Buntine-Marchagee
Natural Diversity Recovery Catchment

PROCEEDINGS
of the
SECOND STEERING COMMITTEE MEETING

30 August 2002
Dalwallinu

Prepared by Bevan Bessen and Jodie Watts

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PARTICIPANTS

Anthony Desmond	–	Regional Leader Nature Conservation, Midwest Region, Department of Conservation and Land Management
Noel Dodd	–	Landcare Technician, private consultant and landholder
Alison Doley	–	President of Waddy Forest LCDC and landholder within project area
Fiona Falconer	–	Land for Wildlife Officer, member of Waddy Forest LCDC
Roger Forte	–	President of Latham LCDC, landholder and Moore Catchment Council member
Kelly Gillen	–	Regional Manager, Midwest Region, Department of Conservation and Land Management
Dr Stuart Halse	–	Principal Research Scientist, Department of Conservation and Land Management
Andrew Huggett	–	Focal Bird Species Project, CSIRO Sustainable Ecosystems
Greg Keighery	–	Principal Research Scientist, Department of Conservation and Land Management
Peter Muirden	–	Senior Hydrologist, Water & Rivers Commission
Vern Muller	–	Marchagee Catchment Group member and landholder within the project area
Cr Helen Nankivell	–	Dalwallinu Shire Representative, landholder within project area and Moore Catchment Council member
Michael O'Callaghan	–	President of the Marchagee Catchment Group, landholder within project area, Moore Catchment Council member and member of the Liebe Group
Deon Utber	–	Bushcare Facilitator, Department of Conservation and Land Management
Jodie Watts	–	Recovery Catchment Officer Midwest Region, Department of Conservation and Land Management
Peter Whale	–	Technical Officer - Catchment Management, Department of Agriculture, Three Springs

<u>And Guests:</u>

Rachel Bagshaw	–	Bushcare Project Co-ordinator, Coorow LCDC
Melanie Clinch	–	CSIRO Assistant, Department of Conservation and Land
Marguerite D'Alton	–	Cartographic Officer-GIS Applications, Department of Conservation and Land Management
Darren Farmer	–	Program Modeller, Department of Agriculture
Dr Jay Gomboso	–	Senior Policy Advisor, Department of Conservation and Land Management
Robert Hutson	–	Salinity Action Plan Officer, Department of Conservation and Land Management
Ted Lefroy	–	Sustainable Ecosystems, CSIRO
Anthony Raudino	–	Temporary Recovery Catchment Technical Officer, Department of Conservation and Land Management
David Robertson	–	Cartographic Officer-GIS Applications, Department of Conservation and Land Management
Russell Speed	–	Research Officer, Department of Agriculture

<u>Absent</u>

Liam Carter	–	Liebe Group, member of the Marchagee Catchment Group and landholder within project area
Mike Clarke	–	Project Leader, Department of Agriculture
Prof Richard Hobbs	–	Professor Environmental Science, Murdoch University
John Stacey	–	Coorow Shire Representative

EXECUTIVE SUMMARY

The second Steering Committee Meeting for the Buntine-Marchagee Natural Diversity Recovery Catchment project confirmed the progress achieved in the first half of 2002.

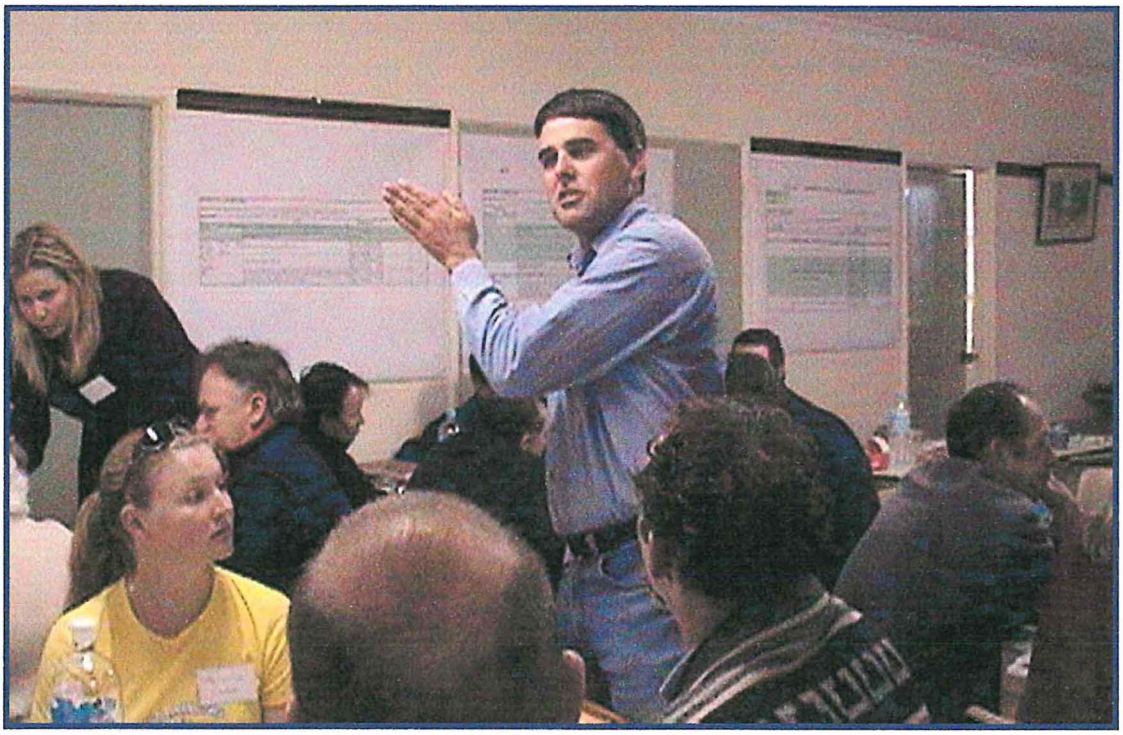
In regard to ground water and surface water activities, the Steering Committee recommended:

- Support must be provided to ensure that the hydrological data is processed into useable information.
- Any additional hydrological work must be driven by "recovery" priorities.
- Surface water management plan and works must proceed as a priority.

In regard to the biological components, the Wetland Survey is a priority.

In regard to communication, the Community Survey, the newsletter and the demonstration sites need to commence as soon as possible.

Depending on progress, the next Steering Committee Meeting will be March 2003 or June 2003.



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INTRODUCTION

The second meeting of the Steering Committee was held at the Dalwallinu Arts and Craft Centre on Friday, 30 August 2002.

FOCUS

The focus of the meeting was to review the progress of the project and plan for the implementation of key initiatives.

OUTCOMES

By the end of the meeting, participants had:

- Reconnected with the catchment and the project;
- Received a progress report on the initial objectives of the Recovery Catchment project;
- Received progress reports (ground water and surface water) and provided recommendations on hydrology;
- Received an update on the proposed wetland survey;
- Provided feedback on the draft community survey;
- Agreed on the next steps; and
- Further developed a sense of team within the Steering Committee.

OUTCOME ONE: RECONNECTING WITH THE CATCHMENT

At the outset, it was reiterated that the Department of Conservation and Land Management has been given responsibility for the identification, planning and implementation of actions for natural diversity recovery catchments. To protect and enhance biodiversity values within the project area, the Department is preparing a Recovery Catchment Plan.

However, there is only a relatively small area of land within the Buntine-Marchagee catchment for which the Department has statutory management responsibility. Hence, a Steering Committee has been formed to represent the views of various stakeholder groups and to provide direction to the Department as the Recovery Catchment Plan is developed.

At the first meeting of the Steering Committee, the following objectives were agreed:

- Identify high priority biodiversity values within the catchment where resources maybe focused by December 2003
- Understand and identify how ground water and surface water hydrology within the catchment contributes to secondary salinity.
- Develop and promote community understanding of the value and importance of the natural environment.
- Increase public awareness and participation in conservation works aimed at protecting biodiversity values at risk of secondary salinity.
- Develop methods for integrating sustainable farming systems and conservation works.
- Develop a system for monitoring and evaluating the overall effectiveness of the project.

Strategies and actions to achieve these objectives were also agreed.

The second meeting began by reviewing the strategies and actions to identify progress or changes needed in each area. The results are provided over page:

Table One - Progress Report (Objectives, Strategies, Actions, Resources, Target Date and Review Comments)

Underway **Completed**

OBJECTIVE – BIODIVERSITY
Identify high priority biodiversity values within the catchment where resources may be focused by December 2003.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Identify biodiversity values	Review biological survey data conducted for the Salinity Action Plan survey	CALM Science		Jul 03	On target for completion.
	Obtain data on Focus Catchment from the Department of Agriculture (Marchagee area)	RCO, TA and GIS officer			Completed.
	Describe and document environmental components of the project area.	CALM Science, Agency, Consultants, Universities, CSIRO, Recovery Catchment Officer (RCO) and Technical Assistant (TA)		Dec 03	
	Fill in the gaps in current knowledge - determine extra survey requirements. Target surveys.	CALM Science, Agency, Consultants, Universities, CSIRO, Recovery Catchment Officer (RCO) and Technical Assistant (TA)		Current	On target for completion.
	Map bird remnant neighbourhoods to identify critical gaps for intervention	CSIRO		Dec 03	On target for completion.
	Conduct, analyse and report on biological surveys	CALM Science, Agency, Consultants, Universities, CSIRO, Recovery Catchment Officer (RCO) and Technical Assistant (TA)	$30,000.00	Dec 03	On target for completion.
	Locate and assess remnant vegetation within the catchment	CSIRO, Catchment groups (Waddy Forest, Buntine and Marchagee Groups) Contractors, Agency	$10,000.00	Dec 02	On target for completion. May be showing fewer weeds due to the dry conditions. Need to see remnant vegetation sites under normal conditions.
	Determine known distribution of fauna. Reptiles, Malleefowl, Carnaby's cockatoo, other birds and fauna	CALM Science, Agency, Consultants, Universities, CSIRO, Recovery Catchment Officer (RCO) and Technical Assistant (TA)		Dec 03	

OBJECTIVE – BIODIVERSITY (Cont'd)
Identify high priority biodiversity values within the catchment where resources may be focused by December 2003.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Conduct a risk analysis	Identify priorities, based on values for species, communities, and remnants (spatially explicit).	Agency, Steering Committee, RCO and community	$2,500.00	Dec 02	Caution: Unrealistic timeframe (Dec 02). Caution: Need to rank and prioritise assets.
	List and describe threats to achieving the project's goals				
Develop plans for on-ground intervention	Intersect priorities and threats and develop actions based on, value, urgency, ease of treatment and landholder participation	Steering Committee and community			Need to develop specific plans to protect individual assets.
	Identify priority wetlands for intervention				On target for completion. Risk analysis should not only cover risks; it should also identify the opportunities, strengths and weaknesses.
Incorporate and build on conservation works undertaken within the project area	Incorporate current activities and situations that keen individuals want to focus on. These are short-term actions that will arise as operational opportunities and they will build early momentum				
	Document existing land management techniques aimed at reducing the impact of salinity on land usage e.g. plantings, methods and successes and make available to all stakeholders	Agency, RCO and TA			On target for completion.
	Increase the connectivity between isolated remnant areas for fauna and flora by identifying wildlife corridors				
	Identify Mallee Fowl remnants and implement fox baiting and fencing				Caution: What's happening with this?

OBJECTIVE – BIODIVERSITY (Cont'd)
Identify high priority biodiversity values within the catchment where resources may be focused by December 2003.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Incorporate and build on conservation works undertaken within the project area (Cont'd)	Develop a whole of catchment baiting program after deciding on maximum populations of animals and birds				When will this start?
	Build onto the Marchagee Bushcare corridor				Caution: Needs to commence as the next activity by Sept 02. Needs an estimation of completion.
Development of a Revegetation Plan	Intersect farmer survey work requirements with high priority biological values	RCO, agency and Steering Committee	$2,000.00	Dec 02	
	Plan 2003 revegetation program	RCO, Agency, Steering Committee and community	$2,000.00	Dec 02	
Define long-term goals for biodiversity conservation in terms of what's here and what the threats	Set targets				

OBJECTIVE - HYDROLOGY
Understand and identify how groundwater and surface-water hydrology within the catchment contributes to secondary salinity.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Determine the existing and predicted hydrological situation in the catchment	Complete an evaluation of the status of ground water in the Catchment (desk top study)	RCO and Hydrologists from Dept. of Agriculture, Northern Region		Oct 02	
	Capture available bore data in the catchment through, existing bore data held by farmers, other records gathered in previous initiatives, land monitor mapping, agencies. All data will need to be verified on-ground.	RCO and Hydrologists from Dept. of Agriculture, Northern Region		Jun 02	Caution Hydrology requires a full time person for 12 months. Need to identify people assigned to tasks.

OBJECTIVE - HYDROLOGY (Cont'd)
Understand and identify how groundwater and surface-water hydrology within the catchment contributes to secondary salinity.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Determine the existing and predicted hydrological situation in the catchment (Cont'd)	Establish a comprehensive and adequate bore monitoring network	RCO and Hydrologists from Dept. of Agriculture, Northern Region	$100,000 to $200,000	Jun 02	Caution: Drill and monitor sand country in the west of the catchment. Caution: Infill drilling may be required
	Conduct regular monitoring of groundwater bores. Monthly for first three years then quarterly. Farmers to assist by monitoring monthly (non-peak period months)	RCO, TA, Ag. (Saltwatch commitment) and Landholders	$10,000.00		Caution: Need surface flow meters
	Establish a process to record (AG Bores or COMM Bores) and analyse bore data.	RCO and Hydrologists from Dept. of Agriculture, Northern Region		Aug 02	On target for completion.
	Model groundwater flow systems	Assisted by Ag. Staff	$2,500.00	Jun 03	
	Routine bore maintenance	TA	$5,000.00	As required	
	Check Western Mining Corporation, Department of Minerals & Energy and the Three Springs Talc Mine for available information	RCO and TA		Aug 02	
Investigate options for groundwater use	Approach DEWCP or CSIRO with regard to a ground based survey system to survey for paleochannel potential. Water & Rivers Commission has equipment. CSIRO and Universities have Protem equipment. Survey will take approximately two days. Curtin University can be approached as part of their Field Trip requirements for students	RCO and Hydrologists from Dept. of Agriculture, Northern Region	$5,000.00	Sept 02	
	Investigate paleochannel	RCO, TA, and contract staff	$15,000.00	Jun 03	
	Investigate possible production bores	RCO, TA, and contract staff	$30,000.00	Jun 03	
	Establish groundwater use trials (aquaculture, power generation, desalinisation plants etc.)	RCO, TA, and contract staff	$50,000.00	Jun 03	
Produce a water management strategy	Assess landscape to determine delivery sub catchments with high run-off. Data available Moore River. Review other Recovery Catchment approaches (Refer Lake Bryde)	Agency, Contractor and RCO	$120,000.00	Dec 03	On target for completion.

OBJECTIVE - HYDROLOGY (Cont'd)
Understand and identify how groundwater and surface-water hydrology within the catchment contributes to secondary salinity.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Produce a water management strategy (Cont'd)	Produce a water management plan. On-ground assessment. Plan a water management system. Design appropriate structures	Contractors	$75,000 - $90,000	Dec 02	On target for completion. Caution – implement surface water on-ground works.
Increase knowledge of geological features affecting water movement	Identify and document soil physical and chemical properties	Recovery Catchment Officer (RCO) and Hydrologists from Dept. of Agriculture, Northern Region, Consultants		Feb 03	
	Identify major geological features	Recovery Catchment Officer (RCO) and Hydrologists from Dept. of Agriculture, Northern Region, Consultants		Feb 03	Paleochannels – need to progress on defining and locating areas that will yield best results.
	Investigate geophysical data acquisition; magnetics - geological features underground influencing water movement; electromagnetic - depth of soil profile - locate systems capable of moving groundwater out of a system; radiometrics - soil mapping	Recovery Catchment Officer (RCO) and Hydrologists from Dept. of Agriculture, Northern Region, Consultants		Feb 03	Need a hydrology information session to extend information to landholders on the hydrological work done so far. Need to include these tasks in the methodology for surface water plan contract. Caution: Employ someone to finish the hydrology maps. Caution: Establish groundwater trials, aquaculture, desalination, etc to keep farmers keen.

OBJECTIVE - PUBLIC PARTICIPATION

1) Develop and promote community understanding of the value and importance of the natural environment.
2) Increase public awareness and participation in conservation works aimed at protecting biodiversity values at risk of secondary salinity.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Develop demonstration sites to illustrate different land management practices and their benefits for natural diversity	Identify strategic high priority wildlife corridors	RCO and catchment groups		Dec 02	
	Establish three demonstration sites on major roads to ensure maximum visibility e.g.. Coorow – Watheroo Road, Marchagee – Buntine Road, Gunyidi – Wubin Road. Also look to place the three sites according to the differences in annual rainfall from east to west.	RCO, TA, Agency, Catchment Groups and Community		Sept 02	
	Site One: Focusing on drainage and involving a one-kilometre drain and culverts. Local government co-operation. Tied into the Surface Water Plan. In place as soon as possible. Sign post.	RCO, TA, Agency, Catchment Groups, contract staff and community	$5,000.00	Sept 02	On target for completion. Priority action.
	Site Two: Focusing on fencing. Revegetation. Ensure that there is a positive purpose for the revegetation work.	RCO, TA, Agency, Catchment Groups, contract staff and community	$5,000.00	Sept 02	Caution: Protection of remnant vegetation is a high priority, but it is not covered?
	Site Three: Focusing on the monitoring bores. Include a sign to explain the hydrological studies and ground water investigations being carried out in the catchment.	TA and hydrologist	$5,000.00	Sept 02	
	Organisation: Each site to be run by a small community-working group. Contact additional community groups such as the Liebe Group. Discuss with other catchments. Contact Yarra Yarra Catchment Group to learn from previous experience. Look at dollar for dollar funding for the demonstration sites. Be aware of issues to do with access to demonstration sites, such as farmer concern about introducing weeds, site security, etc. Ensure site has good signage.	RCO, TA, Agency, Catchment Groups, contract staff and community		Sept 02	

OBJECTIVE - PUBLIC PARTICIPATION (Cont'd)

2) Develop and promote community understanding of the value and importance of the natural environment.
2) Increase public awareness and participation in conservation works aimed at protecting biodiversity values at risk of secondary salinity.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Build participation and involvement of landholders	Make contact with the existing sub catchment groups. Buntine, Marchagee, Waddy Watheroo, West Maya, Latham.	RCO		Aug 02	
	Be able to feed back information that has already been collected. Where relationships are established, most of this work can be done by phone or fax	RCO and Agency		Ongoing	
	Acknowledge what has already been done and the money that has been spent	Agency		Dec 02	Caution: This is important.
	Collate information that is offered	Agency		Ongoing	
	Offer to monitor the works already established (or offer to cover the cost of monitoring)	Agency			
	Develop processes to keep the momentum up	RCO and Agency		Ongoing	
	Develop incentives and cost sharing arrangements	Steering Committee and community		Mar 03	
Landholder Survey	Design and then conduct face-to-face survey. Most time spent with people that you don't know who are likely to be those outside of the key sub catchment groups such as Waddy Forest and Marchagee.	RCO and Committee to design the survey. Employ local people to conduct survey		Dec 02	On target for completion.
	Develop a framework to collate the information gathered	RCO and consultants		Dec 02	
	Collate survey information to date	RCO and consultants	$2,000.00	Dec 02	On target for completion.
	Assess the information that has already been collected by Agencies and Land Conservation District Committees	RCO and consultants		Dec 02	On target for completion.

OBJECTIVE - PUBLIC PARTICIPATION (Cont'd)

3) Develop and promote community understanding of the value and importance of the natural environment.
2) Increase public awareness and participation in conservation works aimed at protecting biodiversity values at risk of secondary salinity.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Landholder Survey (Cont'd)	Survey should provide information on funding, group participation, works undertaken and works planned for the future. Of the 106 landholders in the catchment: 20% will be able to be accessed through existing relationships: 40% who are contacted may decline a survey: 40% who are contacted may agree to a survey. This means that approximately 40 visits will need to be made to landholders. It is recommended that a staged approach be used: Stage One - use cell leaders in each area and conduct 6 – 12 visits in total. Stage Two - refine the survey then visit the larger sample group. Collate all survey information and integrate with the existing collated information.	Resources - Employ 3 – 4 local people to conduct the survey	$17,500.00	Dec 02	
	Assess landholder works for their fit with the initial objectives of the project			Dec 02	
	Amend strategies and work plans as necessary			Dec 02	
	Utilise the survey information as the source material to develop extension and promotion materials			Dec 02	
Inform, communicate and promote the catchment	Develop a communications plan	RCO and Agency		Mar 03	On target for completion.
	Field days, workshops, tours, seminars	RCO	$5,000.00	Quarterly	On target for completion. Quarterly is too much.
	Develop a newsletter for regular communication with all stakeholders. Develop general handouts and pamphlets	Agency	$2,000.00	Quarterly	On target for completion. Quarterly newsletter is definitely needed.
	Develop sign plans for significant works undertaken within the project	Agency	$10,000.00	Dec 02	
	Following the survey, develop the capacity to target specific communication to the smaller localised cells or existing groups that have been identified	RCO			

OBJECTIVE - PUBLIC PARTICIPATION (Cont'd)

4) Develop and promote community understanding of the value and importance of the natural environment.
2) Increase public awareness and participation in conservation works aimed at protecting biodiversity values at risk of secondary salinity.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
	Utilise ABC morning radio as a prime source of information distribution and promotion. Other mediums to be utilised are local field days, Kondinin Group activities and targeted meetings such as the Liebe Group Crop Updates	RCO and Agency			
	As the project progresses, introduce demonstration site tours and visits to highlight the achievements	RCO, Agency and consultants			Form cell groups of approximately four farmers.
	Reward landholders who have already undertaken works through acknowledgment and publicity	Agency			
	Recovery Catchment Officer to attend relevant catchment meetings	RCO			On target for completion. Caution: Important to get around since it is now the end of NHT1.
	Develop processes of involving all landowners within the project area	RCO and Agency			
	Workshop in groups of three to five farmers' different activities for the project	RCO and Agency			Get some groups together.
Form a more collaborative approach between agencies, between farmers and between agencies and farmers	Increase awareness and understanding within the community and agencies of the values of the catchment and the threats	Agency			
	Integration between community and agencies to a common goal				On target for completion.
	Look for any crossover of information between the Recovery Catchment Plan and the Rapid Catchment Appraisal, conducted by the Department of Agriculture	RCO			On target for completion.
	Tackle hydrology using a co-operative approach across agencies	RCO and Agency			On target for completion.
	A series of meetings to bring farmers, scientists and Agencies together in small groups to exchange information and to stimulate action	RCO and Agency			

OBJECTIVE - PROJECT MANAGEMENT
To establish an accurate and accountable project management system for effective reporting.

STRATEGIES	TASKS	RESOURCES	ESTIMATED BUDGET	TARGET DATE	COMMENTS AUGUST 2002
Collate and maintain a database on the recovery catchment project	Build a data management system, which is able to link spatial and written data for interrogation (eg. Arcview and Access)	RCO, Agency and consultants		Nov 02	On target for completion. Extend target date by six months.
	Current situation: Enormous amount of data. Held and collected by various people and agencies. Some duplication and different versions (e.g.. Remnant vegetation, Ag. and CSIRO). Need one person to manage, store and distribute the data. Establish a GIS focal point for data management, storage and distribution	GIS officer and RCO	$6,000.00	Ongoing	On target for completion.
	Link in with Northern Agricultural Catchments Council initiative				Caution – Need two phases: first is a formal meeting by April 2003; second is ongoing interaction.
	Natural resource GIS and database support system. Project with other recovery catchments to standardise data collection and analysis with the assistance of GIS section.	RCO assisted by department staff and GIS section	$30,000.00	Jun 03	On target for completion.
Development of a Recovery Plan	Document project objectives and planning process	RCO, agency and Steering Committee		Review Aug 02	On target for completion.
	Draft a recovery plan in consultation with the community	RCO, Agency, Steering Committee and community	$5,000.00	Jun 04	Caution: Needs further discussion, eg: overall strategy (7 years), with annual action plans.
	Recovery Team Meetings			Ongoing	On target for completion.
Implement Plans	Revegetation Plan (includes site preparation, site establishment, on-going maintenance of rehabilitated sites, evaluation)	RCO, agency and Steering Committee	$100,000.00	Review Aug 02	
	Surface Water Management (includes site preparation, site establishment, on-going maintenance of measures, evaluation)	RCO, Agency, Steering Committee and community	$140,000.00	Jun 04	
	Recovery Catchment Plan (other works)		$25,000.00	ongoing	

OBJECTIVE - INTEGRATED FARMING AND BIODIVERSITY CONSERVATION *Develop methods for integrating sustainable farming systems and conservation works.*					
STRATEGIES	**TASKS**	**RESOURCES**	**ESTIMATED BUDGET**	**TARGET DATE**	**COMMENTS AUGUST 2002**
Integrate farming systems and biodiversity	Investigate the economics of biodiversity, e.g.: identify agricultural pest hotspots and relate to remnant vegetation or habitat for predators	Agency			Caution: Change "economics" to multiple values; avoid jargon like "hotspots" as it means different things in different disciplines.
	Communicate and educate landowners about the values of biodiversity and how protecting them can improve farming systems financially	Agency			This whole strategy is very important – nothing will happen if farming isn't involved.
	Put a biodiversity component into the environmental management systems that are being developed	Community			
	Develop the ability to facilitate community efforts to diversify enterprises				
	Research, use and demonstrate Landcare strategies that are profitable to farmers				
OBJECTIVE –MONITORING ***Develop a system of monitoring and evaluating the overall effectiveness of the project.***					
Monitor biodiversity health	Establish a benchmark for biodiversity components against which to measure the success of the project	Agency, RCO and TA	$5,000.00	July - June	On target for completion.
	Determine a list of key performance indicators				
	Develop a monitoring system for; hydrology; fauna; flora; community to determine if objectives are met				Caution: Need to monitor not only effectiveness of the "actions" but also the performance of the project/program.

OUTCOME TWO: RECOVERY CATCHMENT PROGRESS REPORT ON INITIAL OBJECTIVES

The Recovery Catchment Officer, Jodie Watts, provided a framework for the development of the project and reported progress against the key milestones.

Past

Biological Survey - Salinity Action Plan
Buntine-Marchagee Catchment designated (12/99)
Recovery Catchment Officer appointed (RCO – 07/01)
Recovery Catchment Team formed
RCO visited other Recovery Catchments
project outline drafted
met key stakeholders
met with CSIRO to negotiate surveying the whole catchment
RCO attended State Landcare Conference
commenced gathering relevant literature
call for interested persons and representatives to form project's Steering Committee (ABC Radio, local papers and mail out)
formed Steering Committee
appointed part time GIS Officer
initial Steering Committee meeting (03/02)
temporary Technical Assistant employed (TA)
planned, contracted and installed bore monitoring network (04/02 to 05/02)
developed bore holes and bore monitoring commenced 07/02
formed project budget
CALM recruit - on four weeks work experience
Fiona Falconer employed part time to assist the project (Communications)
initial Steering Committee meeting proceedings released
Surface Water Management Working Group formed - drafted pilot project proposal
Surface Water Contract drafted, advertised, evaluated, recommended and appointed
Melanie Clinch employed part time - assisting vegetation habitat mapping
commenced designing data storage mechanisms for project
GIS Officer contract extended
commenced drafting Community Survey and Communications Plan
commenced drafting project newsletter - call for articles
Wetland Biological Survey Working Group formed - drafted survey proposal to assist in prioritising wetlands
preparation for second Steering Committee meeting
work experience student arranged for 01/03 (4 weeks)
RCO attended Groundwater Hydrology School (07/02)
RCO attended Geophysics Information Day (07/02)
commenced reviewing bore monitoring network with Department of Agriculture
began compiling Drill Completion Report
commenced engaging landholders in surface water pilot project within the rejuvenated zone
Ministers Media Release about the Recovery Catchment Project
second Steering Committee meeting (08/02)
commenced Surface Water Management pilot contract

Future

second Steering Committee proceedings release
Budget approved (02/03)
Technical Officer 2 year contract advertisement
commence Community Surveys
publish Project Newsletter (12/02)
complete Surface Water pilot contract
finish Drill Completion Report
Biodiversity Conference
Wetland Surveys

Buntine-Marchagee Natural Diversity Recovery Catchment Project Timeline

OUTCOME THREE: GROUND WATER AND SURFACE WATER PROGRESS

Bore Monitoring Network

Tony Raudino, temporary Recovery Catchment Technical Officer, outlined the program of drilling that has been carried out by Austral Drilling:

- To date, 52 bores have been drilled on 14 properties, in 6 transects.
- Core samples have been collected at every metre of drilled depth in each bore. The samples have been bagged and tagged for reference.
- Observation bores and piezometers have been put into place.

Hydrological data

Russell Speed, Research Officer with the Department of Agriculture confirmed that the initial snapshot had been completed. An enormous amount of data has been collected and the challenge now is to convert that data to information.

The current snapshot underlines the need for time series data over a ten year period, particularly given the current notions of climate change.

Three recommendations were provided:

- Don't rush in and spend significant funds until the ground water trends are clearer.
- Enough sampling has been done; the priority now is to complete the drill reports and analyse all of the data generated.
- Any further work should be strategic:
    - focus on infilling to get a picture of what is needed;
    - do cross-sections;
    - do spatial mapping;
    - select a few strategic spots to test hypotheses and trends.

Lessons from Lake Bryde

Darren Farmer, Program Modeller with the Department of Agriculture, outlined the lessons that had been learnt from the Lake Bryde Catchment process.

The critical factors for success are:

- Appropriate catchment work focused to an outcome;
- Getting the data and information that is really needed;

- Breaking the project into manageable, achievable and fundable chunks;
- Stretching limited funds;
- Getting catchment stakeholders motivated . . . and keeping them that way;
- Getting everyone to 'speak' the same language for the same reason.

The first steps are to define and understand the catchment:

1. Basic catchment delineation (neighbourhoods).

   What are the main geophysical areas within each catchment and basin within the recovery area? Identify the major landscape features within each neighbourhood.

2. Climate and flood analysis (event and risk analysis).

   What are 'major events' in each basin and what are their impacts, based on anecdotal and historical information?

3. Generic vegetation / soils description.

   What are the generic landscapes (as defined by farmers) and what are their characteristics, how do they vary across catchments?

4. Salinity analysis.

   What does the Land Monitor Salinity Predictions / Monitoring mean for this area? Provide a local interpretation of what data is really telling (and not telling) us.

5. "Review activities to date".

   What have we done, what have we learned, what do we know?

Surface Water Management

Peter Whale, Technical Officer from the Department of Agriculture, outlined the decision from the previous Steering Committee Meeting to select an area for the surface water planning, settle on design issues and move to action.

- The area selected is 44,000 hectares and 24 landholders are involved.
- The brief requires consultants to:
  - analyse all collected data;
  - visually analyse the landscape;
  - obtain landholder input, through desk top work and through on-farm interviews;

- recommend surface water demonstration sites;
- provide a report;
- give presentations to key stakeholders.

➢ From the initial responses, it was decided to seek more information from the tenders submitted, in terms of the definition of the project.

➢ The pilot contract, for 10 weeks contract time was still to be finalised at the time of the second Steering Committee Meeting.

Peter Whale also circulated a Project Assessment Report that he and Darren Farmer had completed in July 2002. A copy is contained in Appendix I.

Rapid Catchment Appraisal

Russell Speed tabled a document from Mike Clarke, Project Leader in the Department of Agriculture on the Rapid Catchment Appraisal (RCA) program for the Northern Agricultural Region.

The RCA approach is a broad brush study that provides some indications on areas of land with the potential to go saline. It also provides an overview of the farming systems that operate within the catchment area.

WORKSHOP FINDINGS

Workshop participants generated the following recommendations in regard to the ground water and surface water programs:

- Support must be provided to ensure that the hydrological data is processed into useable information.
- Any additional hydrological work must be driven by "recovery" priorities.
- Surface water management plan and works must proceed as a priority.

These recommendations were agreed from the work of four sub groups, provided below:

Group One

- Shift the focus onto surface water management and on-ground actions.
- Sub committee to let Surface Water Management Contract before the next Steering Committee Meeting.
- Need to go back to the MOU between the Department of Conservation and Land Management and the Department of Agriculture to ensure that long term support is provided for the hydrology input required.

Group Two

- Need to focus on the recovery priorities:
  - survey landholders on priorities;
  - get agreement from the Agency stakeholders.
- Conduct Wetlands survey - enables ranking based on biological values.
- Recovery Catchment Team (Department of Conservation and Land Management) needs to complete the biological prioritisation, in order to link and direct further hydrological works.
- Identify the key targets for prioritisation, before any infill hydrological drilling takes place.
- Need a full-time position to complete a range of tasks associated with the bore monitoring.
- Need hydrology support, from the Department of Agriculture.
- Hold workshops to extend the hydrological data to landholders:
  - on-going monitoring results;
  - data analysis from the drilling program;
  - GIS;
  - findings about wetlands on elevated slopes.

Group Three

- Major requirement is to get data (hydrology, catchment, soils, permeability, etc) into information that:
  - is understandable;
  - has recommendations for action.
- Develop an interactive forum process as the information is provided from the Recovery Catchment Team, Committee and landholders to provide:
  - feedback;
  - conclusions;
  - directions.
- Identify delivery timelines and clearly define deliverables.
- Working Group to develop a Scoping Statement (what is wanted; who can provide it).
- Need for a very good "water" project manager (and team).

Group Four

- Need a dedicated hydrology support position, for a minimum of 12 months, supervised by an experienced hydrologist, as part of the agreement with the Department of Agriculture.

OUTCOME FOUR: UPDATE ON PROPOSED WETLAND SURVEY

Focal Species Approach

Ted Lefroy, Sustainable Ecosystems in CSIRO outlined the approach to the bird survey work as follows:

- based on the focal species approach developed in the Central Wheatbelt;
- CSIRO approached the Department of Conservation and Land Management at the beginning of the Buntine-Marchagee Recovery Catchment process;
- agreed on a three year project as input to the process;
- basic approach is to determine what is needed to conserve for a focal species:
  - identify threats to birds,
  - determine which bird communities (focal species) are susceptible to which threats;
  - identify the minimum habitat area,
  - identify the maximum habitat area,
  - select rapid methods to assess remnants (in order to cover 631 remnants in the catchment),
  - use connectivity analysis to identify any weaknesses in a neighbourhood,
  - match the bird's opinions to the people's opinions.

Andrew Huggett, Focal Bird Species Project Leader with CSIRO summarised the current progress:

Bird surveys

- 250 remnants surveyed for birds in Spring 2001;
- 65 remnants surveyed for birds in April / May 2002;
- 150 remnants to be surveyed for birds in September / October 2002;
- all surveys cover:
  - presence or absence,
  - reliance on saline or wetland areas
  - relative abundance;
- 3,522 records of 93 species of wheatbelt birds have been collected so far.

Vegetation surveys

- 315 remnants have been surveyed to date, in terms of soils and dominant species for each soil;
- 316 remnants to be completed by November / December 2002;
- 30 remnants to be quadrat sampled.

Vegetation mapping

- completed as per contract.

Tasks to be completed

- correlation of plant data with bird data;
- focal species bird analysis;
- species threshold analysis;
- landscape design and restoration guidelines;
- reporting;
- development of the Website (half to do).

Foxes and cats

- surveyors make notes of observations;
- need to use the newsletter to encourage fox baiting (particularly to protect mallee fowls).

Wetlands Survey

Anthony Desmond, Regional Leader of Nature Conservation – Midwest Region, Department of Conservation and Land Management, outlined the progress to date:

Identifying priority wetlands

- gathered a small sub committee to start the process of identifying priority wetlands;
- the steps are:
  - further develop the methodology (initial monitoring format);
  - take to a wider audience;
  - prepare the contract (long iterations).

Key questions

- what do we have?
- do some have higher value?
- what do we need to do to maintain these values?
- are we successful?

Design

- look at three to five transects and sample;
- also sample anything that stands out as different.

Timeline

- couple of weeks to months, to further develop the methodology;
- three to four months to take the methodology to a wider audience;
- start sampling next winter (2003)

It must be kept in mind that the aim of the project is recovery, not maintenance of the current status.

The Wetland Survey is vital and it will set the outcomes for any further hydrology.

OUTCOME FIVE: COMMUNITY SURVEY

The project has employed Fiona Falconer to assist with communication and community involvement.

- A draft Communications Plan has been developed and comment is to be directed to the Recovery Catchment Officer.
- A draft Community Survey has been developed and is included as Appendix II.

Development of the Community Survey

- The survey is a composite of a number of different surveys done in the region and therefore it targets the gaps from existing surveys.
- Survey results will feed into the development of the Communication Plan.
- The aim is to target every landholder with the opportunity to participate.
- There is some information on remnant vegetation but very little current information on farming systems.

WORKSHOP INPUT

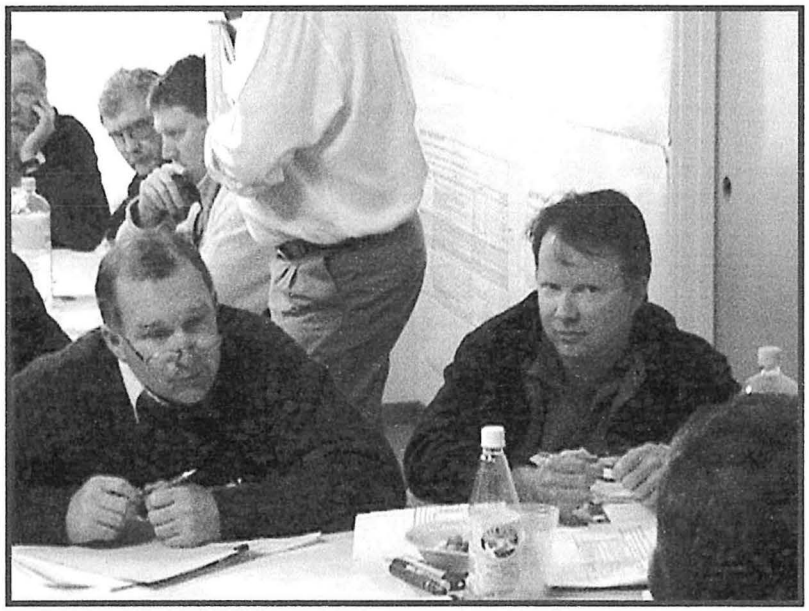
Committee Members worked through the draft Community Survey and made the following recommendations:

- Do some of the work for questions beforehand, eg: details of landholder, location, etc.
- Restrict the length to 20 minutes approximately.
- Telephone for a visit:
  - give landholders the option of filling the survey out first or working through it with the interviewer.
- To get the best commitment, take the survey face-to-face:
  - problems:
    - "invasion of privacy";
    - "who will it benefit?";
    - "will we be held to our answers?".
- Must be very clear why we (the Steering Committee) need to ask each question.
- There must be a very good context:
  - why;
  - tangible rewards for participating.
- Give everyone who participates something (a publication or a useful item).
- Much more information is gathered when two interviewers are used (and better collaborative reports ensue).
- Coffee and talk are important methods of involvement as a key part of the overall public participation process.
- Consider a cell group approach that involves three or four respondents at the same time.
- Confidentiality:
  - Identify Number in the top corner;
  - only the Identity Number is entered into the analysis.
- Add a "Don't Know" category.
- Add a map of each individual property with the survey, and encourage respondents to draw in the key changes or details.
- Provide more room for comments:
  - use two interviewers such that one writes, one asks the questions
  - enter the comments into the database, using a mix of quantitative and qualitative methods.
- Add questions about the value of biodiversity assets.

OUTCOME SIX: NEXT STEPS

Committee members agreed that:

- The next Steering Committee meeting should incorporate a field component.
- The timing would be March 2003 or June 2003, dependent on the progress that had been made with key milestones.
- In terms of a broad review, the later date of June 2003 is preferable.
- Sub group meetings should be held in the interim, as required.



CLOSING COMMENTS

Kelly Gillen, Regional Manager, Midwest Region of the Department of Conservation and Land Management thanked Steering Committee Members for their commitment and acknowledged the complex nature of the project.

Confirmed that good progress has been made in the past six months. Now the challenges on the technical side are to get the surface water management plan operating on a large scale and to progress the biodiversity work.

On the community side, there is a need to get the information flowing and to get the demonstration sites operating as soon as possible.

PROJECT ASSESSMENT: BUNTINE-MARCHAGEE RECOVERY CATCHMENT

Darren Farmer, EWM Group, Department of Agriculture, 25 July 2002

Darren Farmer (EWM group, South Perth) and Peter Whale (Department of Agriculture, Three Springs) carried out a general assessment of the Buntine-Marchagee Recovery Catchment on Thursday, 25 July 2002. The visit involved travel along roads within the general recovery catchment area that traversed the main valley systems and potential features of interest that were identified from catchment aerial photo mosaics and slope mapping (P Whale, Three Springs). This included two complete traverses via the Buntine-Marchagee Road and Gunyidi-Wubin / Nugadong West Roads.

The recovery catchment area itself is very large and consequently experiences a number of distinct landscape zones, varying along a notional east-west axis. This primarily entails a natural progression from steeper sloped valleys and flats in the west, moving towards longer, flatter sloped valleys in the east. The catchment is characterised by a central pronounced broad flat saline valley system that is fed by numerous broad tributaries and elevated flats, connected by better defined shallow flow channels. These features can be readily identified from slope mapping and aerial imagery and are generally bounded by a pronounced break of slope.

Agricultural activities are typically limited to contributing slopes along the main valley with an increase in activity in the more elevated flats and tributary slopes. Agricultural activity across the valley floor tends to be limited to the eastern half of the catchment where valleys are naturally less saline. In many cases, these upper valley areas have been subjected to engineering intervention in order to address emerging issues caused by poor natural drainage and excess water impacts.

A notable feature of the area traversed was the extent of landscape diversity over very short distances ***within landscape zones***. This is reflected in remnant vegetation, general slope profiles and valley entities. This variability is a primary basis for the catchments' appeal toward biodiversity protection.

Pronounced landscape variability and exacerbated valley saturation resulting from excess and accumulated water is anticipated to be a substantial management challenge for the Buntine-Marchagee recovery catchment. It is expected that management scenarios will need to reflect issues and priorities at local scales in order to achieve longer-term objectives at sub-catchment and greater scales. This contrasts with conventional catchment scale approaches where management recommendation simply involve the widespread application of landscape assigned treatments. For the Buntine-Marchagee project, the inherent heterogeneity and the sheer extent of the project area will undoubtedly negate the benefit from any program based upon generic treatments.

It is felt that the initial priority should be to divide the total catchment into smaller and more assessable management cells. These cells would be based upon a combination of boundaries derived from topography (watershed boundaries, break of slope), cadastral (logical allocation of land owners) and biophysical (features and generalised systems). The decision process for division should reflect the valley focus.

Recommended process:

1. Establish the valley extent in a similar manner to the shedding and receiving concept utilised in Lake Bryde.

2. Divide the valley sections based upon possible road impediments, evident landscape systems and catchment tributaries.

3. Field investigate each valley cell, identify important features, issues, systems and processes. This would presumably present a starting point and generic basis for all future activities. ***Attention to be given to broad rather than detailed segregation***.

4. Realign preliminary boundaries to better aggregate localised issues and similarity. Complete by explicitly documenting the items identified in task 3.

5. Undertake a neighbourhood style assessment to establish "meta-cells" which establish the key valley segments. These are more likely to align with the actual hydrological system and provide a coarse reference.

   At this time, no attention has been given to the upper slopes. Based upon initial slope assessment, this would effectively reduce the "first pass" landscape assessment to something like 10-15% of the total catchment area. Focus towards the valley is also likely to better align the assessment process with the recovery catchment "valley protection" objectives.

   From this point, it is possible to instigate a series of parallel investigations that would presumably include biota audits and surveys, risk analysis and recovery prioritisation for the valley system. This process should establish monitoring requirements and establish sufficient data for dialogue with key stakeholders.

6. The division process should be applied to contributing slopes, such that all areas common to each critical valley cell become aggregated.

7. Invoke a second phase of field investigation, the primary objective being to ascertain the core relationships between contributing areas and receiving cells. Integration of vegetation indicators, soils and slopes should assist in this process and be available. Document details for each area.

With relationships, issues and risk completed, a series of realistic management objectives can be determined and the preparation of preliminary treatment proposals undertaken. The process should emphasise short-medium term outcomes at individual cell scales that integrate within meta-cells and eventually the whole system, to return longer-term benefits. Proposed works should not lose sight of the ultimate need to contribute toward a catchment scale outcome. Impacts should be managed locally within cells and/or meta-cells wherever possible, in order to minimise the dependence upon costly "arterial schemes".

An important consideration is the potential requirement for regulation of landholder activities. Particularly where these interfere with valley systems or promote off-site impacts. Segregation of the valley and contributing systems could ultimately provide the framework for a strategic planning outcome similar to that associated with town-planning. Completion and public implementation should be major recovery catchment objectives to ensure that locally focused works are communally acceptable. It is expected that in many cases, this will involve keeping on-farm works independent of valley processes. The recovery process must ensure that adequate attention is given towards establishing appropriate methods of achieving this without imposing undue cost or onerous compliance requirements upon the proponents.

DRAFT ONLY

BUNTINE-MARCHAGEE NATURAL DIVERSITY RECOVERY CATCHMENT

Landholder Survey

Contact Details:

Name: .....

Owner / Manager: .....

Company / Property Name: .....

Address: .....

Post Code: .....

Phone: ..... Fax: .....

e-mail: .....

Farm Social Structure:

How many people live on the farm and what are their age groups?
(please indicate number of people in each age group)

Under 10 years	( )	41 – 50 years	( )
10 – 20 years	( )	51 – 60 years	( )
21 – 30 years	( )	Over 60 years	( )
31 – 40 years	( )	Absentee	( )

Property Details:

Location numbers: .....

Shire:

Total area of property: .....

Area of cleared land: .....

Area of remnant vegetation: .....

% of whole which contains remnant vegetation: .....

Area of revegetation: .....

% of whole which contains revegetation: .....

Is any part of the property currently saline? Area: .....

What % of the saline area is naturally saline? .....

What % of the saline area is secondary salinity? .....

Date(s) of clearing: .....

Property Description:

Topography and soil types: .....

Land use: .....

Farming Systems and Management Practices:

In 2002, how much of the cleared land was in: Ha

Pasture:	Improved (clover, medic, serradella):	.....
	Lucerne:	.....
	Volunteer (clover):	.....
	Perennial grasses:	.....
	Tagasaste:	.....
	Other perennial shrubs (Acacia, etc):	.....
Crop:	Cereal:	.....
	Legume (lupins, other):	.....
	Oilseed (canola, other):	.....
	Summer (sorghum, other):	.....
Trees:	Native(oil mallees, other):	.....
	Forestry (pines, other):	.....

Do you have:	Sheep	(Yes)	(No)
	Cattle	(Yes)	(No)
	An other commercial livestock?	(Yes)	(No)

Would you consider you use transitional farming methods (eg: multiple pass cultivation) or conservation farming methods (eg: minimum till, direct drill) or a combination of each?

.....

.....

.....

.....

What do you think are the biggest threats to sustainable farming over the next few years?

.....

.....

.....

.....

Have you, or might you consider in the future, diversification into alternative enterprises, i.e.: farm tourism, horticulture, etc?

.....

.....

.....

Land Degradation:

Do you consider you have any of the following on this property?

* wind erosion	(Yes)	(No)
* water erosion	(Yes)	(No)
* water logging	(Yes)	(No)
* salinity	(Yes)	(No)
* soil acidification	(Yes)	(No)
* water repellent soils	(Yes)	(No)

What conservation works have you implemented to address these problems?

*drains	(Yes)	(No)
* banks	(Yes)	(No)
* contours	(Yes)	(No)
* liming	(Yes)	(No)
* revegetation	(Yes)	(No)
* fencing remnant vegetation	(Yes)	(No)
* other	(Yes)	(No)

.....

Do you consult with your neighbours on any aspects of land conservation works? (Yes) (No)

Remnant Native Vegetation:

Area of remnant vegetation fenced from stock: .....

Is fenced remnant vegetation regenerating? (Yes) (No)

Is unfenced native vegetation regenerating? (Yes) (No)

How is the bush on your farm distributed (eg: blocks, strips)? .....

What are the vegetation types (eg: York Gum Woodland)? .....

Do you believe the remnant vegetation has a role in your farm system as: .....

* stock shelter	(Yes)	(No)
* windbreak	(Yes)	(No)
* wood	(Yes)	(No)
* wildlife habitat	(Yes)	(No)
* other	(Yes)	(No)

.....

What are the threats to remnant vegetation on your property?

* feral animals	(Yes)	(No)
* weeds	(Yes)	(No)
* salinity	(Yes)	(No)
* fire	(Yes)	(No)
* grazing	(Yes)	(No)
* other	(Yes)	(No)

.....

What are the barriers faced in managing remnant vegetation on your property?

* cost (Yes) (No)
* time (Yes) (No)
* need for management advice on, eg: flora and fauna, weed control, etc (Yes) (No)
* other (Yes) (No)

.....

Have you implemented monitoring techniques (eg: photo points)? (Yes) (No)

Revegetation:

Area fenced: .....

Area not fenced: .....

For what reason/s did you revegetate?

* windbreak (Yes) (No)
* water use (Yes) (No)
* shelter belt (Yes) (No)
* erosion control (Yes) (No)
* wildlife habitat (Yes) (No)
* salinity management (Yes) (No)
* farm forestry (Yes) (No)
* other (Yes) (No)

.....

What techniques have you used?

* seedlings (Yes) (No)
* direct seeding (Yes) (No)
* both (Yes) (No)

What level of survival success did you have?

* seedlings Good / Satisfactory / Poor
* direct seeding Good / Satisfactory / Poor

Was seed sourced locally or elsewhere? .....

What species have you used in revegetation (eg: oil mallees, native plants, tagasaste)?

.....

What position in the landscape have you revegetated (eg: ridgelines, mid-slope, valley floor)?

.....

What was the form of your revegetation (eg: strips, blocks)?

.....

What barriers have you faced in planning / implementing revegetation?

* cost	(Yes)	(No)
* time	(Yes)	(No)
* need for management advice	(Yes)	(No)

Have you implemented monitoring techniques (eg: photo points, transects)?

Flora and Fauna:

What animals and plants have disappeared from the area?: .....

.....

What animals and plants have increased in number?: .....

.....

If there have been increases or decreases, why do you think this is: .....

.....

Have any flora and /or fauna surveys been carried out on your property?

* fox control	(Yes)	(No)
* rabbit control	(Yes)	(No)
* feral cat control	(Yes)	(No)
* kangaroo control	(Yes)	(No)
* weed control	(Yes)	(No)
* other	(Yes)	(No)

.....

If you are not, what are the barriers preventing you from doing so?

* time	(Yes)	(No)
* cost	(Yes)	(No)
* leadership / co-ordination for baiting programs	(Yes)	(No)
* paperwork associated with baiting programs	(Yes)	(No)
* other	(Yes)	(No)

.....

Are your implementing measures to extend / improve / enhance fauna habitat (eg: biodiversity plantings, nest boxes, etc)

.....

Water:

What is your average annual rainfall?? .....

In what year/s have flooding events occurred since you began farming here?.....

.....

Do you have monitoring boreholes (piezometers or observation wells) on your property and if so, how many?

.....

How often, and who monitors your boreholes? .....

Was seed sourced locally or elsewhere? .....

Sources of landcare information:

What is your main source of landcare information?

* LCDC	(Yes)	(No)
* Landcare Co-ordinator	(Yes)	(No)
* Radio	(Yes)	(No)
* Books, magazines	(Yes)	(No)
* Field Days / Workshops	(Yes)	(No)
* other	(Yes)	(No)

.....

Funding:

What have been your finding sources for landcare works?

* self	(Yes)	(No)
* Natural Heritage Trust	(Yes)	(No)
* State Remnant Vegetation Protection Scheme	(Yes)	(No)
* CALM Covenant	(Yes)	(No)
* National Trust Covenant	(Yes)	(No)
* other	(Yes)	(No)

.....

What problems have you encountered with landcare funding sources?

* assessment period takes too long	(Yes)	(No)
* restrictions on plant species funded	(Yes)	(No)
* complexity of Covenants	(Yes)	(No)
* complex applications	(Yes)	(No)
* other	(Yes)	(No)

.....