MOORA - MILING PASTURE IMPROVEMENT GROUP

The MOORE CATCHMENT

PEOPLE ENVIRONMENT ECONOMY

CREATING PRODUCTIVE SALTBUSH PASTURES ON SALINE LAND

If you would like a copy of this report, or find out more information about the project or the Moore Catchment Council, then please contact:

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PEOPLE ENVIRONMENT ECONOMY

Government of Western Australia

Australian Government

nacc managing natural resources in WA's Mid West

Creating Productive Saltbush Pastures on Saline Land

Project Review

A National Landcare Program funded project
2007 - 2008

The Moora-Miling Pasture Improvement Group (MMPIG) consist of dedicated forward thinking landholders who wish to improve their farming systems to ensure sustainable farming into the future.

The Moore Catchment Council (MCC) are a non-profit community group who make up a regional part of the Northern Agricultural Catchment Council, and exist to educate and facilitate natural resource management in the Moore River catchment.

The Northern Agricultural Catchment Council (NACC) is a non-profit organisation who encompasses the Northern Agricultural Region (NAR), and provides leadership, advice and on-ground support for natural resource management issues and projects.

Background

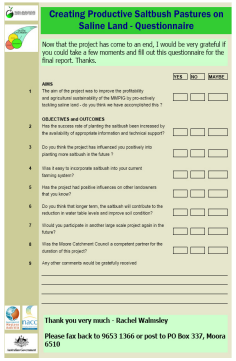
Western Australia has an estimated 440,000 – 1,000,000 hectares of secondary salinity ie land which has become saline because of human activities (source: *Saltland Pastures in Australia – A Practical Guide EG Barrett-Lennard and CV Malcolm 1995 ch 1 pg 3*).

The NHT's Dryland Salinity in Australia audit of 2000 found that areas of risk from shallow water tables or with a high salinity hazard were 4.363 million hectares in 1998/2000 and this is expected to rise to 8.8 million hectares by 2050 in Western Australia. In addition, 11% or 175,632 hectares of agricultural land in the Moore River catchment has been identified as yielding consistently low production (reference *NACC Regional Natural Resource Management Strategy page 21*).

Notes - all photos taken by R. Walmsley & A. Glass

Thank you to the following people for ensuring this project got off the paper and on to the ground - all the participants from the MMPIG, previous project managers - Christel Schrank and Amelia Glass, Georgie Troup, MCC staff, NACC staff, Ian Pulbrook, Andrew Blake, Mike Clarke, Jessica Hasleby, Gavan Mullan, David Pongracz, Denis Mitchell, Patrick Mullaley and Tony White who helped coordinate the project.

Thanks
Rachel Walmsley - Project manager and Natural Resource Management Officer at Moore Catchment Council


Creating Productive Saltbush Pastures on Saline Land - Questionnaire

Now that the project has come to an end, I would be very grateful if you could take a few moments and fill out this questionnaire for the final report. Thanks.

		YES	NO	MAYBE
AIMS				
1	The aim of the project was to improve the profitability and agricultural sustainability of the MMPIG by pro-actively tackling saline land—do you think we have accomplished this ?			
OBJECTIVES and OUTCOMES				
2	Has the success rate of planting the saltbush been increased by the availability of appropriate information and technical support?			
3	Do you think the project has influenced you positively into planting more saltbush in the future ?			
4	Was it easy to incorporate saltbush into your current farming system?			
5	Has the project had positive influences on other landowners that you know?			
6	Do you think that longer term, the saltbush will contribute to the reduction in water table levels and improve soil condition?			
7	Would you participate in another large scale project again in the future?			
8	Was the Moore Catchment Council a competent partner for the duration of this project?			
9	Any other comments would be gratefully received			

Thank you very much - Rachel Walmsley

Please fax back to 9653 1366 or post to PO Box 337, Moora 6510

A feedback questionnaire was sent to all participants of the project to help gauge whether the project had achieved what it had hoped to have accomplished, an overall good response was received.

Results of participants questionnaire	Yes	No	Maybe
The aim of the project was to improve the profitability and agricultural sustainability of the MMPIG by pro-actively tackling saline land—do you think we have accomplished this ?	88%		12%
Has the success rate of planting the saltbush been increased by the availability of appropriate information and technical information ?	88%		12%
Do you think the project has influenced you positively into planting more saltbush in the future ?	88%		12%
Was it easy to incorporate saltbush into your current farming system ?	100%		
Has the project had positive influences on other landowners that you know ?	75%	25%	25%
Do you think that longer term, the saltbush will contribute to the reduction in water table levels and improve soil condition ?	88%		25%
Would you participate in another large scale project again in the future ?	100%		
Was the Moore Catchment Council a competent partner for the duration of the project ?	100%		

Comments from participants regarding the project included:

"……a good survival rate will ensure salt reduction and help drought proof our farm in the future…"

"…..having contractors involved made the project get done on time on a large scale…"

"…..we plan to plant 300-400 ha in the next few years because of this project…"

"…..the project would not have worked, if not for the hard work of the Moore Catchment Council staff…"

Outcomes, Feedback and the Future

- As a result of this project, 130,928 saltbush seedlings have been planted and 6km of fencing installed on sixteen sites for thirteen landholders.

- All the sites were different but they all had the same fundamental problem - they had gone saline due to past human activities and now do not support traditional farming crops and pasture. The MMPIG recognised that an alternative sustainable pasture needed to be incorporated into their existing farming system to improve the environment as well as their farms.

- Landholders of varying past experience of planting and establishing saltbush pastures and the Moore Catchment Council, who facilitate best practice techniques and expert information, worked together to coordinate this project which has had a good outcome even with varying problems and hindrance.

- Feedback from the participants shows the general consensus that the aim of 'improving the profitability and agricultural sustainability of the MMPIG by pro-actively tackling saline land' has been achieved, and that future saltbush pastures can be confidently established by the participants using the knowledge provided by the project.

- Long term monitoring of the sites will help with future saltbush pasture establishments, which is attracting more and more interest from landholders in the eastern part of the Northern Agricultural region as an alternative fodder crop for their stock. Hopefully this project and the participants will help encourage these and other landholders in salt affected areas to integrate saltbush into their existing systems for a sustainable farming future.

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Aims of project

Improve profitability and agricultural sustainability of the Moora-Miling Pasture Improvement Group region by farmers pro-actively tackling saline land by changing their farm and land management systems.

Project aims:

- Increase the success rates of planting saltbush through the provision of information and technical support to fifteen farmers from the Moora-Miling Pasture Improvement Group.

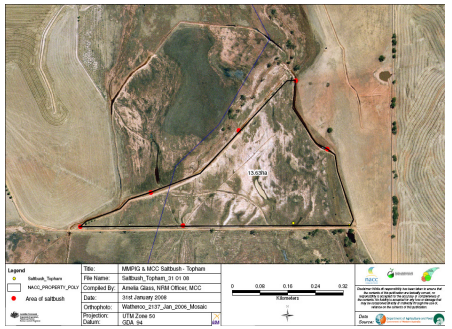
- Encourage the uptake of saltbush pasture development by actively engaging landholders into pro-actively changing their farm and land management systems in order to tackle the saline land on their properties. This will contribute to increased productivity, profitability and agricultural sustainability in the region. This will be achieved through communication and education of local farmers to convey the benefits of saltbush pastures through active participation, provision of technical support and awareness raising activities to the wider community in the Northern Agricultural Region.

- Contribute to the reduction of high water tables, soil salinity, soil erosion, surface water run-off and recharge in the Moora-Miling area thereby contributing to peak flow reduction and flood mitigation down stream in the catchment.

Case study - Bruce & Cynthia Topham

Site selected - degraded, unproductive, unmanaged and waterlogged floodplain site.

Landholder: Bruce & Cynthia Topham
Location: Ascot, Miling
Farms: 1000 sheep
Previously planted saltbush: Yes
No. of saltbush planted: 10,000
Main reason for planting: long term regeneration of the land by controlling erosion and slowing down run-off

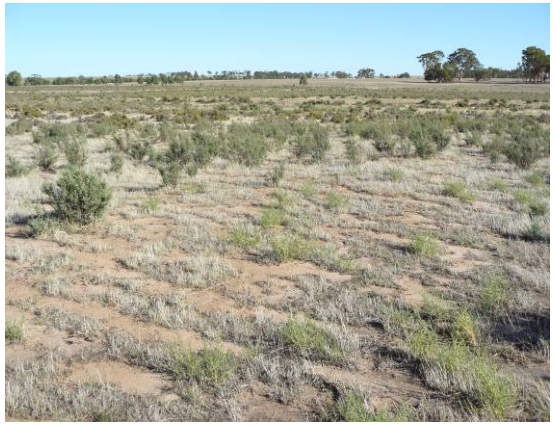


Aerial map of selected site produced for the project.

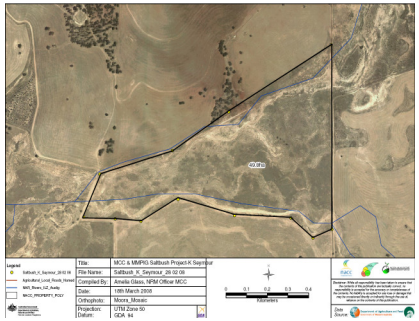
Old man saltbush on the property which has self-seeded lots of new plants.

Cynthia standing next to seedlings, planted as part of the project, in amongst previously sown saltbush.

Case study - Ken Seymour



Site selected - waterlogged unproductive good for nothing site on the valley floor.



Aerial map of selected site produced for the project.

Landholder: Ken Seymour
Location: Meridale, Miling
Farms: 6000 sheep
Previously planted saltbush: No
No. of saltbush planted: 12,000
Main reason for planting: Fodder crop for stock, have a go at growing saltbush

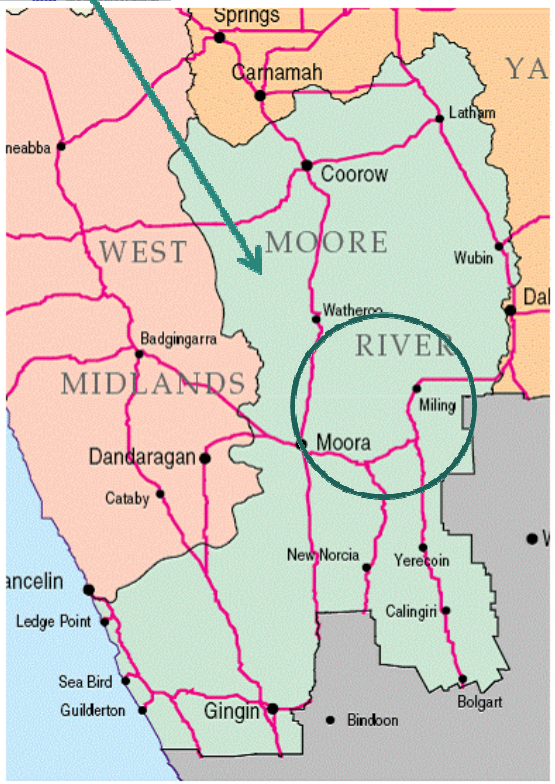
Ken installing his photo point for future monitoring. He has been very impressed with the successful establishment and growth rate of the saltbush seedlings even with the dry August that occurred during planting.

Focus area

The Moore River is located in the southern part of the Northern Agricultural Region, with the headwaters originating in the north eastern part of the catchment and the mouth located at Guilderton in the south west corner.

The Focus for this project was in the area between Moora and Miling where members of the Moora-Miling Pasture Improvement Group (MMPIG) farm and have areas of secondary saline land.

The Moore Catchment Council (MCC), who partnered on the project, help facilitate natural resource management to landholders and communities in the catchment



Why saltbush ?

Salt land pasture systems have proven to be both productive and profitable on salt affected land, and can be easily incorporated into existing farming systems to provide a sustainable stock feed. Due to high salt concentrations, saltbush should be combined with other low salt feeds to ensure good nutrition. Alley planting with inter-row annual legumes and/or perennial grasses, or dense stands of saltbush with supplements of hay, grain or stubble is recommended.

Once introduced to stock, saltbush is considered palatable, is rich in protein and vitamin E, and can fill the autumn feed-gap. Increased wool growth and bodyweight at slaughter has also been noted as a benefit from saltbush systems.

As it is normally planted on-mass in the low lying salt affected areas , it reduces soil erosion by slowing down high flows and mitigation of flood events, as well as encouraging reduction of the water table and salt levels.

River saltbush - *Atriplex amnicola*
Moderate to high salinity tolerance and high drought tolerance. Once established can survive several weeks of winter waterlogging.

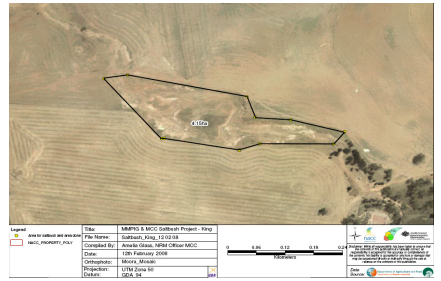
Old man Saltbush - *Atriplex nummularia*
Moderate salinity and high drought tolerance. Once established extremely tolerant of heavy annual grazing for short periods.

Rhagodia - *Rhagodia spp*
Moderate tolerance to saline lands but not as adapted to waterlogged land as the other species used.

Case study - Frank & Marge King

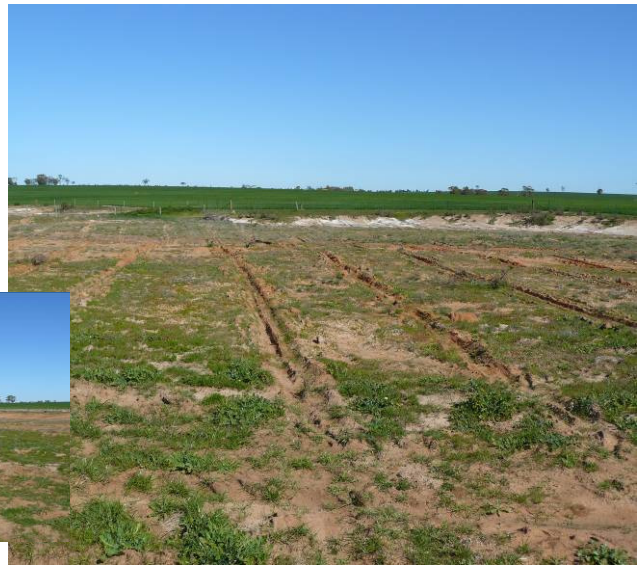
Site selected - Fenced off area along creek line awaiting re-vegetation. This will join up existing re-vegetated part of the creek that Frank & Marge have previously carried out.

Landholder: Frank & Marge King
Location: Windy Ridge, Bindi Bindi
Farms: Contracts out
Previously planted saltbush: Yes
No. of saltbush planted: 10,000
Main reason for planting: Erosion and water control on creek line



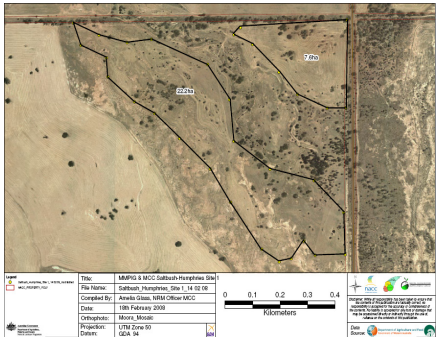
Aerial map of selected site produced for the project.

Frank & Marge carried out site preparation and planting works themselves having done similar works before and possessing previous experience with saltbush.



Case study - Richard Humphry

Site selected - previously cropped but now water logged and turning saline.



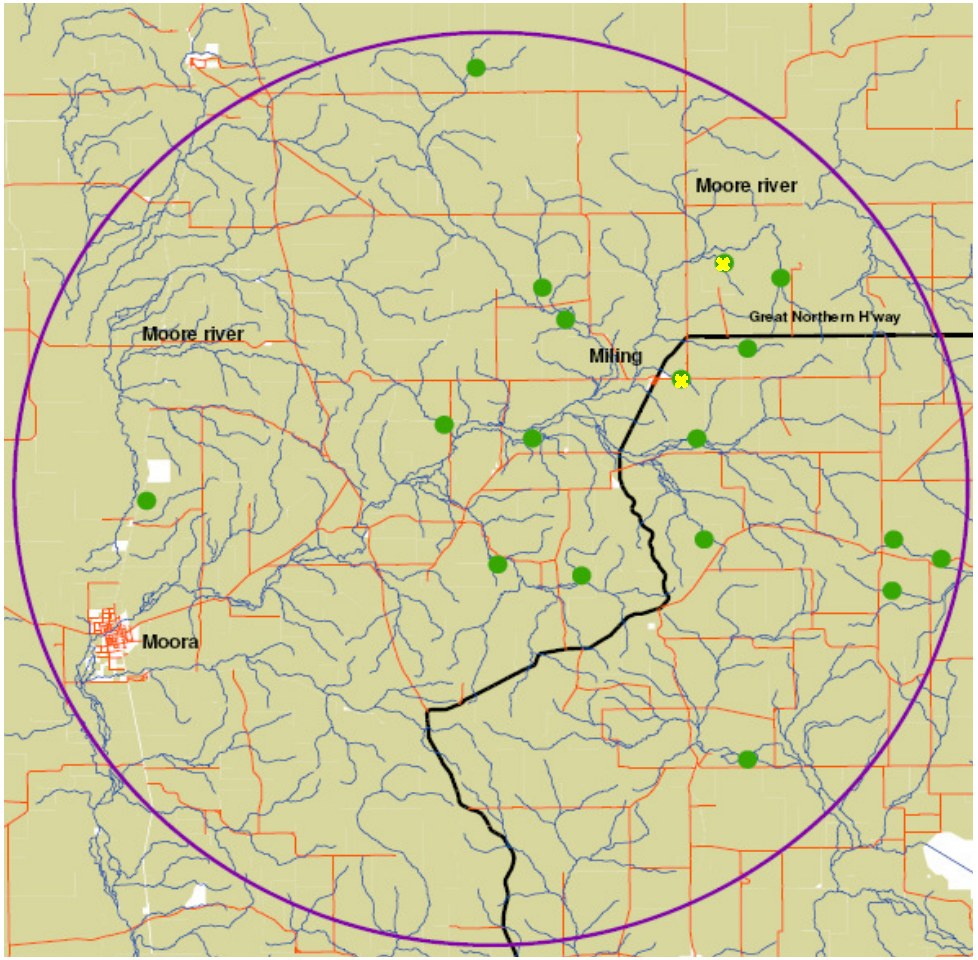
Aerial map of selected site produced for the project.

Landholder: Richard Humphry
Location: Hillview, Moora-Miling rd
Farms: Sheep
Previously planted saltbush: Yes
No. of saltbush planted: 12,000
Main reason for planting: Fodder crop for stock

Site was ripped and mounded then planted by Ian Pulbrook's team.

Saltbush seedlings have established well on this site.

Sites selected



15 landholders chose to participate in the project and 18 sites were initially selected to plant the saltbush. 2 landholders dropped out of the project, due to differing reasons, before the planting began which left 16 sites.

Participants

Landholder	Number of saltbush seedlings	Area of land allocated for saltbush	Length of funded fencing
Andrew & Michelle Barnard	4,928	8.9 ha	
Quentin Bricknell	10,000	53.5 ha	
Les & Ann Crane	6,500	13.7 ha	
Phil Gardiner	10,000	30.5 ha	1.5 km
Richard Humphry	12,000	22.2 ha	
Frank & Marge King	10,000	10 ha	
Jeremy Lefroy	2,000	7.5 ha	1.5 km
Kristen Lefroy	8,000	37.2 ha	1.5 km
Stan & Ann Lewis	10,000	29.6 ha	
Neil & Leanne Pearse	7,000	3 ha	
Ken Seymour	12,000	49.8 ha	
Bruce Topham	10,000	13.6 ha	
Tony White	18,000	18.9 ha	1.5 km
David McLagan	Pulled out		
Ian & Johanna Seymour	Pulled out		
Total	**120,428**	**298.4 ha**	**6 km**
Saltbush left over to fill gaps next year	**10,500**		

Showcasing the Project

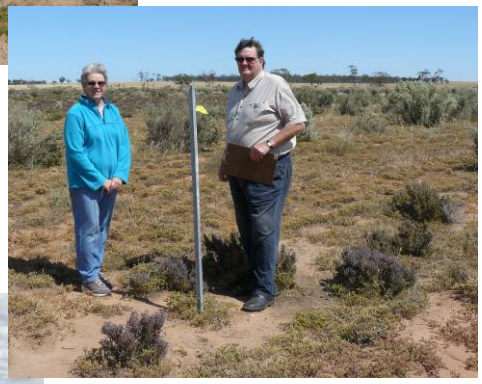
The project was showcased at the MMPIG spring field day on 17th September 2008. Project participants, landholders and interested parties were shown Ken Seymour's saltbush plantation that had been put in just over a month ago and was still doing well despite the lack of August rains. Ian Pulbrook of Greenoil Nursery Mingenew, who carried out the works, and Tony White of MMPIG explained to the group the establishment processes involved and long term benefits gained with planting saltbush in this particularly tough planting environment. There was much interest in saltbush pastures from various individuals as a result of the field trip.

Project Activities and Timeline - cont.

Aug/ Sep 2008

After all the saltbush seedlings were planted, the sites were inspected by the Moore Catchment Council project manager and photo points installed for future monitoring of the project which will continue for at least 10 years. Each point was located by GPS and recorded so as not to lose the monitoring point if the tag falls off or land changes hand.

Frank King installs his photo point on a strainer post of the perimeter fence around his newly sown saltbush pasture.



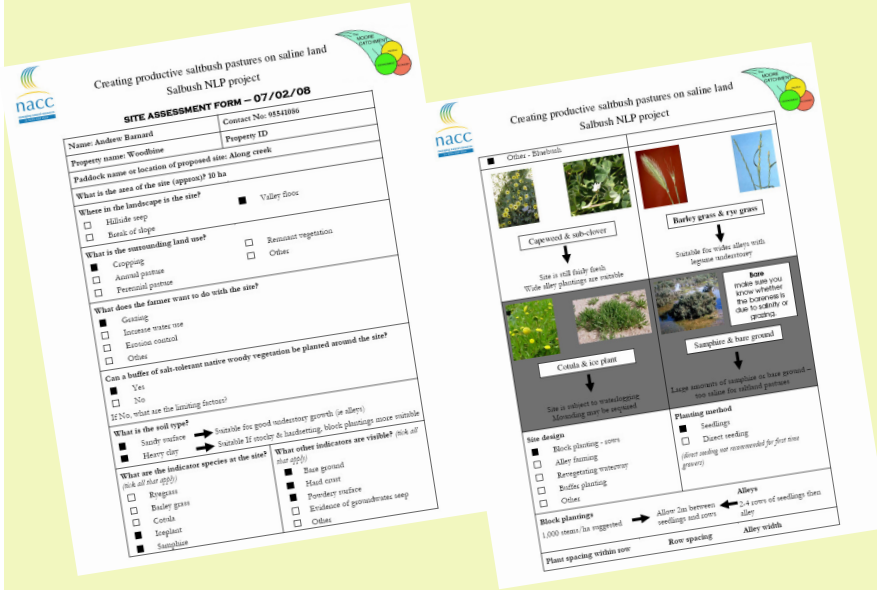
Tony White installs one of his photo points in his newly established saltbush pasture.

Cynthia & Bruce Topham install their photo point within their saltbush pasture and look forward to monitoring annually to record the growth.

End

Project Activities and Timeline

Soon after the project commenced in June 2007, enough saltbush seedlings were ordered from Greenoil nursery in Mingenew to allow approx. 10,000 seedlings per landholder to be planted the following winter. This was followed by each individual site being visited by technical advisors and Moore Catchment Council employees in late 2007 and Feb/Mar 2008. The desired location for the saltbush pasture was assessed for suitability and a GPS was used to calculate the area and length of fence needed to ensure the pasture


Creating productive saltbush pastures on saline land
Salbush NLP project
SITE ASSESSMENT FORM – 07/02/08
Creating productive saltbush pastures on saline land
Salbush NLP project

The locations were plotted on to an aerial map, checked for heritage sites, and then a management agreement and plan drawn up outlining criteria to be followed. These were sent to each landholder to read through, agree and then sign.

Start

June 2007

Feb/ Mar 2008

Apr- Jun 2008

Project Activities and Timeline - cont.

June 2008

As part of the ongoing education offered by the project, a 'Tips and Tricks to Successful Tree Planting' workshop was held in two locations on June 26th 2008 - Participants (project participants and outsiders) were informed on various topics which included hand planting vs machine planting which was delivered by Gavan Mullan and David Pongracz from Department of Environment and Conservation, a new innovative watering technique which Georgie Troup from the Moore Catchment Council shared, and seedling care tips from Denis Mitchell of Wongan Trees nursery.

Georgie Troup explaining a new watering technique to the group that she had witnessed as part of the recent brushwood project

July 2008

By the end of June - early July 2008, all fencing that needed to be done was carried out to ensure the pastures would be stock proof to allow good establishment of the saltbush. Participants who wished to carry out their own ground preparation and planting works did so, whilst the majority of the group waited for the contractor, Ian Pulbrook from Greenoil nursery, Mingenew, to come and carry out the ground preparation works and planting of the remaining 82,000 seedlings.

Project Activities and Timeline - cont.

New fencing at Phil Gardiner's pasture to exclude stock and pests from the newly planted pasture

Planting activities by the contractor were delayed by a few weeks due to torrential rain experienced towards the end of July which made ground preparation works impossible. Each site was to be ripped and mounded - to allow the saltbush to be above the waterlogged soil but have adequate access to water within the mound, and to encourage salt to leach out of the soil - all providing the best start for the plants to establish well.

July/ Aug 2008

Works were rescheduled and all sites were ripped, mounded and planted by the end of August. Some problems were experienced including the machinery becoming bogged and no rain falling during the whole of August !