacity to geo-reference to data, photographs, reports and the like. A strong connection to regional monitoring and reporting was also articulated, as was informing the development of project proposals.

Table 40: Synopsis of discussions about the form of models, decision support systems and GIS

NO.	SYNOPSIS OF KEY POINTS ABOUT 'REGIONAL FORM'
1.	Designed for non-technical users
2.	Engagement tool
3.	Property planning tools
4.	Aerial view of properties to inform management
5.	Regions as data suppliers not just users
6.	In-the-field data collection
7.	Local knowledge for accurate and up-to-date maps
8.	Ground-truthing by locals
9.	Pull data across organisations
10.	Data access agreements
11.	Geo-referencing to data, photographs, reports, etc
12.	Underpins regional monitoring and reporting
13.	Informs project proposals

6. Conclusions & Recommendations

This chapter is structured in two parts based on the main (inter-related) elements of the research; firstly, on the *PestSmart* toolkit and, secondly, on capacity building.

6.1 *PestSmart* toolkit

The *PestSmart* toolkit was described in the IA CRC research proposal as 'a package of information that will distil the IA CRC's 7-year research program findings into practical planning and control actions that will improve pest animal control, and reduce their impacts both at the property and regional levels'. The focus of this sub-project is 'at the regional level'.

The research conduct suggests that the term 'toolkit' is too constraining, and may be too literally interpreted as a discrete and tangible set of tools. Feedback indicated the need for a set of dynamic and interactive tools, which regional players both make use of and contribute to, integrated with a suite of delivery mechanisms. 'Get *PestSmart'* is suggested as an alternative label as it implies 'actions' rather than simply 'products'.

> **Recommendation 1:** Change '*PestSmart* toolkit' to 'Get *PestSmart'*.

All regions characterised the *PestSmart* toolkit as being a central repository (one-stop-shop) for seeking up-to-date and reliable data and information about pest animal management across a wide range of topics and product types (eg maps, guidelines, codes, fact sheets, legislation, case studies, demonstration sites, risk assessments). It was therefore perceived as extending beyond findings of the IA CRC's 7-year research program. While the CRC's information was seen as the core of the 'toolkit', it was not characterised as the only component. Links were identified as playing an important role in connecting to some non-IA CRC information.

> **Recommendation 2:** The *PestSmart* 'toolkit' should be developed and promoted as a one-stop-shop (beyond just IA CRC research) for up-to-date and reliable data and information on pest animals across a wide range of topics and product types.

Workshop participants characterised the 'toolkit' as something that was flexible and evolving rather than remaining static over time, such as updating and removing out-of-date information and materials. The regions saw themselves not only as information users but also as active contributors. While the term 'end-user' is used throughout this report (in line with the sub-project proposal), this language mischaracterises the role of regional players as merely users or recipients of information in what needs to be a multi-directional process of information exchange and learning.

> **Recommendation 3:** The *PestSmart* 'toolkit' should be dynamic, and provide interactive engagement pathways with regional players as more than 'users' of information.

The 'toolkit' was described as reflecting and responding to the region's particular interests, needs and contexts and as informing decision-making at different scales. Examples included 'informing up' to state and national levels, improving integration across regional plans, revising regional plans and targets, allocating resources, prioritising control activities and preparing project proposals. The inclusion of local knowledge (eg local case studies, regional research priorities, spatial data for map

products) and processes (eg MERI, ground-truthing) was viewed as an important way of realising regional relevance.

> **Recommendation 4:** The *PestSmart* 'toolkit' should be regionally-relevant and inform different scales and types of decision-making.

The 'toolkit' was perceived as embodying both traditional and non-traditional knowledge sources. The need to present a balanced perspective across (biophysical, social, economic) and within (eg emerging vs established species) disciplinary arenas was also highlighted.

> **Recommendation 5:** The *PestSmart* 'toolkit' should embody traditional and non-traditional knowledges, and provide a balanced perspective across and within disciplinary arenas.

The concept of layered or tiered levels of information from key messages and synopses through to highly technical information was a strong message arising from workshop deliberations. Further, pathways for accessing deeper levels of information needed to be obvious and rapid. It was noted that certain types of information should not be excluded, such as project failures or technical reports with small readerships.

> **Recommendation 6:** The *PestSmart* 'toolkit' should be simply structured with increasing levels of detail, and not exclude particular categories of information.

The information product types survey indicated that respondents placed some additional value on presenting information in both hybrid and series forms, especially in the case of the latter. Workshop feedback clearly indicated that the 'toolkit' should be a hybrid concept in both form and delivery. Within the overall package, scope exists for integrating some 'series' elements. The research provides some evidence to support series-based best practice guidelines (discussed further in the recommendations that follow) and fact sheets.

The information product types survey suggested a very positive response overall for fact sheets. Fifty per cent indicated that they use fact sheets often, and a further 43 per cent indicated 'sometimes'. Forty per cent saw themselves using fact sheets more in the future. Fact sheets scored highly ('very good' and 'excellent') for technical reliability (73 per cent), ease of understanding (90 per cent), ease of access (80 per cent), ease of application (77 per cent) and motivational impact (67 per cent). Fact sheets and summary booklets were the only product types of the 23 listed that did not score any negative results for motivational impact.

> **Recommendation 7:** The *PestSmart* 'toolkit' should be a hybrid package incorporating some series-based elements, including fact sheets and best practice guidelines.

Feedback suggested that websites are the only information product type currently used by all survey respondents to inform their work as NRM managers and pest animal controllers at regional level. Two-thirds of respondents indicated that they often make use of websites, and the remainder 'sometimes'. No respondents indicated using websites less in the future, while 50 per cent anticipated increasing their level of use. Websites rated most highly in the information products survey in terms of ease of access.

> **Recommendation 8:** The main structural platform for 'Get *PestSmart'* should be web-based.

The main points arising with respect to the information content of the 'toolkit' (see section 4.1) may be described as case study lessons on successes and failures, best practice (and 'must do' actions), pest animal ecology at regional and property scales, and impacts of pest animals and from the control options applied to manage them.

The capacity building surveys indicated positive responses for both (best practice) guidelines and for case studies (and storytelling), with preferences ranked at third and fifth place respectively for the period to June 2012. All workshops chose to discuss the potential form of best practice guidelines in detail (see section 5.4).

Support for guidelines is further indicated in the results of the information product types survey, with more than half of all respondents currently using guidelines 'often', and one third anticipating that their future use will increase. Interestingly, guidelines were rated lower for technical reliability than fact sheets.

> **Recommendation 9:** Development of the *PestSmart* 'toolkit' should give particular attention to the following aspects of information content: case study lessons on successes and failures, best practice (and 'must do' actions), pest animal ecology at regional and property scales, and impacts of pest animals and from the control options applied to manage them.
>
> **Recommendation 10:** Development of the *PestSmart* 'toolkit' should also consider the additional points presented in Table 13 summarising feedback on information content.

In the case of information presentation (see section 4.2), respondents favoured a suite of face-to-face events, recipe style products on specific species, e-newsletters and e-updates, and an interactive mapping facility.

The information product types survey provides further support to some of these presentation forms. Guidelines, as one type of recipe style product, have already been discussed. About one third of respondents reported using e-newsletters 'often' (more so in the case of emailed newsletters than those online). Importantly, almost one quarter indicated never accessing an online newsletter. About one third of respondents saw themselves using e-newsletters (both emailed and online) more in the future. Emailed newsletters were one of four product types that rated highly for ease of access.

Data from both survey instruments under the umbrella of 'models, decision support systems and GIS' lend some support to an interactive mapping facility. At least one third of respondents indicated that they often used models, decision support systems and GIS, and it was the highest-ranking option in terms of future use. While a popular but middle ranking option overall in the capacity building survey (both in terms of support and preferences), the option was selected at the Desert Channels Qld workshop for more detailed discussion about regional form.

> **Recommendation 11:** Development of the *PestSmart* 'toolkit' should give particular attention to the following forms of information presentation: a suite of face-to-face events, recipe style products on specific species, e-newsletters and e-updates, and an interactive mapping facility.
>
> **Recommendation 12:** Development of the *PestSmart* 'toolkit' should consider the points presented in Table 17 summarising feedback on information presentation.

Recommendation 13: Note the specific feedback on the regional form of the capacity option 'models, decision support systems and GIS' provided at section 5.5.4 arising from Desert Channels Qld.

Remoter regions gave particular weight to face-to-face information exchange and learning, as well as other interactive and visual styles of learning, such as webinair, videos and through local champions. Products (whether hardcopy and electronic) were perceived as secondary in some contexts, as well as excluding of some learning styles (eg non-computer users, hands-on learners).

Recommendation 14: The central importance of face-to-face and interactive approaches to information exchange in some regional contexts is strongly emphasised, and reliance on hardcopy and electronic products in such cases as the primary information exchange mechanism is not recommended.

In terms of newer technologies, data on current use suggested that a majority of respondents (50 per cent or more) never use podcasts, social networking or wiki-sites. However, in the case of podcasts, 50 per cent of respondents indicated that they expected their future use to be greater (compared to 23 and 40 per cent respectively for wiki-sites and social networking). The potential value of these information product types should not necessarily be discounted, as survey responses may be more of a reflection of the extent to which these modes of communication are currently available to support pest animal management rather than their efficacy.

Recommendation 15: A review of research on the efficacy of new technologies, such as podcasts, as vehicles for information exchange and learning is recommended, as well as trials in the specific context of pest animal management.

Workshop deliberations about what to avoid in the content and presentation of the 'toolkit' identified a long list of points (see section 4.3). The highest scoring cohort of suggestions was promoting outdated and/or unverified ideas, presenting language and ideas in ways that are unsuitable and/or oversimplified, and using complex forms of presentation when there are more simple alternatives available.

The next cohort of high scoring suggestions identified the need to avoid making some information unavailable (including about project failures); having pathways to information and authors that are absent, unclear or unattractive; and presenting information that is too long and/or cluttered, and without shortcut pathways to key findings/messages. These findings align with the concept of a simply structured 'toolkit' with increasing levels of detail (Recommendation 6) and the case study lessons on successes and failures (Recommendation 9).

Recommendation 16: Development of the *PestSmart* 'toolkit' should give particular attention to avoiding the following: promoting outdated and/or unverified ideas, presenting language and ideas in ways that are unsuitable and/or oversimplified, and using complex forms of presentation when there are more simple alternatives available.

Recommendation 17: Development of the *PestSmart* 'toolkit' should also consider the points presented in Table 21 summarising feedback on what to avoid with respect to information content and presentation.

6.2 Capacity building

Capacity issues identified across all regions were: (1) low interest and/or apathy of the public (social: cognitive), (2) over-work and burnout (social: cognitive), (3) poor policy direction and cross-agency coordination (institutional), and (4) planning and expenditure driven by political terms and financial models. This is not to suggest that these points necessarily represent the greatest impediment to managing the impacts of pest animals, but to imply that these issues may be universal ones for regional actors.

> **Recommendation 18:** In working to build regional capacity, the IA CRC should give particular consideration to the following issues: low public interest and/or apathy, over-work and burnout, poor policy direction and cross-agency coordination, and planning and expenditure driven by political terms and financial models.

The research identified similarities between Desert Channels Qld and Kangaroo Island SA in the case of the social (cognitive) issues identified in terms of: (1) expectations of always being 'on the job', (2) low morale from lack of support and recognition, (3) blaming agencies for problems, (4) misconception about the role of agencies, (5) the power of old paradigms, and (6) commitment of absentee landholders. Some, but not necessarily all, of these issues relate to operating in the context of a small and remote community.

> **Recommendation 19:** The research suggests the need to give special consideration to the unique social (cognitive) characteristics of capacity issues in remoter settings.

The following points (identified in two workshops) are potentially indicative of issues experienced more broadly. For human-related capacity issues, the points are: (1) staffing levels to deliver programs, (2) high inputs to work with landholders and volunteers, (3) attracting and retaining staff, (4) training availability, and (5) knowledge and technical gaps.

There are no further points for social (cognitive), but an additional three for social (structural), namely working relationships between major regional actors, distance constrains interactions, and limited opportunities to share ideas and lessons. Finally, the two economic issues identified were limited funds for staff and onground works, and infrastructure to manage pest movements.

> **Recommendation 20:** In working to build regional capacity, the IA CRC should refer to the synopsis of capacity issues shown in Table 28 across human, social, institutional and economic dimensions.

The most supported options overall were regional infrastructure and staff, flexible and adequate resourcing arrangements, and team and collaborative relationship building. The next cohort of popular options is personal and professional development, best practice guidelines, and case studies and storytelling. These findings correlate with the capacity issues identified by workshop participants.

Recommendation 21: The most supported options overall were, in order, regional infrastructure and staff; flexible and adequate resourcing arrangements; team and collaborative relationship building; personal and professional development; best practice guidelines; and case studies and storytelling.

For the period to June 2012 (current IA CRC term), the highest preferences were for flexible and adequate resourcing arrangements (68 votes) and regional infrastructure and staff (67 votes), followed by best practice guidelines (61.5 votes), team and collaborative relationship building (45 votes), information and research compendia (34.5 votes) and case studies and storytelling (32 votes).

For the period from July 2012 (prospective new IA CRC term), the first four preferences remained in the same order, however, some strengthen and others weaken: flexible and adequate resourcing arrangements (80 votes); regional infrastructure and staff (79 votes), best practice guidelines (49 votes) and team and collaborative relationship building (36 votes). Information and research compendia (22 votes) and case studies and storytelling (25 votes) were replaced in fourth and fifth positions by models, decision support systems and GIS (27 votes) and computer-based information exchange (27 votes).

It is relevant to note that information and research compendia did not score any votes for Desert Channels Qld (for the period to June 2012), as was the case for computer-based knowledge exchange in Lachlan NSW (for both periods).

Recommendation 22: The four most preferred options for both the period to June 2012 (current IA CRC term) and from July 2012 (prospective new IA CRC term) were, in order, flexible and adequate resourcing arrangements; regional infrastructure and staff; best practice guidelines; and team and collaborative relationship building.

Recommendation 23: The fifth and sixth most preferred options for the period to June 2012 (current IA CRC term) were information and research compendia and case studies and storytelling, but noting that no votes were scored for the former in the case of Desert Channels Qld.

Recommendation 24: The fifth and sixth most preferred options for the period from July 2012 (prospective new IA CRC term) were models, decision support systems and GIS, and computer-based information exchange, but noting that no votes were scored for the latter in the case of Lachlan NSW.

All workshops chose to discuss best practice guidelines. Regional infrastructure and staff, and flexible and adequate resourcing arrangements were discussed by both Lachlan NSW and Kangaroo Island SA. Desert Channels Qld deliberated on team and collaborative relationship building, and models, decision support systems and GIS. Section 5.5.4 provides summary tables of the capacity issues these options were anticipated to address, and suggestions about the regional form they may take.

Recommendation 25: The IA CRC should refer to section 5.5.4 for further information on implementing the most preferred options, including summary tables of the capacity issues these options were anticipated to address, and suggestions about the form they may take at regional level.

7. References

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Appendix A: End-user Adoption Research Workshop Participants

1. Alex Bagnara	IA CRC Comms. Manager	Managing communications, PestSmart toolkit brand identify, and involved with feral.org.au upgrade
2. Jeanine Baker	Bureau of Rural Sciences	Manages APAMP program
3. Guy Ballard	Industry and Investment NSW	Wildlife management researcher working on NSW/Qld wild dog demo. site
4. Mike Braysher	University of Canberra	Convener of PESTPLAN diploma
5. Helen Cathles	Chair, IA CRC Board	Expert in regional wild dog management
6. Anna Carr	BRS	Social scientist working on PAPP stakeholder
7. Peter Fleming	Industry and Investment NSW	Project leader of NSW/Qld wild dog demo. site
8. Jessica Gibson (Apology)	IA CRC NRM facilitator	Assist Lisa Robins with NRM end-user group project
9. Andreas Glanznig	IA CRC COO	Facilitating development of cross-program coherent approach to IA CRC's social research and uptake strategy
10. Sascha Groeneweg	IA CRC Uptake Program	Lead researcher on IA CRC end-user profiles and existing pest animal control capacity building and information tools
11. Quentin Hart	Bureau of Rural Sciences	Pest animal policy and program expert
12. Jo Keogh	University of Canberra	Project leader – Feral Focus schools program
13. Steve Lapidge	IA CRC Program Leader - Uptake Program Program	Mgt responsibility for uptake strategy
14. Elaine Murphy	IA CRC Program Leader – Detection and Prevention Program	Mgt responsibility for coordinating IA CRC social research
15. Lisa Robins	Robins Consulting	Lead consultant on NRM
16. Glen Saunders	Industry and Investment NSW	Pest animal policy and program expert
17. Dedee Woodside	IA CRC Board member	Expert in community capacity building

Appendix B: Contents Page of Options Paper

Robins L (2010). *An Options Paper on Capacity Building for Pest Animal Control*. Robins Consulting, Canberra.

CONTENTS

Appendix C: Information Products Survey

Session 1: Informing the development of the *PestSmart* toolkit

Products		Do you use this type of product to inform your work?	What is your experience of this type of information product in terms of …					In 5 years time, do you expect to be using this sort of product …
			Technical Reliability	Ease of Understanding	Ease of Access	Ease of Application	Motivational Impact	
Hardcopy Products								
1	Books	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
2	Journal Articles	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
3	Workshop Proceedings	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
4	Research Reports	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
5	Research Compendia & Directories	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
6	Summary Bulletin	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
7	Guidelines	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
8	Fact Sheets	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
9	Brochures & Flyers	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
10	Newspaper Articles	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
11	Magazines (free)	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
12	Magazines (paid)	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
13	Newsletters (hardcopy)	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
14	Artwork & Photography	N S O	NA	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
Electronic & Audio Products								
15	CDs/DVDs (non-radio)	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
16	Video/DVDs/Documentaries	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
17	Models, DSS & GIS	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
18	e-Newsletters (online)	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
19	e-Newsletters (emailed)	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
20	Websites	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
21	Wiki-sites	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
22	Podcasts	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M
23	Social Networking	N S O	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	L S M

Value-adding
What value do you think is added to an information product by developing and presenting it as: A series: 1 2 3; A hybrid package: 1 2 3

Table Key

Do you use this type of product to inform your work?

N=never; S=sometimes; O=often

What is your experience of this type of information product in terms of …

Technical Reliability = the technical and/or scientific quality and standing of the information

Ease of Understanding = the readability or comprehensibility of the language (eg technical terms, attention to editing) and style of presenting the information (eg graphs, photos)

Ease of Access = the ease of getting or finding information within the product itself

Ease of Application = the ease of using or applying the information in-practice; it's practical utility or efficacy

Motivational Impact = the degree to which the information is likely to change thinking and/or practice

1= very poor; 2=poor; 3=satisfactory; 4=very good; 5=excellent

In 5 years time, do you expect to be using this sort of product …

L=less; S=about the same; M=more

Value-adding

1= no value added; 2=some value added; 3=significant value added

Appendix D: Capacity Building Surveys

NAME: _____ REGION: _____

Capacity Building Measures

In the context of <u>your region</u>, indicate the extent to which you support each of the following options as a way of building the capacity of regional NRM managers and regional pest control officers to manage the impacts of pest animals at the regional level *(by marking an 'X' in only one box for each and every statement)*	Strongly Support	Support	Don't Know	Against	Strongly Against
1. Protocols					
2. Legislative, Constitutional & Policy Frameworks					
3. Risk Standards & Guidelines					
4. Best Practice Guidelines					
5. Environmental Standards					
6. Performance Measures & Reporting					
7. Information Centre					
8. Training Facility					
9. Regional Infrastructure & Staff					
10. Flexible & Adequate Resourcing Arrangements					
11. Briefings & Debriefings					
12. Policy Decision-making Processes					
13. Quality or Process Improvement Methods					
14. Quality Improvement or Learning Collaboratives					
15. Audit & Feedback					
16. Recognition & Service Awards					
17. Team & Collaborative Relationship Building					
18. Competency-based Training					
19. Academic Detailing					
20. Exercises					
21. Personal & Professional Development					
22. Mentoring & Coaching					
23. Local Opinion Leaders					
24. Registers					
25. Information & Research Compendia					
26. Case Studies & Storytelling					
27. Models, Decision Support Systems & GIS					
28. Computer-based Knowledge Exchange					

NAME: _____ REGION: _____

Capacity Building Measures

In the context of your region, select the six options that you consider to be the most important for building the capacity of regional NRM managers and regional pest control officers to manage the impacts of pest animals at the regional level:

(a) for implementation between now and June 2012 (at the conclusion of the IA CRC), and

(b) for implementation from 1 July 2012 (in any future CRC).

Fill out both columns, rank each from 1 (most important) to 6 (least important):

No.	Capacity Building Option	Now to Jun 2012	From July 2012
1.	Protocols		
2.	Legislative, Constitutional & Policy Frameworks		
3.	Risk Standards & Guidelines		
4.	Best Practice Guidelines		
5.	Environmental Standards		
6.	Performance Measures & Reporting		
7.	Information Centre		
8.	Training Facility		
9.	Regional Infrastructure & Staff		
10.	Flexible & Adequate Resourcing Arrangements		
11.	Briefings & Debriefings		
12.	Policy Decision-making Processes		
13.	Quality or Process Improvement Methods		
14.	Quality Improvement or Learning Collaboratives		
15.	Audit & Feedback		
16.	Recognition & Service Awards		
17.	Team & Collaborative Relationship Building		
18	Competency-based Training		
19.	Academic Detailing		
20.	Exercises		
21.	Personal & Professional Development		
22.	Mentoring & Coaching		
23.	Local Opinion Leaders		
24.	Registers		
25.	Information & Research Compendia		
26.	Case Studies & Storytelling		
27.	Models, Decision Support Systems & GIS		
28.	Computer-based Knowledge Exchange		

Appendix E: Product Survey Results by Region

Lachlan NSW

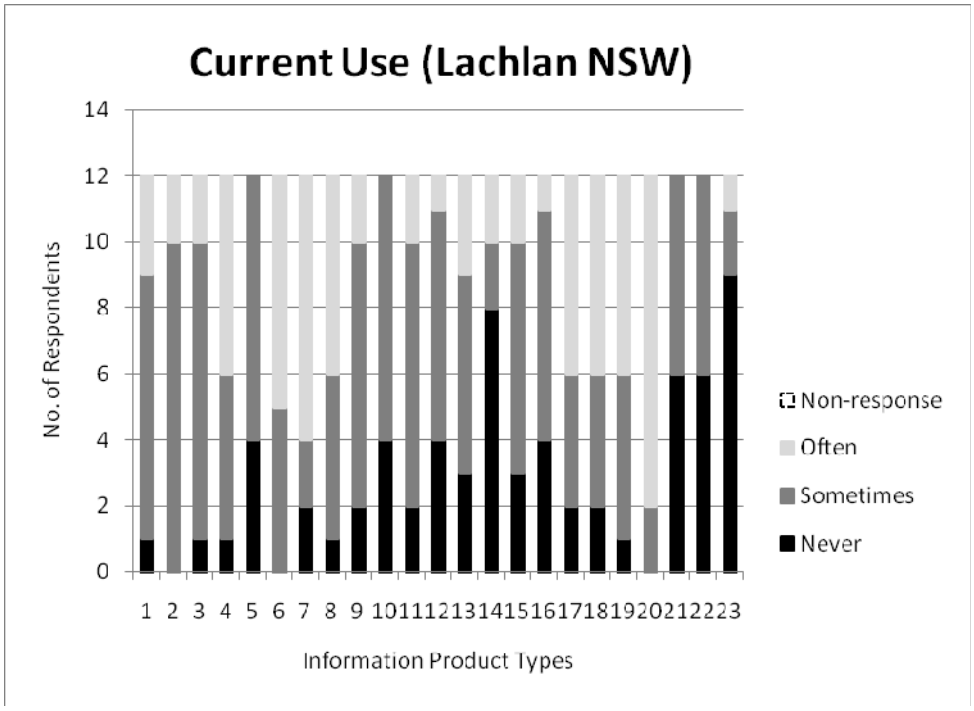


Figure 21: Current use of specific information product types by NRM managers and pest animal controllers at regional level (Lachlan NSW)

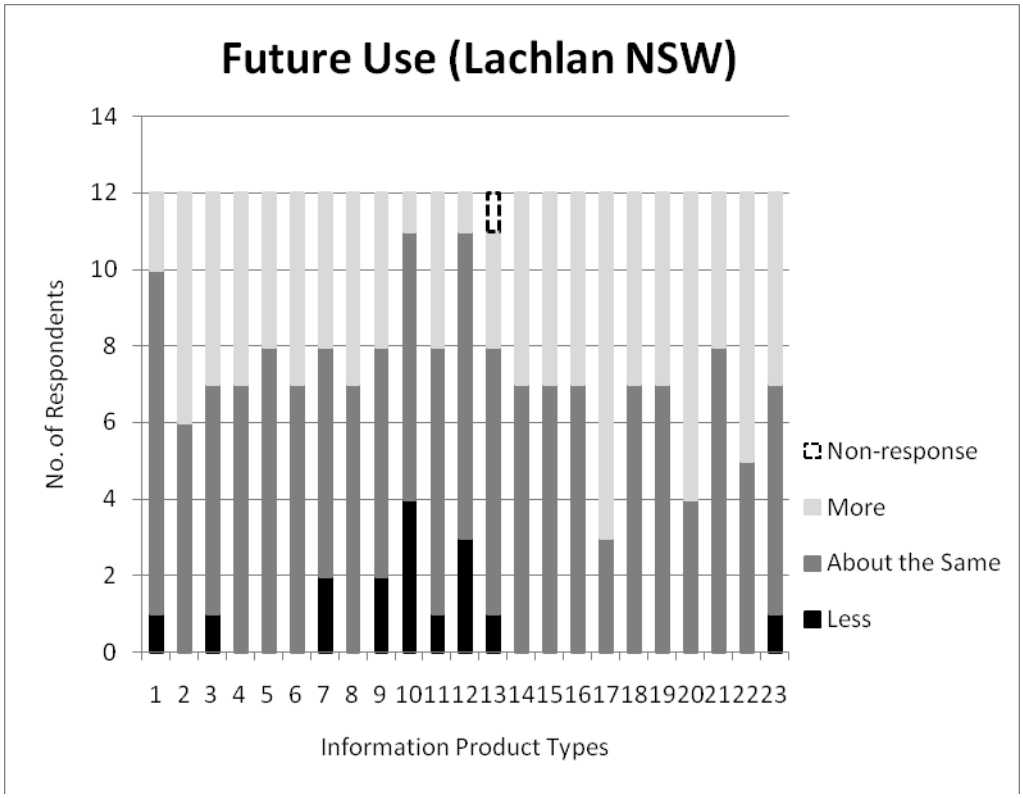


Figure 22: Future use of specific information product types by NRM managers and pest animal controllers at regional level (Lachlan NSW)

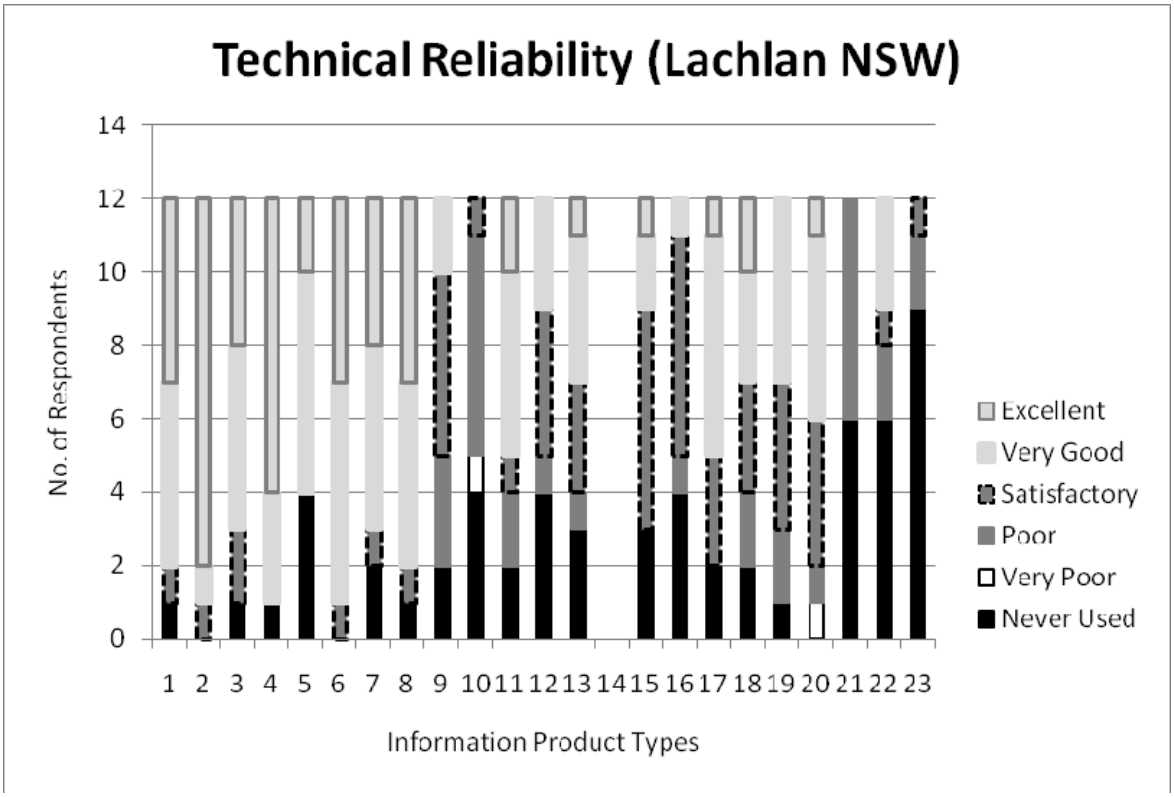


Figure 23: Technical reliability of specific information product types by NRM managers and pest animal controllers at regional level (Lachlan NSW)

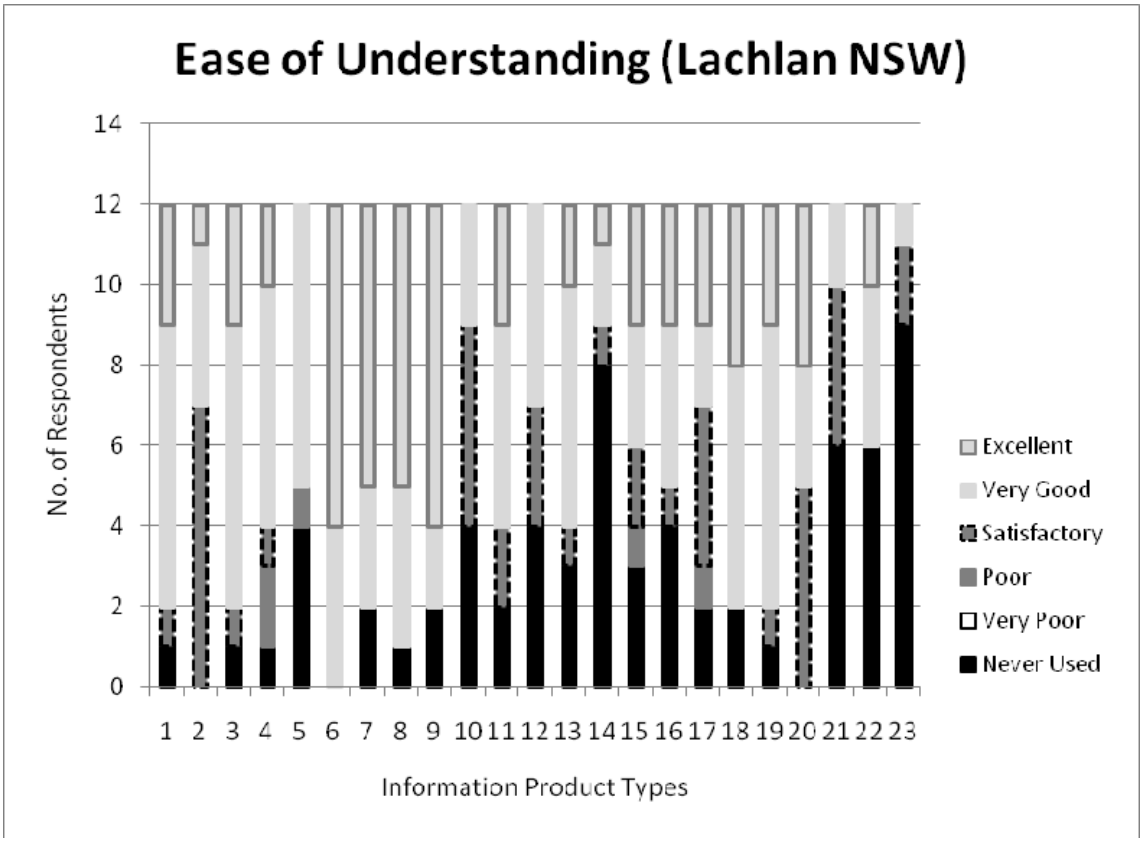


Figure 24: Ease of understanding of specific information product types by NRM managers and pest animal controllers at regional level (Lachlan NSW)

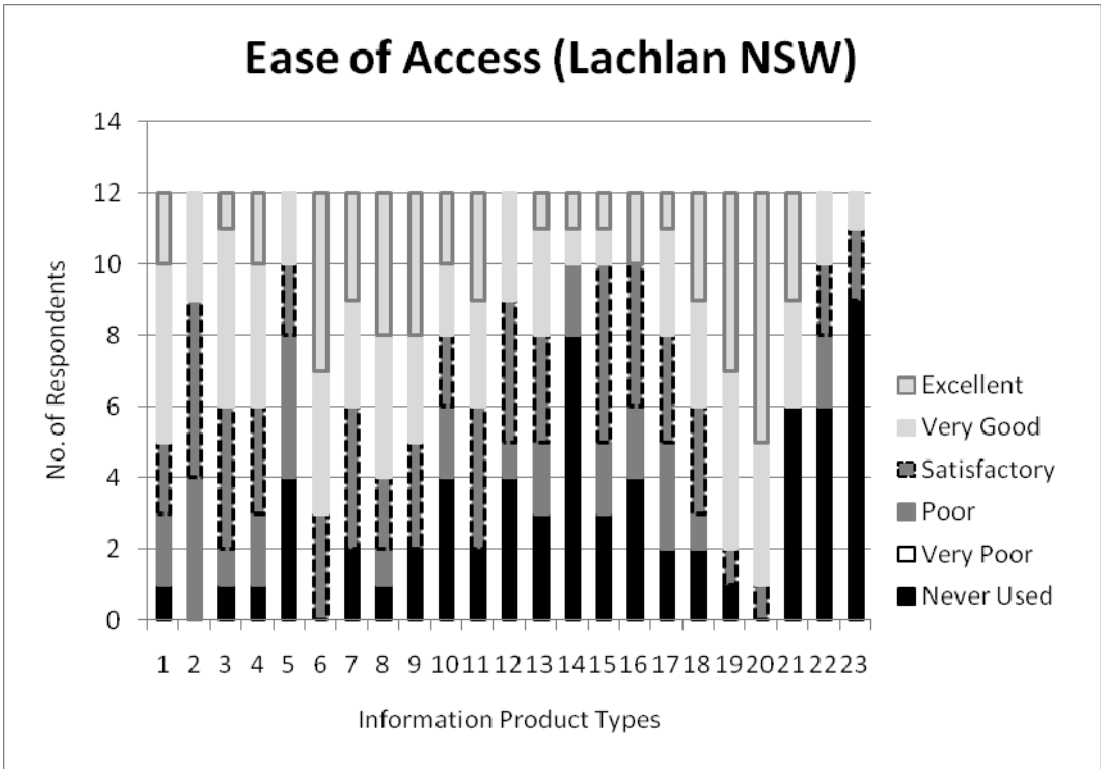


Figure 25: Ease of access of specific information product types by NRM managers and pest animal controllers at regional level (Lachlan NSW)

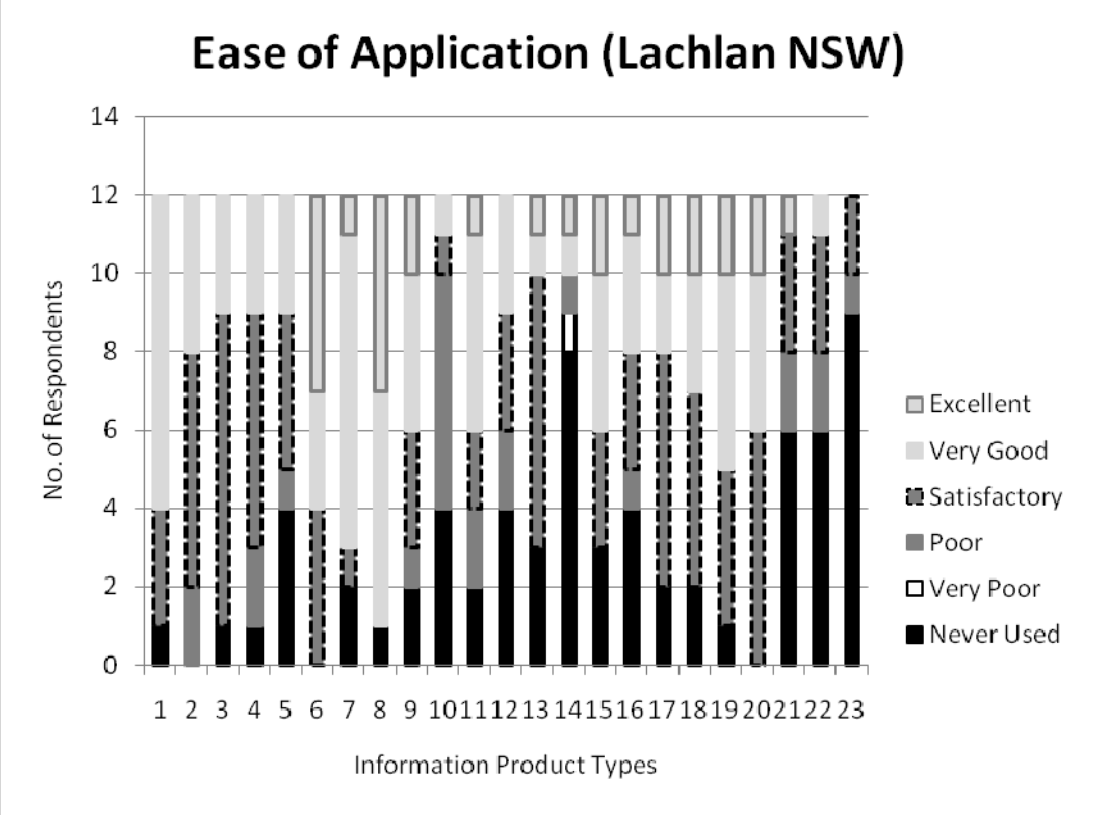


Figure 26: Ease of application of specific information product types by NRM managers and pest animal controllers at regional level (Lachlan NSW)

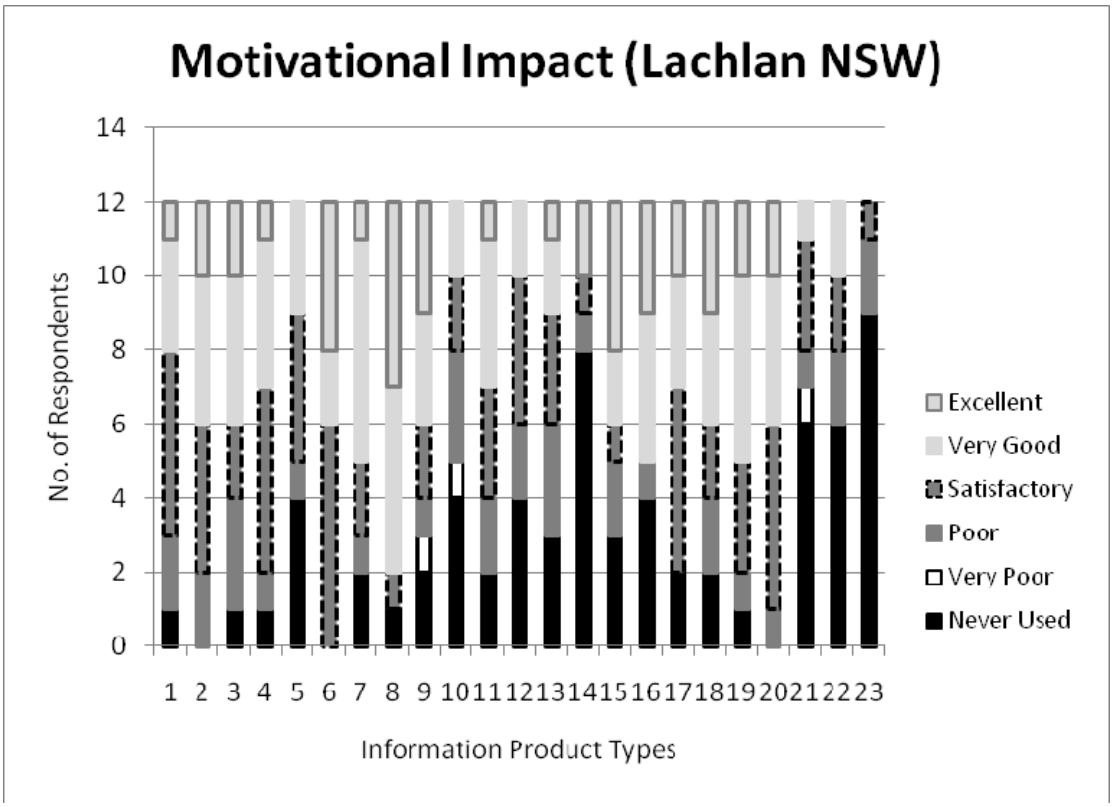


Figure 27: Motivational impact of specific information product types by NRM managers and pest animal controllers at regional level (Lachlan NSW)

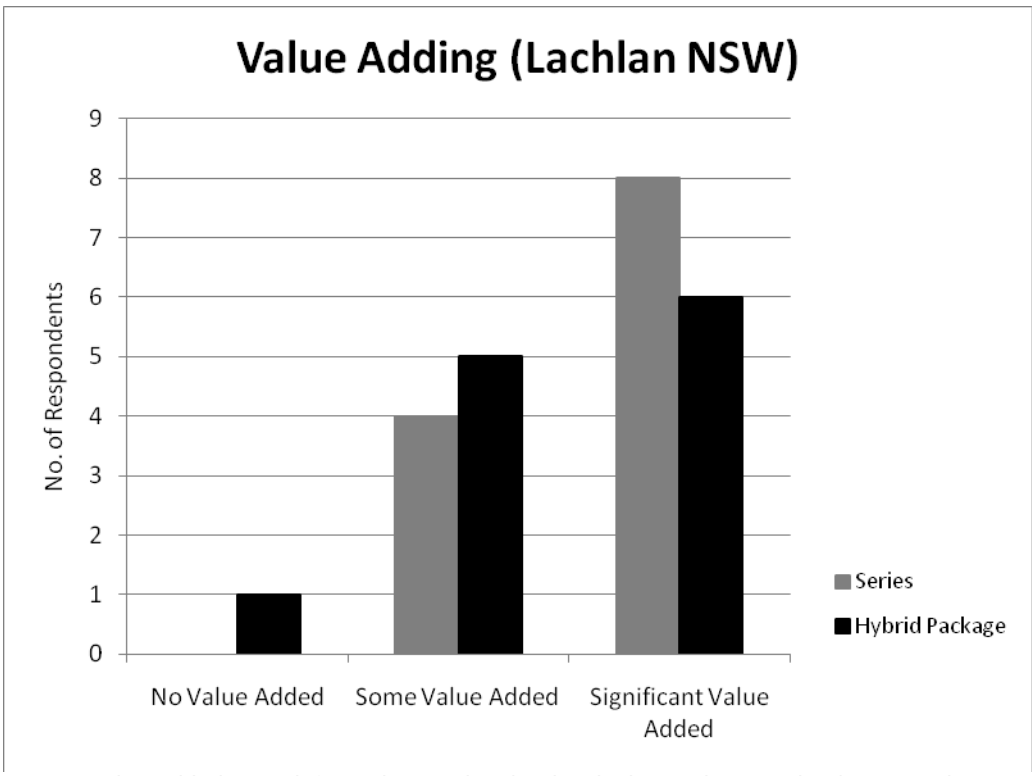


Figure 28: Value added to an information product by developing and presenting it as a series or a hybrid package (Lachlan NSW)

Desert Channels Qld

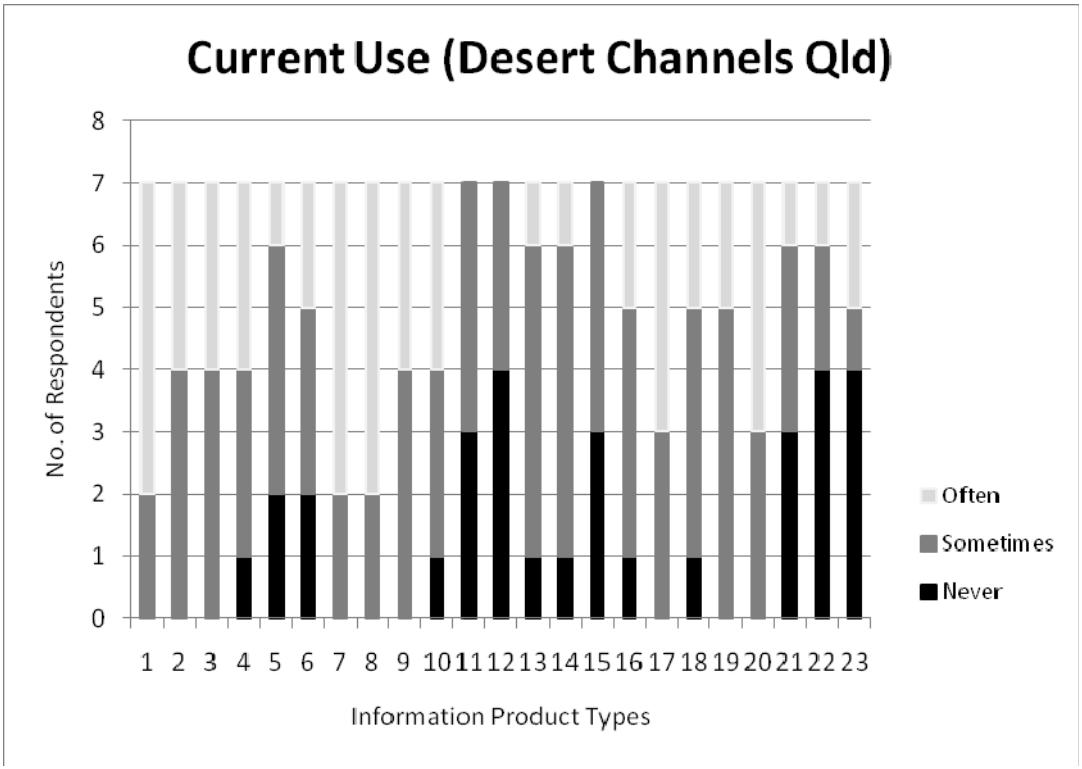


Figure 29: Current use of specific information product types by NRM managers and pest animal controllers at regional level (Desert Channels Qld)

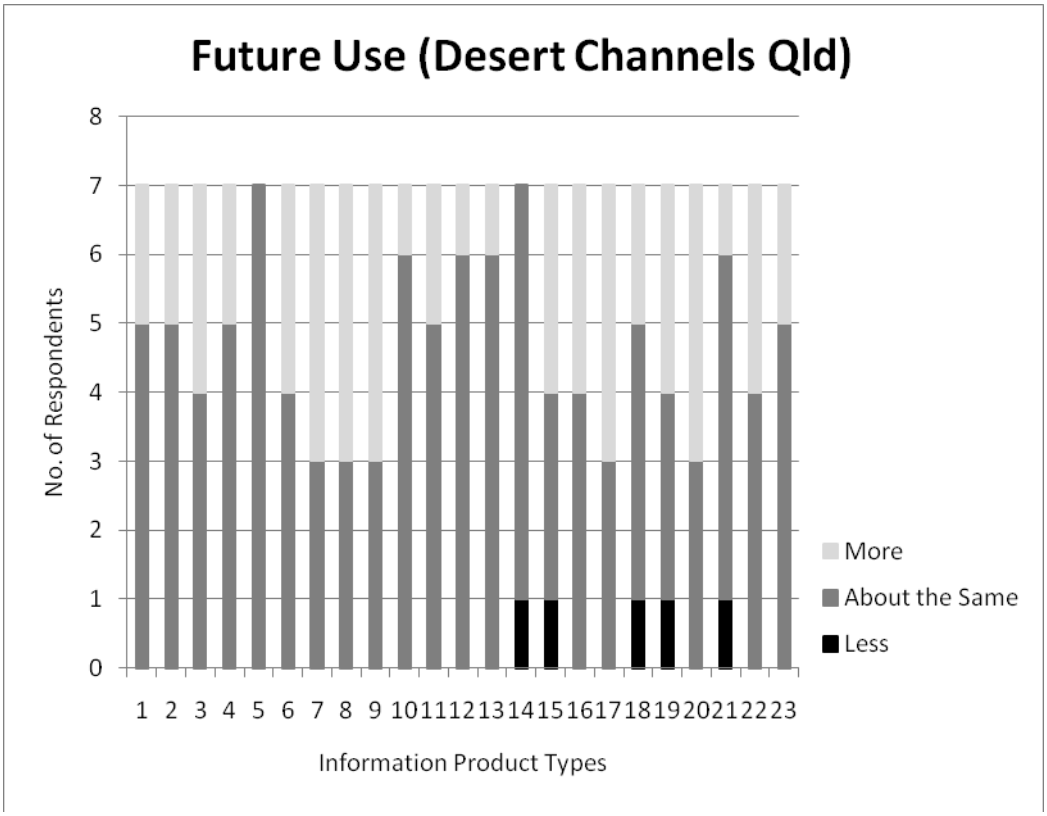


Figure 30: Future use of specific information product types by NRM managers and pest animal controllers at regional level (Desert Channels Qld)

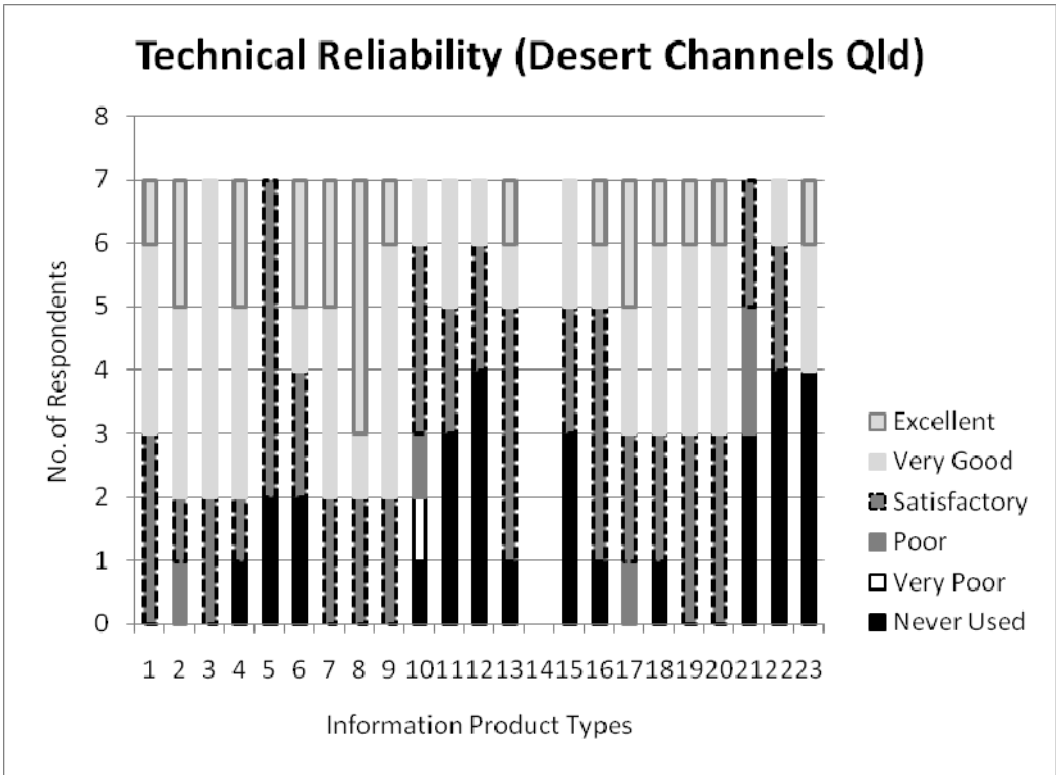


Figure 31: Technical reliability of specific information product types by NRM managers and pest animal controllers at regional level (Desert Channels Qld)

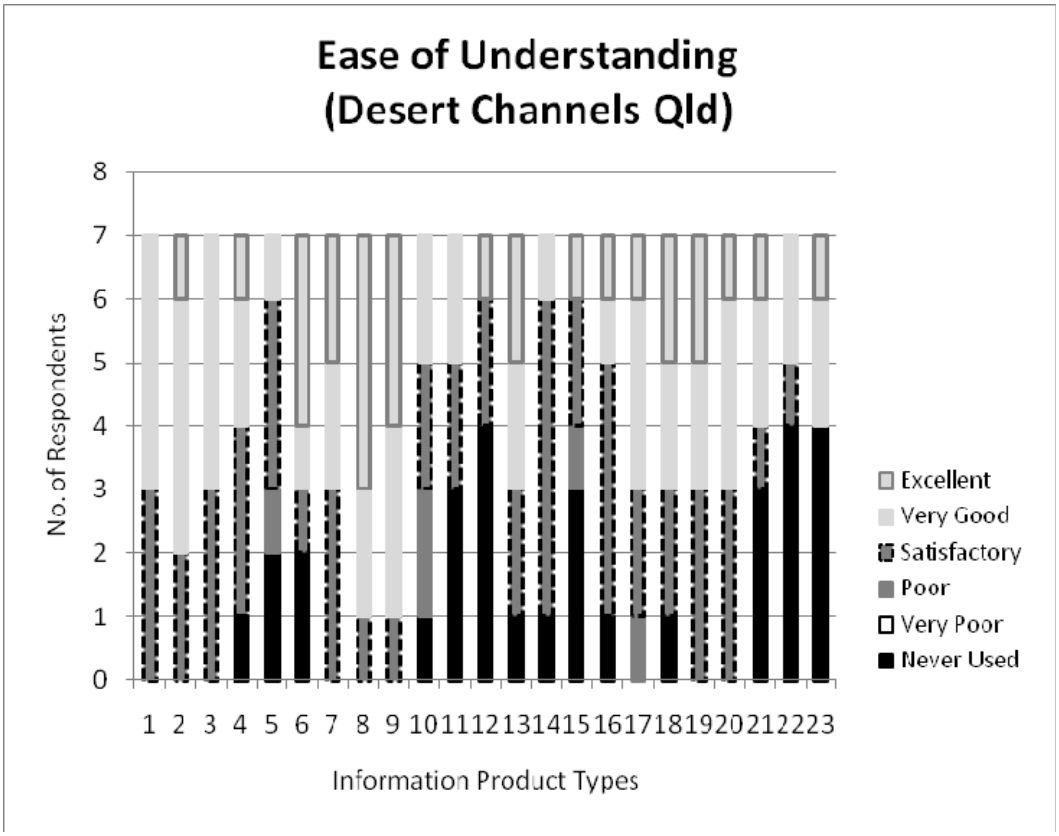


Figure 32: Ease of understanding of specific information product types by NRM managers and pest animal controllers at regional level (Desert Channels Qld)

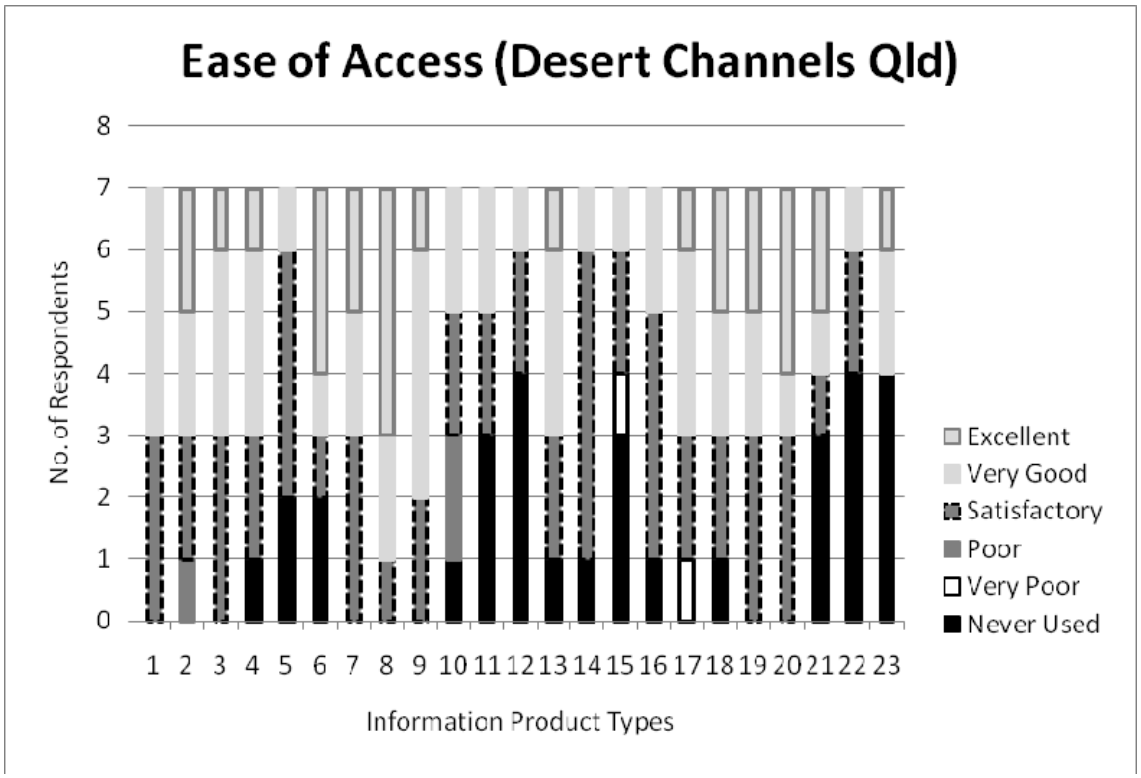


Figure 33: Ease of access of specific information product types by NRM managers and pest animal controllers at regional level (Desert Channels Qld)

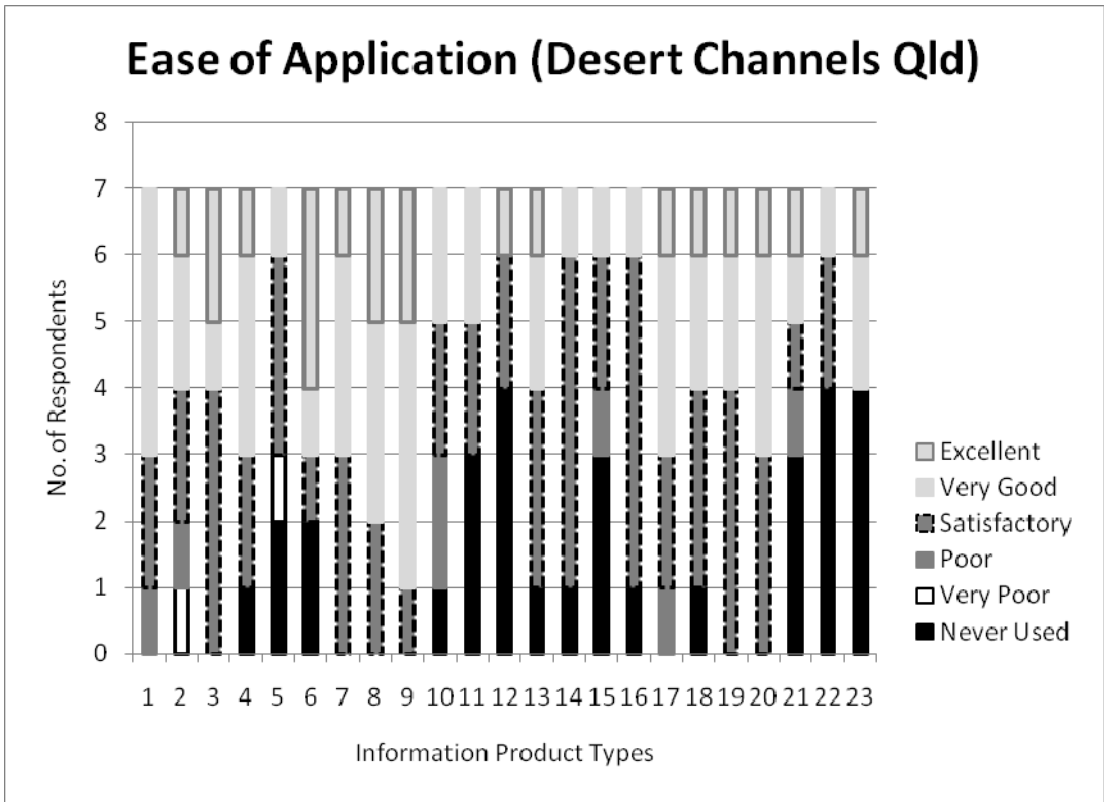


Figure 34: Ease of application of specific information product types by NRM managers and pest animal controllers at regional level (Desert Channels Qld)

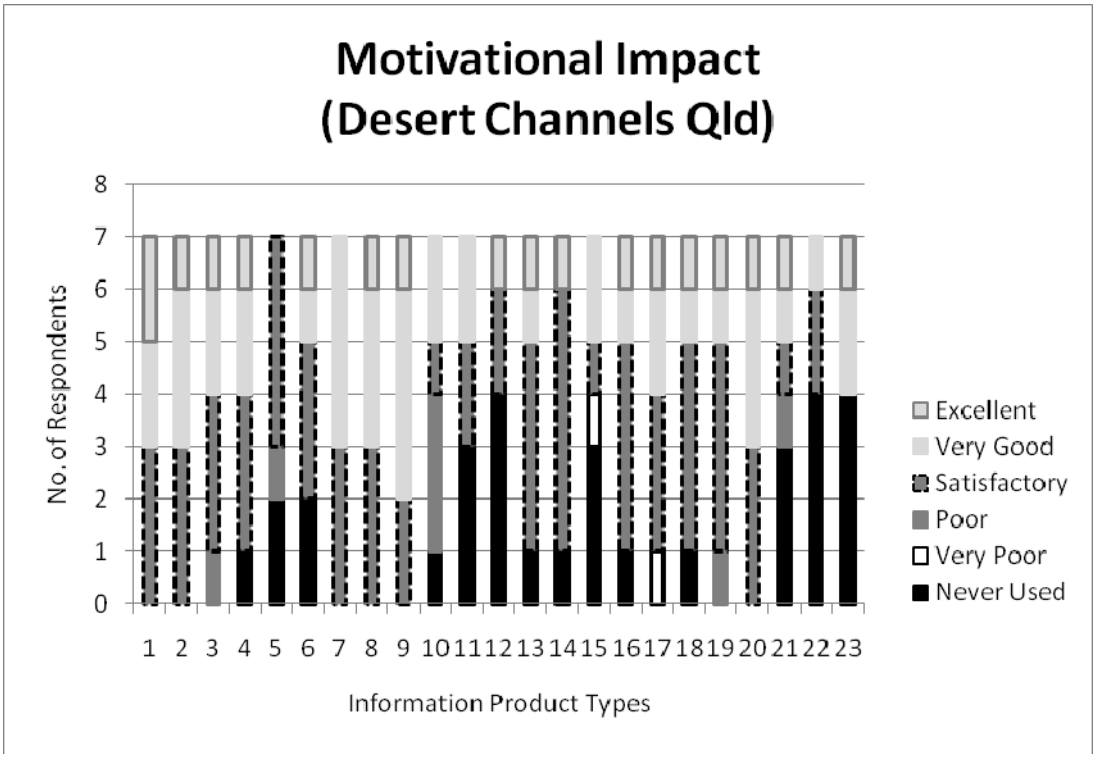


Figure 35: Motivational impact of specific information product types by NRM managers and pest animal controllers at regional level (Desert Channels Qld)

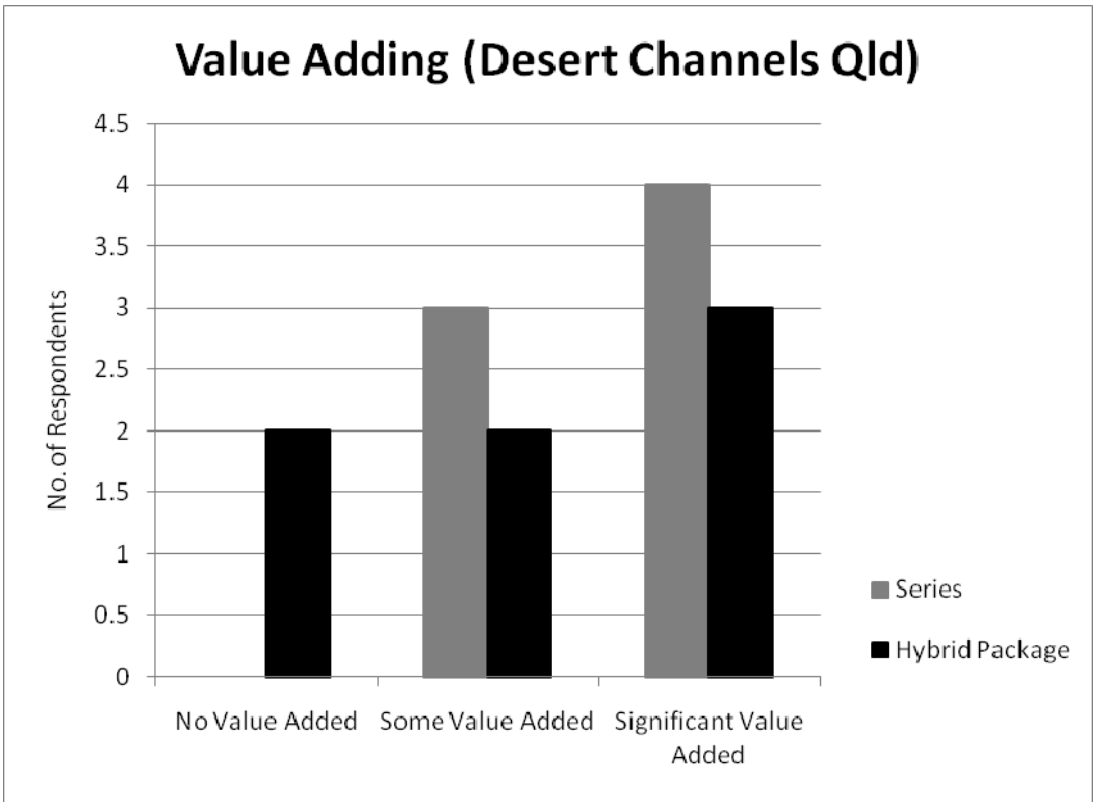


Figure 36: Value added to an information product by developing and presenting it as a series or a hybrid package (Desert Channels Qld)

Kangaroo Island SA

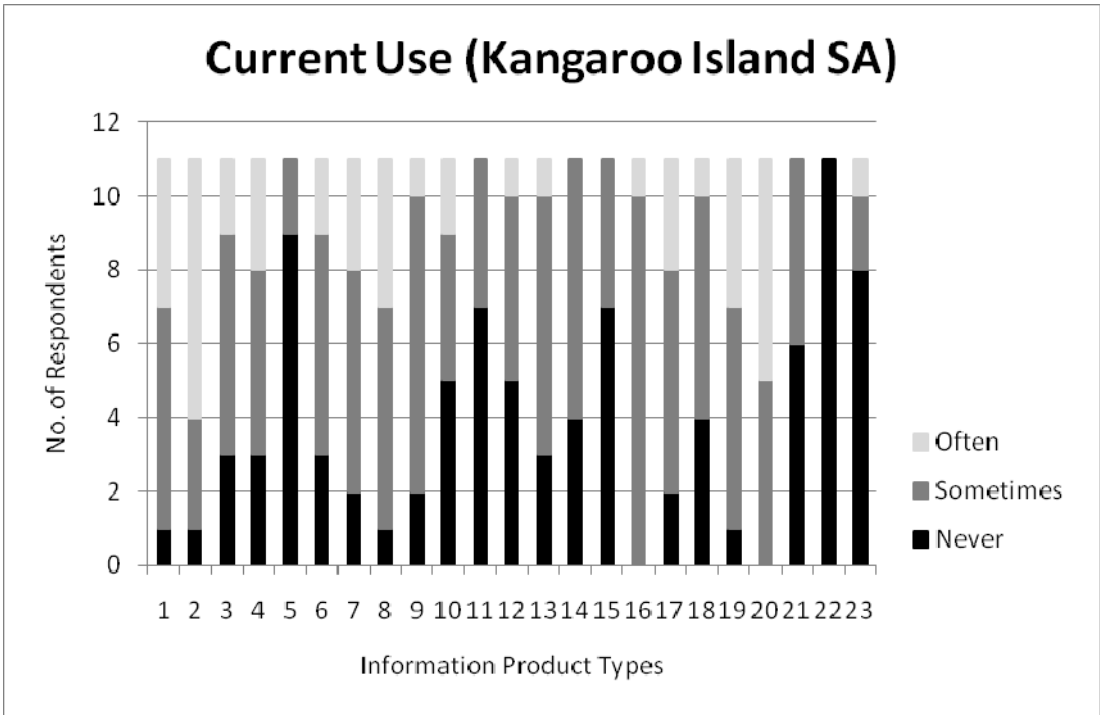


Figure 37: Current use of specific information product types by NRM managers and pest animal controllers at regional level (Kangaroo Island SA)

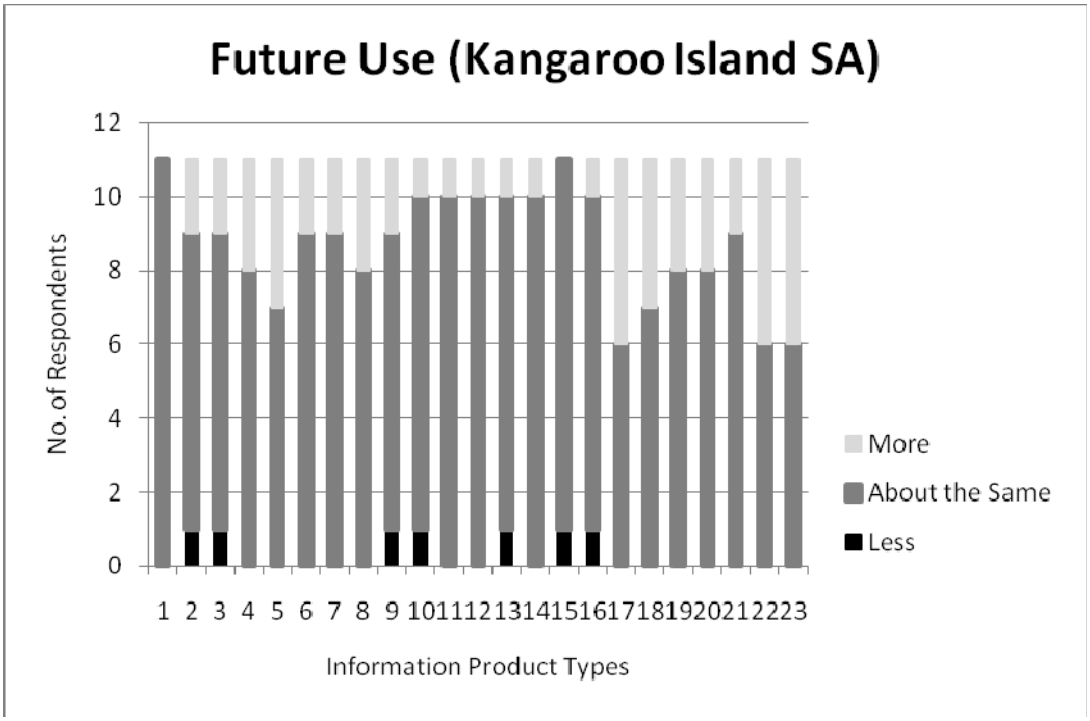


Figure 38: Future use of specific information product types by NRM managers and pest animal controllers at regional level (Kangaroo Island SA)

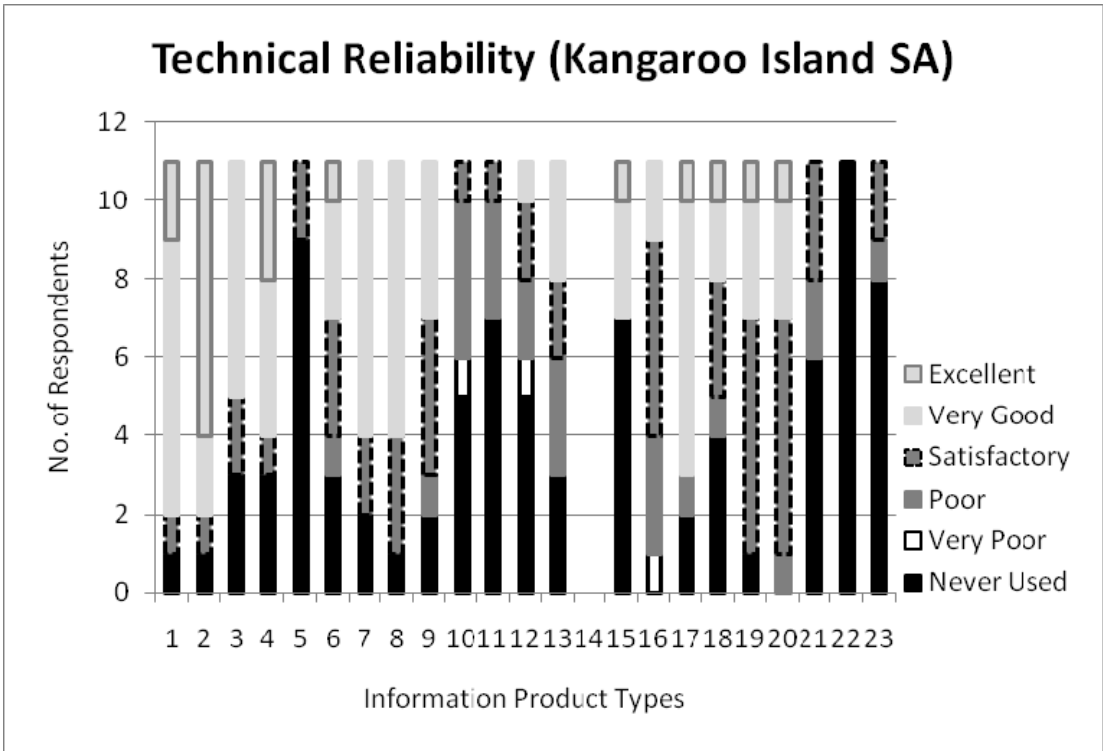


Figure 39: Technical reliability of specific information product types by NRM managers and pest animal controllers at regional level (Kangaroo Island SA)

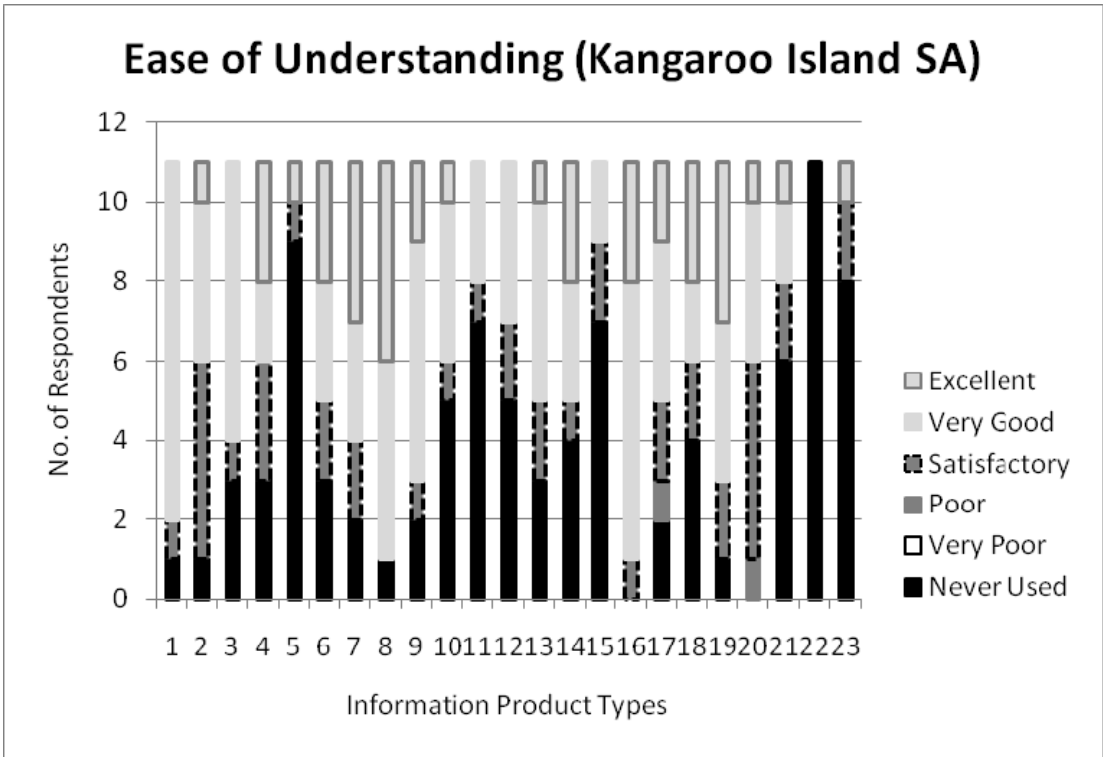


Figure 40: Ease of understanding of specific information product types by NRM managers and pest animal controllers at regional level (Kangaroo Island SA)

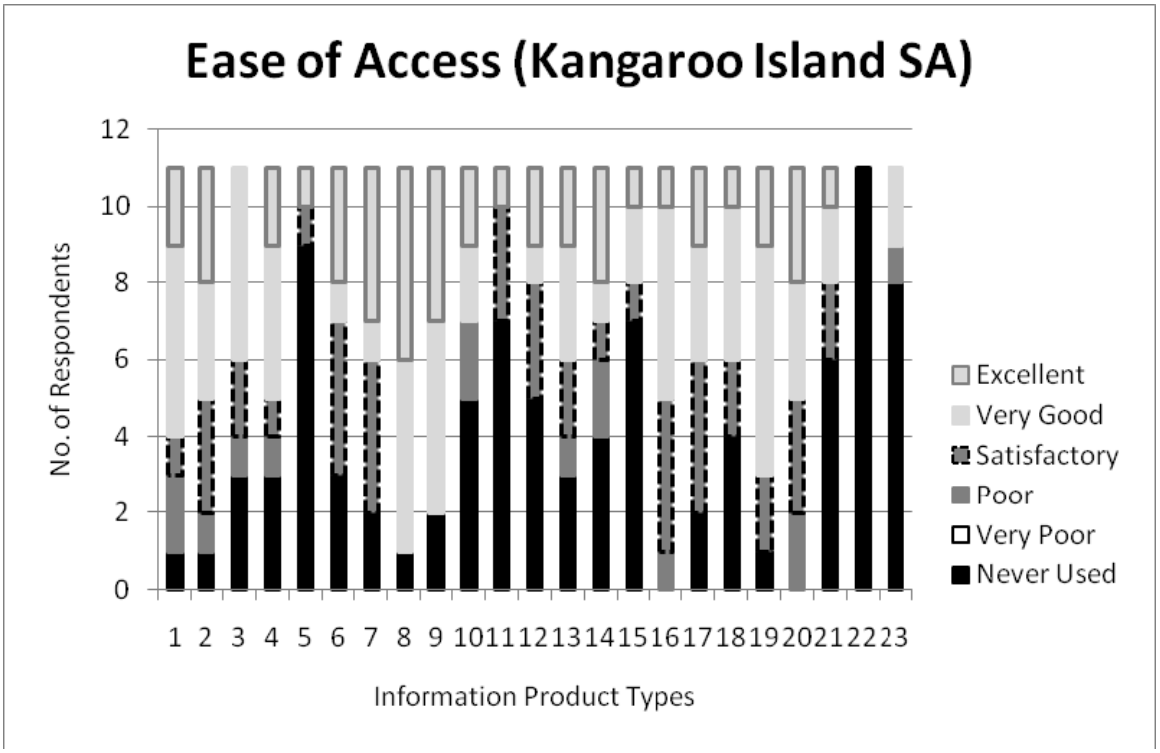


Figure 41: Ease of access of specific information product types by NRM managers and pest animal controllers at regional level (Kangaroo Island SA)

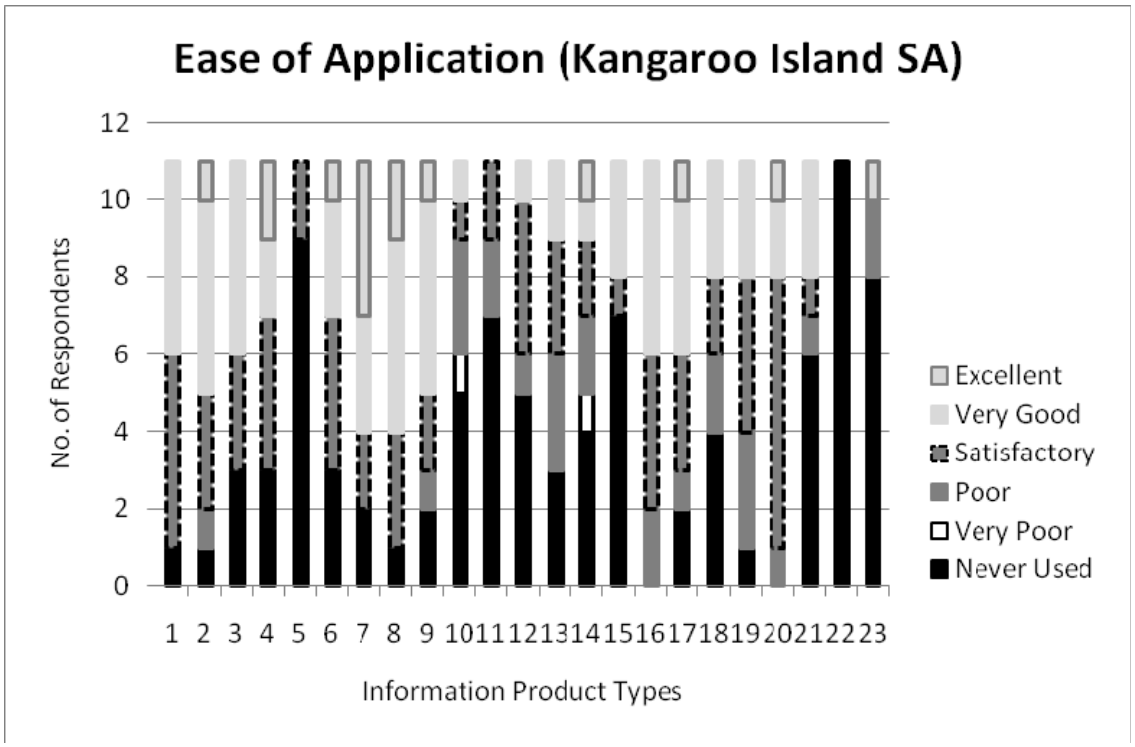


Figure 42: Ease of application of specific information product types by NRM managers and pest animal controllers at regional level (Kangaroo Island SA)

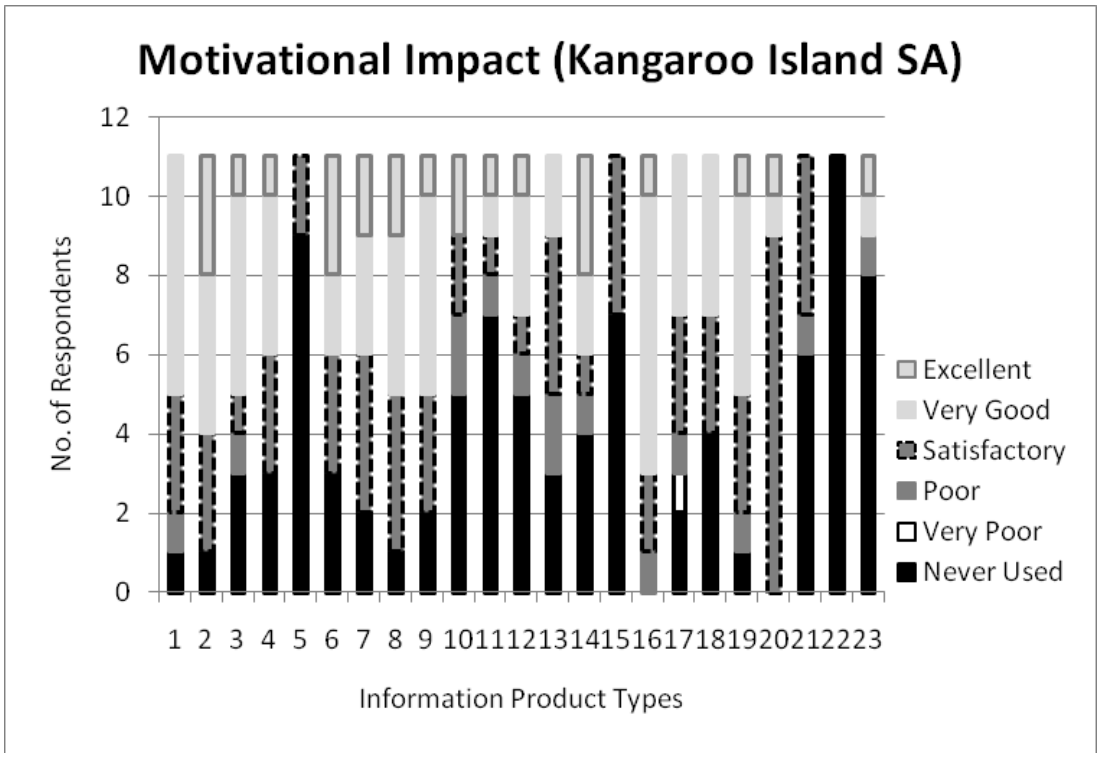


Figure 43: Motivational impact of specific information product types by NRM managers and pest animal controllers at regional level (Kangaroo Island SA)

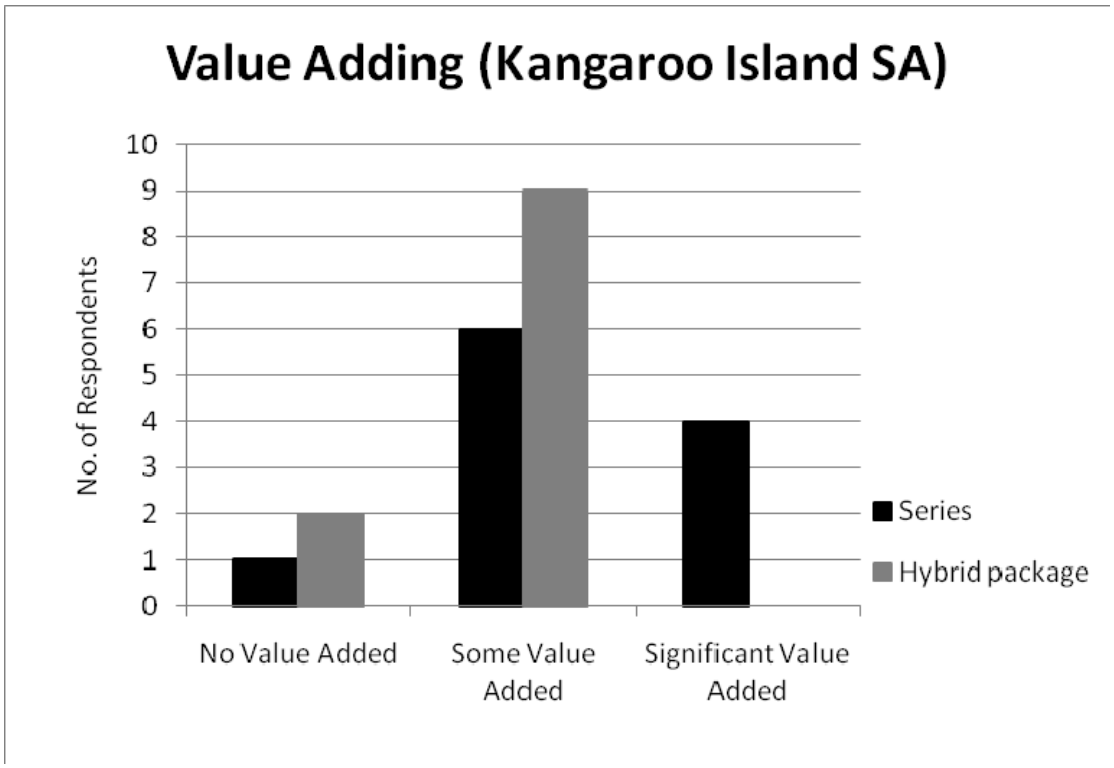
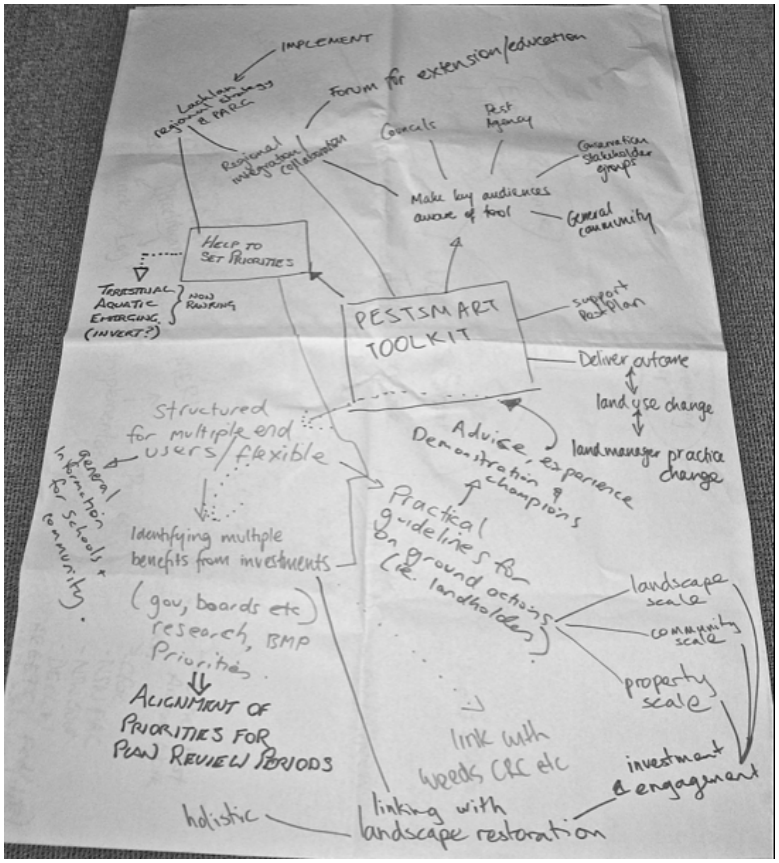


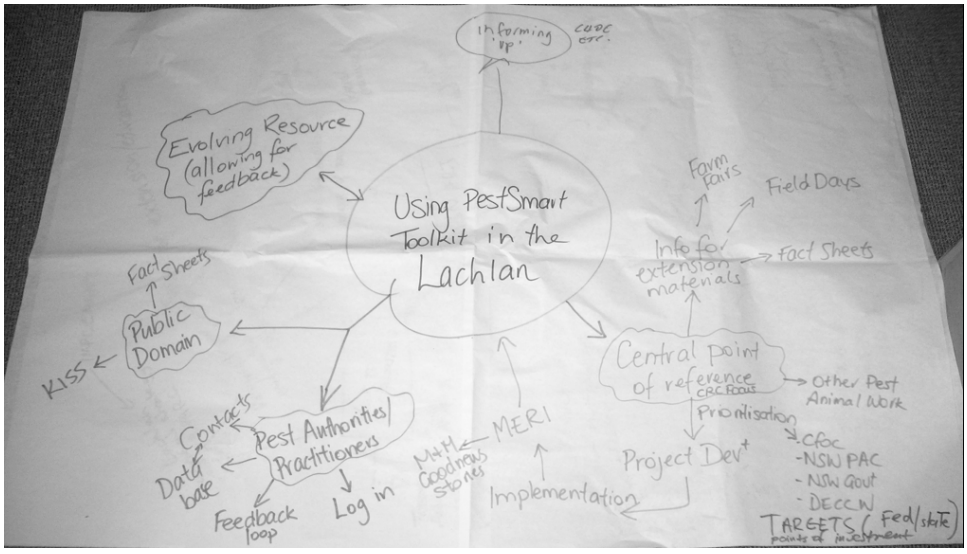
Figure 44: Value added to an information product by developing and presenting it as a series or a hybrid package (Kangaroo Island SA)

Appendix F: Mind-maps

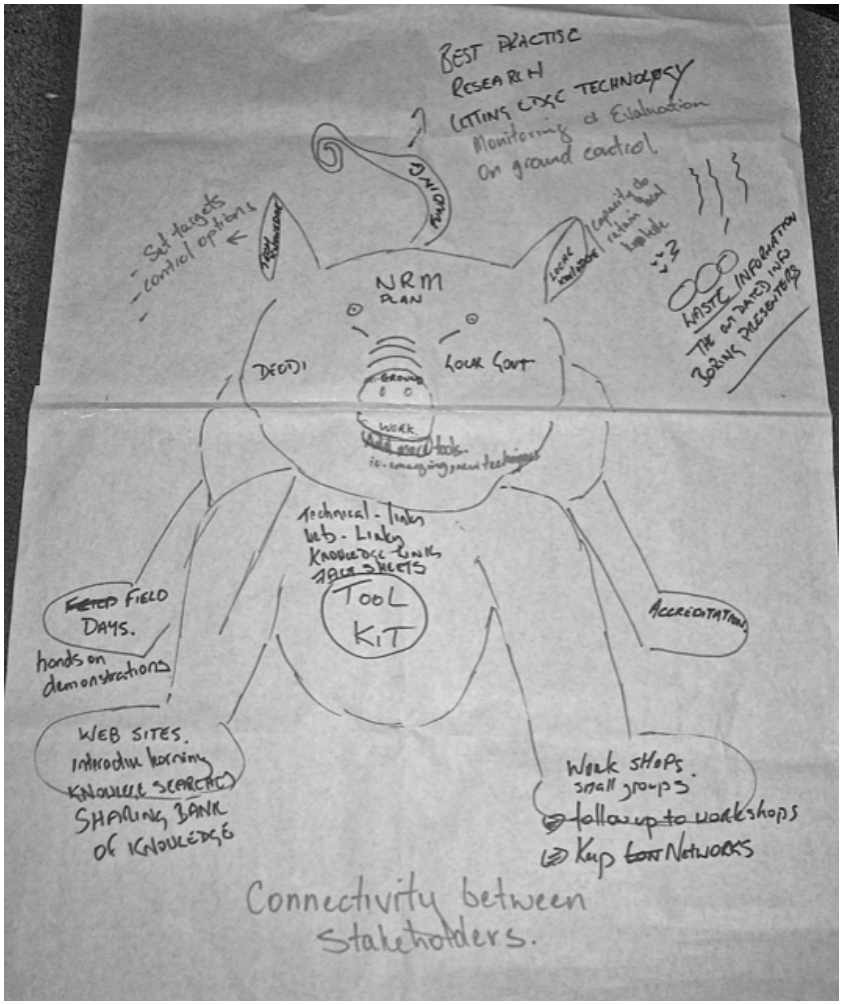
Lachlan NSW (Group 1)



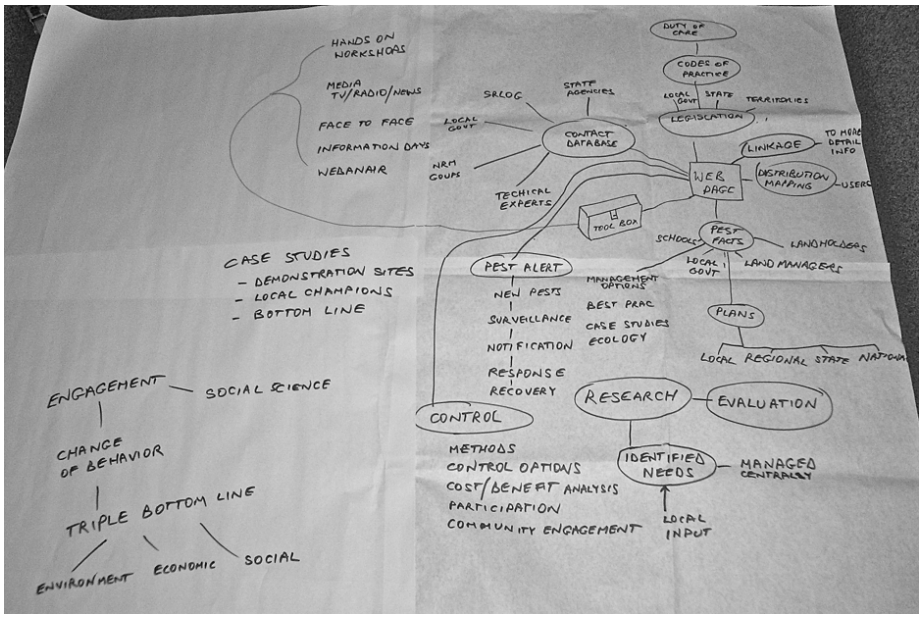
Lachlan NSW (Group 2)



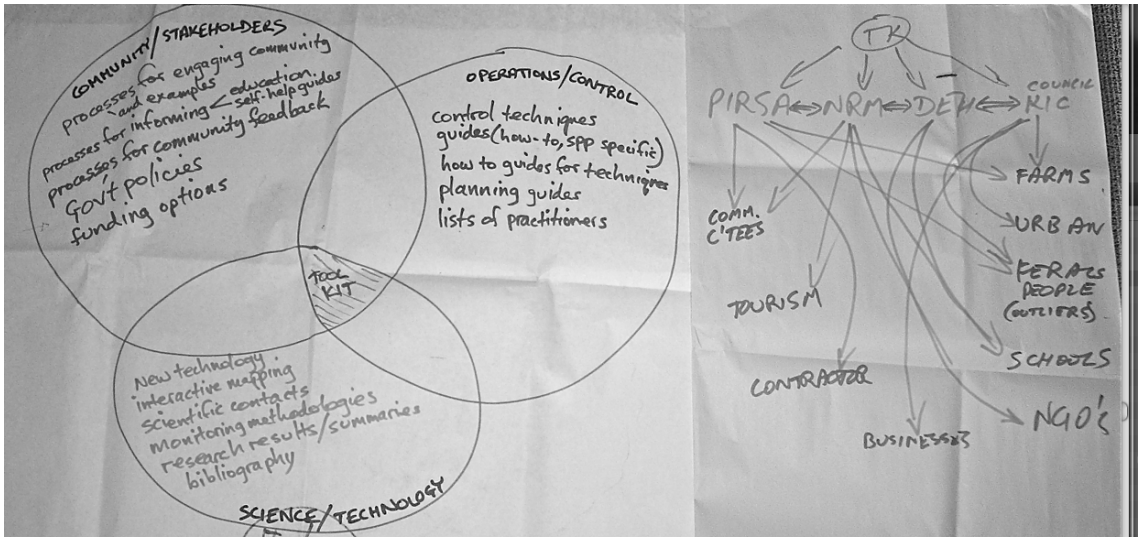
Desert Channels Qld (Group 1)



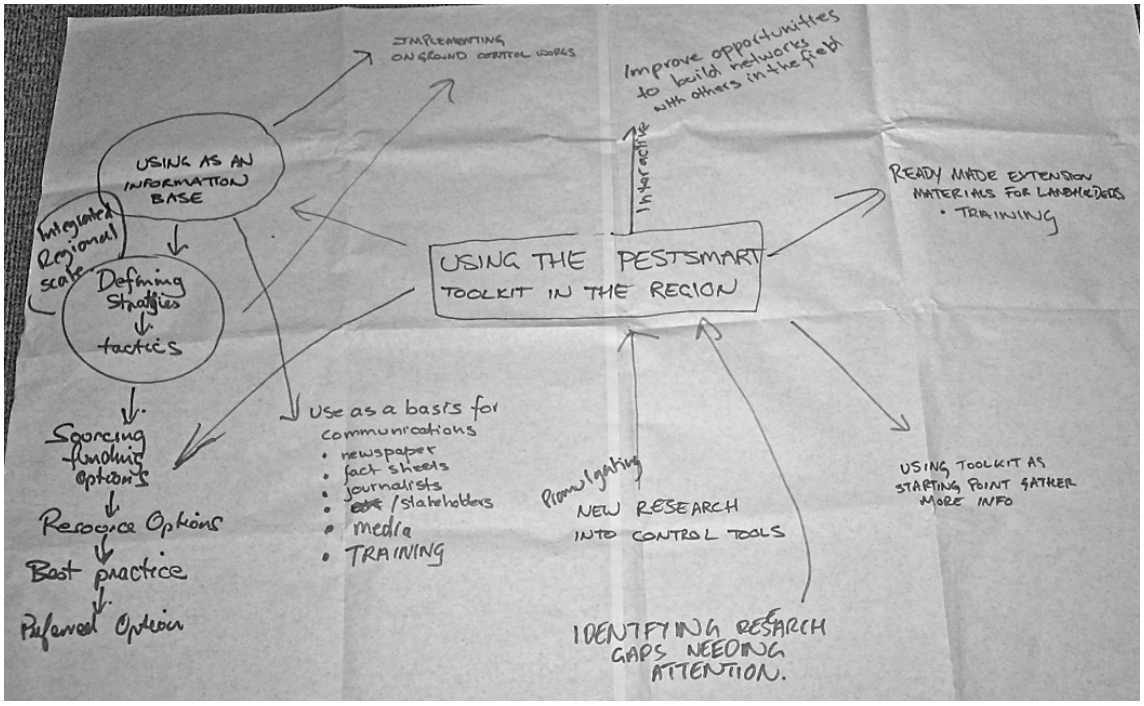
Desert Channels Qld (Group 2)



Kangaroo Island SA (Group 1)



Kangaroo Island SA (Group 2)



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