

Change of Strategic Direction for Rangelands

The strategic direction of Rangelands NRM is changing to try and reduce risks and develop a sustainable future. Our almost total dependence on Caring for Our Country (CfoC) funding (94%) means we will deliver services for the Commonwealth Government focused on national priorities in geographic areas they believe are important. These are not always priorities or areas that our communities and other stakeholders in



Dr. Brian Warren, General Manager

the WA rangelands would focus on if there were other funds available.

Rangelands dependence on CfoC funding means we now have a much reduced portfolio of NRM activities across a small part of the rangelands. Our portfolio will probably continue to decline unless we can better show our value in helping to manage WA's natural resources and obtain alternative funding.

From now on Rangelands NRM will have a stronger focus on the development of our business and look for additional opportunities through other government funding sources and developing partnerships with the key large corporates in our region and also try and develop better linkages to other philanthropic and non-government funders. We need to do this while delivering our current activities and ensuring quality of outcomes.

To help us in this our method of operation will change. We will establish an office in Broome which will become the operational centre of the organisation and John Silver will lead that. The Broome centre will be focused on supporting our major projects under CfoC which are almost all in the Kimberley and Pilbara. Our current office in Kununurra will remain and support the Kimberley and other activities. Rangelands will establish a small office in Perth to service our business development focus. The current office in Carnarvon,

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Kimberley Projects

What is Aerial Electromagnetics (AEM)?

An Aerial Electromagnetic (AEM) survey is a way of mapping features below the soil surface including clay deposits, aquifer locations and the salt content of soils and aquifers. By mapping these features as well as detecting salt stored below the root zone, we can determine with much greater accuracy, current and future soil salinity risk. AEM surveys can also provide information on the pathways for groundwater flow which allows for better long term management of groundwater.

Why do an AEM?

There is a strong association between irrigation and salinity in the irrigation schemes of southern Australia. This is the result of rising groundwater activating salt stored in the soil. To avoid the potential for salinity to occur here, the Ord Irrigation Cooperative and the East Kimberley Reference Group wanted to identify, quantify and understand any potential salinity risks in the Ord Irriga-

tion scheme. The purpose of this project was to collect information to answer questions such as: are we at risk of salinity in the Ord Catchment; if so what areas are at the greatest risk; how can we plan future development to minimise salinity risk and maximise longevity of the irrigation scheme?

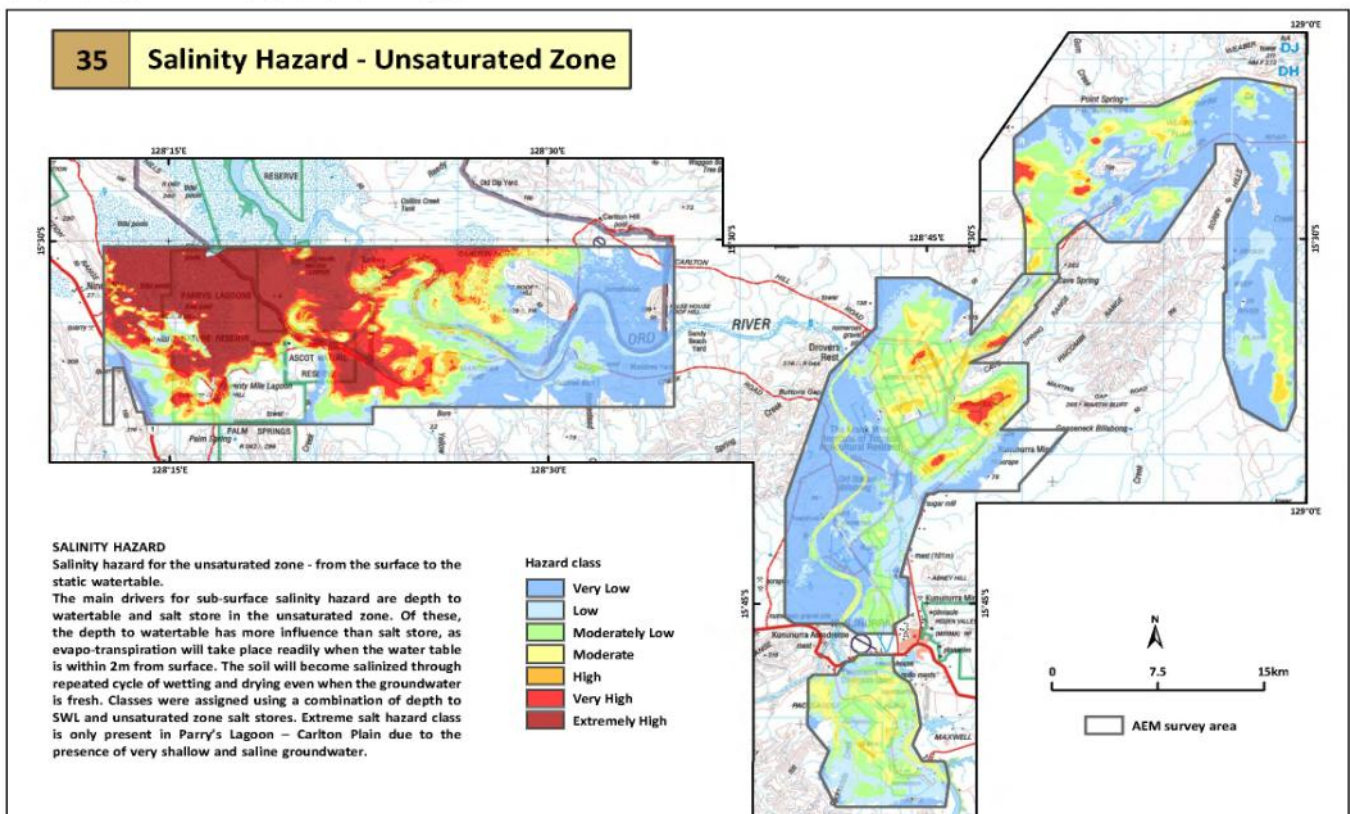
The project area covered the existing Ord Irrigation Area (ORIA) Stage 1, and the Stage 2 areas earmarked for irrigation extension, including the Weaber, Keep River and Knox Creek Plains, and the Mantinea-Carlton Hill- Parry's Lagoon area.

Further Reading

A full copy of the Final Project Report can be found at http://www.ordirrigation.com.au/PDFs/Ord_Report_GA_Professional_Opinion_2010-01.pdf

More information on the project can be obtained from Ord Irrigation Cooperative, Phone 08 9168 3300 or info@ordirrigation.com.au

Ord Valley AEM Interpretation Project



Kimberley Projects



Indigenous Emissions Trading Scheme in the WA Rangelands

Biosequestration?

Historical overgrazing and severe uncontrolled wildfires has released carbon that was stored in the soil and the native vegetation into the atmosphere. Increased levels of carbon emissions in the atmosphere contributes to global warming and the impacts of climate change.

Capturing carbon and storing it in the soil and the vegetation is a process called biosequestration.

Study Investigation

A major study was undertaken in the Kimberley-Pilbara to determine what opportunity there was for creating carbon offsets that could be traded in the voluntary carbon market.

The researchers sought to answer three questions:

1. What is the baseline level of carbon stored in the soil and vegetation in the region?
2. Can pastoralists increase their baseline level of carbon with grazing and fire management?
3. Can businesses make money from carbon offsets in the region?

Rehabilitation and reforestation of Australia's overgrazed rangelands and broad adoption of controlled savanna burning could biosequester and mitigate a total of 113 Mt CO₂-e (million tonnes of carbon

dioxide equivalent) per year. This tonnage of carbon is equivalent to taking more than 40 million vehicles off the road.

If the policy settings are right, income from carbon offsets has the potential to bankroll broad-scale regeneration of degraded areas throughout the Australian rangelands. Aside from the potential atmospheric benefits of carbon offset based enterprises, an increase in the level of carbon stored in the soil and the vegetation may also increase livestock carrying capacity and thereby strengthen existing financial returns of pastoralists.

Potential change in baseline carbon levels

There is evidence that pastoralists can regenerate degraded areas (Site A above) and return them back to good condition (Site B above).

The increase in carbon in this instance would be 61.3 t CO₂-e (the difference between Sites A and B). Pastoralists could sell this carbon for at least \$10 per tonne in the voluntary carbon market which would yield a total of \$613 per ha.

If we assume it takes 15 years to regenerate Site A, then the gross income would be \$40.87 per ha per yr. This income does not have any direct costs taken out of it, but to provide a crude compari-



Site A. Soil carbon: 25.2 t



Site B. Soil carbon: 86.5 t

son, the gross margin for cattle production in this area is approximately \$3 per ha per yr.

This highlights the significant financial opportunity for pastoralists in the rangelands if they engage in the voluntary carbon offset market. Managing the rangelands for carbon does not mean that they have to be destocked. Rather, in some instances livestock grazing has been shown to actually increase the baseline level of carbon on a property.

The Carbon Capture Project Final Report can be found at: http://www.agric.wa.gov.au/object/wr/imported_assets/content/lwe/rpm/landup/carbonreport2010.pdf

Vision:

To be the leading natural resource management organisation empowering rangelands users to sustainably manage the unique resources of the region.

Pilbara Project Group



ESRM and Lake MacLeod Project

Since November 2009 the Ecologically Sustainable Rangelands Management - ESRM Project team has been travelling around the Lake MacLeod Catchment region working with 11 pastoral businesses (so far) to develop Property Management Plans. Resulting from the plans have come lots of exciting ideas for ecologically sustainable project developments and management techniques.

The Caring for our Country focus of the project is the vast (2,000 km²) evaporate basin of Lake MacLeod and nestled within them, the ecologically significant site of the Northern Ponds. The ponds are a unique environment of a permanent saline wetland system sustained by underground seepage of seawater through vents and sinkholes connected to the Indian Ocean some 24km to the west. The salty Lake is also fed by episodic freshwater flooding of two major river systems and 3 smaller drainage systems following heavy rains generally in the winter months of May-June and the occasional cyclonic summer falls of Feb-March. However, the last time fresh water dribbled into the Lake through these river systems was early 2009.

The entire Lake bed is managed under the Rio Tinto Dampier Salt operations Lease, with their mining activities occurring in the southern section of the lake. The significance of the Lake and its Northern Ponds is supported by the large number of migratory birds known to frequent the area

on their jet-set journeys around the globe. The ponds are protected by a fringe of the furthest inland population of grey mangroves (*Avicenna marina*). The long term health and stability of this important environment can be impacted by numerous



Lake MacLeod Project Manager Kaz Johnson spraying *Cylindropuntia fulgida* (Jumping Cholla Cactus) before it reaches the fringes of the Lake. This plant is easily transported through water, wind and animal activity and is happy to grow in a number of environments.



The Jumping Cholla Cactus plant competes with native plants for nutrient and moisture resources and is known to impact on biodiversity values (as you can see in the picture below, this little gecko got a bit stuck).

land uses: mining, tourism and pastoralism being just a few.

Given that mineral and pastoral lease tenures cover a significant proportion of Lake MacLeod and

its associated catchments, the mining company and pastoral property managers are well positioned to influence the condition of the whole catchment. The ESRM program works with landholders in environmental evaluation and property planning, and all proposed activities are designed to further protect the critical aquatic habitat that is the northern ponds.

By working with land managers who manage lands directly influencing catchment behaviour we can work towards building a stronger understanding and awareness of hydrological, soil and vegetation processes impacting on the Lake, all the while maintaining and improving sustainable and profitable regional businesses and communities.

The ESRM team works with the land managers of the Lake MacLeod catchments to to enhance biodiversity values by:

- Implementing best practice grazing principles to reduce the impacts of soil erosion and increase water infiltration processes
- controlling invasive species (pest animals and exotic weeds)
- further development of profitable rangelands businesses

ESRM has been working in conjunction with the local Recognised Biosecurity Group and Biosecurity staff at the Dept

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Pilbara Project Group



ESRM & Lake MacLeod Continued.....

of Agriculture and Food to determine the best actions for controlling known weeds of importance and the most appropriate control methods relating to pest animals. To date, works on one lease have been conducted with a 95% kill rate of almost 1 acre of cactus plants.

The current dry seasonal conditions of the Carnarvon Basin have proved difficult for many land managers. ESRM has been working hard to assist managers to pull through the drought with technical and social support wherever possible. When the rains do fall again, it is hoped that there

will be a different perspective of how we manage the land, and remember the hard times we have encountered recently to be better prepared for the next time. And, while not wanting to be the pessimist in the room, we can as good as guarantee...there will be a next time!

More information on the project can be obtained from Kaz (Karen) Johnson on:

Phone: 08 9956 3328

Email: karen.johnson@agric.wa.gov.au

Pilbara Weeds of National Significance (WoNS) in Priority Wetlands



Mesquite invading on the Ashburton River

The Pilbara Weeds of National Significance (WoNS) project is working with pastoral, industry and government land managers to formalise and increase the strategic on-ground control of the two major WoNS species in the region, mesquite and parkinsonia. The project has specific focus on managing threats to high conservation value aquatic

ecosystems along the Fortescue River, and critical aquatic habitats in coastal environments.

These exotic weeds have invaded the riparian banks and alluvial flood plains of the major river systems in the Pilbara. Their impacts are extensive, degrading the quality, diversity and stability of these environs, reducing the productivity of associated grazing pastures, inflicting wounds on animals because of sharp thorns, and increasing the costs associated with weed management.

Our first priority was to get an understanding of what the project was facing in

terms of WoNS populations in the 175,000 km² Pilbara pastoral region. Using historical data, we designed an extensive aerial survey to map the location and densities of mesquite and parkinsonia in the Pilbara. The survey was completed in July 2010. The resulting maps give us an accurate picture of the priorities for investment and control work, which ensures we tackle these weeds strategically.

We are now in the process of developing Weed Action Plans with pastoral station managers. These plans combine past weed history, current mapping and up to date best practice to guide pastoral weed control programs over the next 5 years. Pastoral stations are



Parkinsonia thicket on the Robe River

Pilbara Weeds of National Significance (WoNS) in Priority Wetlands Cont'd....



adopting these plans, and some have commenced with their 2010 control programs.

Field demonstration sites have been established to study new techniques to manage local mesquite varieties, including the ability of fire to control tree-form mesquite and specifically designed blade ploughs to control hybrid mesquite. If successful, these techniques will add to the tool box of control options already available to manage mesquite.

The Pilbara Mesquite Management Committee (PMMC) is responsible for coordinating and deliver-



PMMC members on a field tour discussing blade plough results on hybrid mesquite, Mardie Station

ing the activities for the Pilbara WoNS in priority wetlands project. We partner with a number of governments, industry, research and community organisations to ensure the most positive outcomes for the project and our clients are achieved.

Our challenges are great, but our enthusiasm exceeds this ten-fold.

For more information, please contact Linda Anderson on:

(08) 9144 1844 or

lindaa@rangelandswa.com.au

Introducing the Kununurra Office

Rangelands NRM WA Kununurra Office is located at Shop 24, 64 Konkerberry Drive; next door to the Small Business Centre. Currently there are two staff members situated within the office.

Beth Hales, Information Management Officer:

I have been employed by Rangelands NRM as the Information Management Officer since November 2008. My role includes, but isn't limited to: IT support, website management, project management, knowledge and information management, administration and policy development.

I have an extremely varied work background - I began my working life as a secretary; moving on to various roles on stations in the Northern Territory; got my Diploma of IT as a mature aged student; worked at Charles Darwin University in the field of Information Technology; worked in regional development; and then finally to Rangelands.

I have 3 girls, 2 of whom live in Queensland and the youngest still at home (well, sort of).

I love the Kimberley, the landscape and its people, and hope to stay in this area for quite a while.

Fiona Tingle, Project Officer:

I have lived in Kununurra since March 2008, and employed as Project Officer at Rangelands NRM since January 2009. Previous to this my background was in Freshwater Ecology, namely monitoring the impacts on Alpine streams in New South Wales using macroinvertebrates and water chemistry as indicators of land use change.

In my role at Rangelands I support a number of projects in the East Kimberley and Fitzroy which work

with a variety of stakeholder groups to control and manage Weeds of National Significance, control impacts of feral animals, protect RAMSAR sites, and increase the capacity of the community to undertake NRM activities. I also provide executive support for both Reference Groups in the Kimberley.



Kununurra Office

The East Kimberley has been a welcome change from the freezing Canberra winters and I enjoy living in such a unique place.

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Rangelands WA is a non-government organisation which represents community needs and encourages the sustainable use of land, flora and fauna, fresh water and coastal marine environments.

Rangelands is responsible for the establishment, management, evaluation and communication of many natural resource management activities and projects.

Our purpose is to lead, inspire and foster partnerships to sustainably manage our region's natural heritage.

We are a dynamic organisation who are committed to making a real difference in natural heritage management in Western Australia.

Changes for Rangelands Cont'd For Your Information from Page 1.....

which has housed Rangelands NRM since about 2006, will close as a dedicated Rangelands NRM centre.

These decisions to change Rangelands NRM have been made to try and reflect our current and future operations, and our need to address some of the constraints we have in developing a stronger, sustainable organisation. Our timeline for the completion of these changes is the end of the year with the new structure and offices in place and functioning by the beginning of January 2011.

The changes will create some questions about how we can represent our region. These are equally valid questions about our current structure. We will always have difficulties in genuinely being geographically representative. Having bases in each sub-region would be good but unfortunately funding means this is not an option at the present time.

As Rangelands NRM grows and develops we will be able to again look at our structure and engage more broadly with the rangelands communities with other bases through the region.



Working with community to protect the Rangelands Coast

This brochure features a number of projects that have been delivered along the Rangelands Coast which covers 75% of the West Australian coastline.



Working with Southern Rangelands pastoralists to promote sustainable practices

This brochure features a number of projects delivered in the Southern Rangelands, which encompasses the Gascoyne, Murchison and Goldfields-Nullabor regions.