# Rangelands MEMO



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Department of Agriculture and Food
GOVERNMENT OF WESTERN AUSTRALIA

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# LETTER FROM THE EDITOR

## Hello Rangelanders

The April 2011 Memo has been much more enjoyable to put together than the November 2010 issue, primarily due to the receipt of good falls of rain in the previously drought affected areas of the Pilbara and Southern Rangelands. It is pleasing to report that the Dry Season Category 3 Incident Response for the Pilbara and Southern Rangelands has been terminated as there is no longer a critical feed shortage. Greg Brennan has included an article on 'Future Planning Opportunities for Dry Season Management' that outlines DAFWA's new direction post the dry season management response.

Jason Hastie from Pingandy station near Meekatharra successfully applied for a Woolworths sustainable farming grant to fund trialling of an idea he had for improving and intensifying their rotational grazing system. Jason has now completed the project and provides a summary of the project and its findings on page 14. Well done Jason for making the effort to apply for the grant and for sharing the project summary with the readers of the *Rangelands Memo*. Similar articles from land managers trialling their ideas are very welcome.

Jim Addison from Kalgoorlie office has contributed four articles to the April Memo. The first article discusses the importance of cryptogam cover (algae, lichens, mosses, liverworts and fungi) in protecting the soil from erosion. The second article 'Reflections on a variable climate' deals with some of the more extreme weather events that have occurred in the Southern Rangelands since 1923. The third article lists a number of questions that land managers need to ask themselves when contemplating building a wild dog exclusion fence. And finally the fourth article is a reminder about dry season lead poisoning in cattle.

A schedule for the roll-out of Range Condition Monitoring workshops across the Northern Rangelands during May and June 2011 is included in this issue. It is expected that workshops in the Southern Rangelands will be held in the latter half of 2011. Workshops will be held over two days, starting after smoko on day one and finishing after afternoon tea on the second day. Each workshop will focus on three key areas: lessee installation of range condition monitoring sites; data collection and data entry; and electronic submission of data on-line.

Kath Ryan from the Carnarvon office has contributed two articles on the 2010 Australian Rangelands Conference in Bourke, NSW. The first article is a conference summary and the second article lists some of the main points discussed on a field tour to Dijoe station, looking at methods being used to increase the productivity and resilience of the Cobar peneplain. The next Biennial Conference will be held in **Kununurra, Western Australia, 23–27 September 2012**. This conference, featuring the latest in rangelands research and development, will bring together managers, users and researchers of the rangelands, and will undoubtedly prove the perfect venue for the discussion of 'hot topics' and current rangeland issues.

Happy reading

*Matthew Fletcher*

*Front page photos courtesy of Bec Dray, Karratha (Droughtmaster steer), Ruby Plains station (blue dog), Samantha Van Wyngaarden, Kalgoorlie (Damara sheep), Wynyangoo station (billy goat).*

# WHAT ARE CRYPTOGAMS?

*Jim Addison, Senior Technical Officer, Kalgoorlie*

Soil cryptogams are a group of plants including algae, lichens, mosses, liverworts and fungi which form crusts when associated with surface soils. Cryptogams are non-vascular, that is those plants lacking phloem and xylem. Thin layers of cryptogams grow over the surface of many rangeland soils, helping to protect the soil from erosion.

A series of experiments were undertaken on a red earth soil in semi-arid eastern Australia by Eldridge and Greene (1994) to investigate the role of cryptogams in erosion processes. Under simulated rainfall the presence of cryptogams significantly reduced both the total amount of material eroded from splash erosion and the rate of removal. As cryptogam cover increased, there was an exponential decline in total splash erosion and an increase in the proportion of coarse material in the sediment due to the aggregation of soil particles by cryptogams.

*A desiccated cryptogam surface crust (dark stain)—with piece of broken crust on the key*

The results indicated that, under natural rainfall conditions, there is a continual transfer of fine material and adsorbed nutrients away from areas of low cryptogam cover.

Cryptogams, most notably algae, are able to 'fix' nitrogen from the air. Even during drought, nitrogen fixation still occurs from the limited amount of rain that does fall, slowly increasing the soil nutrient pool. These small rainfall events are not enough to stimulate plant growth, however, at the break of the drought the 'desert blooms' as forage plants (and others) are able to access this accumulated store of nitrogen. Cryptogams also provide forage for soil invertebrates such as ants and beetles, hence contributing both directly and indirectly to biological activity at the soil surface. They are obvious following rain but when dry, merely appear as dark stains and uneven blotches on the soil surface. Cryptogam crusts are most noticeable in the Southern Shrublands but also occur in the Kimberley and Pilbara grasslands.


*Light green liverworts growing on moist soil in front of signboard*

They are not only important in aiding landscape stability and pastoral production but they can withstand extreme desiccation without damage and therefore are a potential source of drought-resistant genes for genetically engineering agricultural crops.

*Reference*

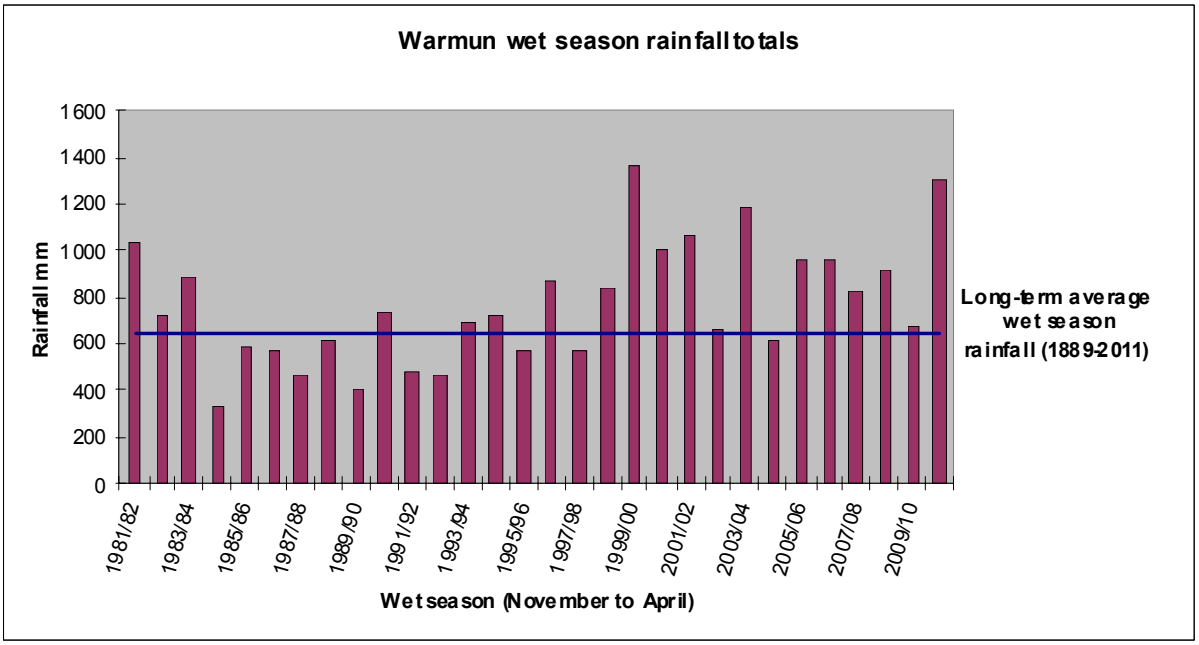
Eldridge, DJ & Greene RB 1994, 'Microbiotic soil crusts', *Australian Journal of Soil Research*, 32:389–415.

# KIMBERLEY WET SEASON SUMMARY

*Matthew Fletcher, Development Officer, Kununurra*

The 2010/11 Kimberley wet season has been very much above average and the highest on record in terms of rainfall received. Reports from land managers have been very upbeat due to the long growing season that started back in October 2010. However, it is now time for the rain to stop and mustering to start.

The table below shows wet season rainfall for Warmun community over the past 30 years. Warmun community lies 200 kilometres south of Kununurra on the Great Northern Highway. Warmun's 2010/11 wet season is currently the second wettest on record and is well above its long-term average of 647 mm. It should be noted that the April 2011 rainfall data is not included. If another 61 mm of rainfall is received before the end of April 2011 it will be their wettest wet season on record. The previous record is 1360 mm, recorded during the 1999/00 wet season.




Rainfall data sourced from www.longpaddock.qld.gov.au/silo/

Anna Plains station south of Broome received 173 mm in 8 hours in early January and Spring Creek in the east Kimberley received 210 mm during a 4.5 hour period in mid March.

Due to the prolonged wet season and associated gains in animal liveweight, managers are keen to move stock destined for the Indonesian live export market before they become too heavy (>350 kg). This could prove very difficult due to the water-logged state of many leases and the existing high flows in many river and creek systems.

Associated with a well above average wet season is significant pasture growth. Once fuel loads have cured they will pose a potential fire hazard later in the year. Some land managers have already started their late wet season burning campaigns by burning buffer strips along major roads and in areas where fire is a perennial problem. The 2010/11 wet season has also provided an ideal opportunity for managers to burn areas of rank spinifex that were previously kept as a feed reserve. As the spinifex has already set seed and sufficient soil moisture exists, this is a great opportunity for land managers to burn with confidence, knowing there will be some form of regeneration post-fire to protect the soil from erosion.

# REFLECTIONS ON A VARIABLE SOUTHERN RANGELANDS CLIMATE

*Jim Addison, Senior Technical Officer, Kalgoorlie*

Most bush folk are familiar with Dorothea Mackellar's poem 'My Country' in which she refers to the huge climatic variations that occur in outback Australia. Some such instances closer to home include a few sobering climate events in the Southern Rangelands over the last century:

**1924** 1924 was a very dry year in the northern inland where many stations received less than 50 mm for the year. Mt Padbury only received 19.2 mm and Moorarie just 26.7 mm.

**1935–41** Seven successive years of below average rainfall resulted in the worst drought on record. A Royal Commission report states that sheep losses in the Murchison–Meekatharra district numbered 1.5 million.

**1943–45** Mt Hale, north-west of Meekatharra, received just 66.6 mm for the combined years of 1943/44.

**1968–72** Sheep numbers in the Goldfields–Nullarbor district declined by 46%.

*Conversely:*

**1923** Between 15 and 17 January, a cyclone produced exceptional falls from North West Cape to beyond Gascoyne Junction. Winderie recorded 361.4 mm on 17 January.

**1954** Between 19 and 21 June, a north-west cloudband produced heavy rain in the upper Lyndon/Lyons and Minilya catchments. Mangaroon received 219.2 mm over the three days.

**1988** On 21 May, heavy rain from Cyclone Herbie caused extensive flooding in the south of the Shark Bay district. Tamala received a fall of 217.4 mm.

**1995** Between 26 and 28 February, Cyclone Bobby produced heavy rain from the Pilbara to Eucla. The heaviest rain was in the Sandstone area where Bulga Downs recorded 386.8 mm over three days.

*And then:*

**2010** Between 16 and 19 December, very significant flooding in the lower Gascoyne was caused by a slow moving tropical low. Carnarvon received 245.2 mm and Meeragoolia 296 mm.

*Source: Australian Bureau of Meteorology records*

*Gascoyne Junction Hotel – 21 December 2010.*
Photo courtesy of John Stretch, Carnarvon

# FUTURE PLANNING OPPORTUNITIES FOR DRY SEASON MANAGEMENT

*Greg Brennan, Department of Agriculture and Food, Geraldton*

The Dry Season Category 3 Incident Response for the Pilbara and Southern Rangelands has been downgraded to Category 2. Since most districts in the rangelands no longer have a critical feed shortage, the efforts of the Department of Agriculture and Food WA (DAFWA) will focus on working with industry to address the following issues:

- ensuring that the pastoral industry of WA makes effective contributions to the new national Animal Welfare standards that are currently being written to cover sheep and cattle production
- enabling the recovery of productive capacity by ensuring new germinations have a chance to establish and are protected from grazing below the 'death line' in coming seasons
- assisting industry to develop longer term dry season risk management strategies
- ensuring that the Drought Pilot survey provides good information so future extensions of the program will meet the needs of the pastoral industry
- informing the industry on developments in the carbon market and DAFWA's current work to develop a marketable rangelands carbon product.

## Animal welfare – national standards currently being developed

The animal welfare standards now being formulated are likely to deliver significant challenges to the pastoral industry. The Department's animal welfare staff would like to organise a process to enable pastoralists to make contributions while these standards are being developed during the course of the 2011 calendar year. Negotiations are being conducted with pastoralist leadership groups to organise an effective process for these contributions.

## Managing dry season risk – controlling total grazing pressure

As everyone knows the most important task for a pastoralist is making seasonal stocking rate decisions. It is very easy to underestimate the difficulty of this challenge. The limited markets in WA present a challenge and it's always a challenge to unload breeders. Many pastoralists have recognised that control of total grazing pressure and timely decision-making is required if the perennial groundcover species are going to be regenerated. Pastoralists have reported excellent germinations of perennial species on their country although the poor condition land has not responded and too much good frontage country pastures were drowned. Future stocking rate decisions will partly determine if the establishing juveniles survive through the next dry season. The department will be open to suggestions as to how it can work with the pastoral industry to protect and nurture the 'once in a decade' germination of pasture species (see article on the Total Grazing Pressure meeting in Adelaide).

## Drought Pilot Phase 2 opportunities for WA rangelands

The Hon Terry Redman, Minister for Agriculture and Food, negotiated with the federal government during 2009 to pilot an alternative to the Exceptional Circumstances program to assist primary producers in managing drought in Australia. Dry seasons are a normal occurrence in the Australian climate and incorporating a dry season risk management strategy into business management can be seen as good practice. The Drought Pilot was developed to assist primary producers develop

sound, dry season risk management strategies. To assess its effectiveness, there is a survey currently being circulated to the pastoral leadership groups and those who attended.

There was limited uptake of the Drought Pilot by pastoralists but it seems to have been well received in most of the agricultural areas. The agricultural areas had an important advantage in that the presenters were often consultants or trainers who already had strong working relationships in the local district. Currently there is no agricultural consultant or trainer resident in the WA rangelands servicing the pastoral industry. This put the pastoral industry at a distinct disadvantage.

Being a pilot, it was expected that lessons would be learnt on how to improve the program in the future, should it be continued. The survey currently being conducted presents an opportunity for the pastoral industry to provide feedback that will be useful for the design of any future programs.

## WA rangeland opportunities from the emerging carbon credits market

Developments in the market for carbon credits continue to accelerate in Australia. DAFWA is working with Rangelands NRM WA to realise the potential of the WA rangelands to sequester sufficient quantities of above and below ground carbon to make cash contributions to a pastoral business. The catchment ecology work done through the Ecologically Sustainable Rangelands Management (ESRM) project, funded by Rangelands NRM WA, is well recognised by many pastoralists to be of great importance for regenerating the land's productive capacity. Improvements to catchment ecology, livestock productivity, biodiversity and above and below ground stocks of carbon are all closely related to improvements in rainfall infiltration rates. Control of total grazing pressure is recognised as being important for regenerating groundcover species, which in turn improves rainfall infiltration. Thus, efforts to improve carbon stocks will also improve all the other drivers of sustainable pastoralism. Effective control of total grazing pressure costs money and currently the carbon market does present a possible source of revenue to the pastoralist. But it will be no 'silver bullet' and there is still a lot of work to do and much uncertainty remains.

The work now being addressed will build on the work done by Mark Alchin in the north with the Carbon Capture project. One of the first steps towards accessing the carbon market is to have the carbon measurement methodologies for the rangelands accredited by the Domestic Offsets Integrity Committee. A team of department staff, including our top soil scientists, are working with consultants and other expertise from around Australia and the Department of Climate Change to develop such a methodology. Funding submissions are now being assessed to fund further developments of this work.

# NATIONAL 'TOTAL GRAZING PRESSURE' WORKSHOP

*Ben Forsyth, Three Rivers station, Meekatharra*
*Greg Brennan, Department of Agriculture and Food, Geraldton*

Eighteen producers, together with 27 NRM Group and state and Commonwealth department staff, gathered in Adelaide to tackle the challenge of achieving Total Grazing Pressure (TGP) control at a national scale. Western Australia was represented by 10 people including six pastoralists representing producer organisations across the southern rangelands and four people from Rangelands NRM and the Department of Agriculture and Food.

## Summary of workshop outcomes

- A national communication network will be developed to enable producers to use the Internet to share their successes, failures and innovations for achieving TGP on their stations. Ben Forsyth of Three Rivers station, Meekatharra has been charged with leading this initiative.
- The Arid Rangelands NRM Alliance (13 NRM groups across Australia) has committed to develop a strategy to ensure that Total Grazing Pressure control is recognised by government as being essential for the economic, environmental and social progress of the arid rangelands of Australia. The Alliance will be supported by and work in partnership with the TGP organising committee and its members.

To prepare for the workshop, producers had documented 'case studies' of their stations and described how they manage TGP. Agency people had similarly provided personal profiles and described the TGP situation in their region.

At the workshop, Ron Hacker, a respected rangelands scientist from the NSW Department of Agriculture, provided an overview of national rangelands policy and issues relating to kangaroo and feral goat control. Michael Clinch of Nallan, Cue had been invited to describe his experiences using TGP control to regenerate the productive capacity of his station.

During the day-long workshop small groups worked together to tease out the important requirements of the three overarching themes previously identified as the purpose of the workshop. This is what they came up with.

### *Theme 1. Develop a national approach to achieving Total Grazing Pressure control*

- A need to establish what is the 'public benefit' and what is the 'private benefit' from TGP control to help decide what the public purse should be funding.
- TGP control policy needed to promote the benefits to land managers committed to TGP control and develop supporting policies for government (local, state and federal).
- The combined forces of practical land managers, service providers, researchers and other stakeholders will be needed to achieve the desired result.

### *Theme 2. Networks for effective communications among producers addressing TGP control*

- Rangelands producers had much to gain from the establishment of a coordinated network addressing and sharing ideas on TGP.
- Opportunities in using modern technologies such as online forums, YouTube, Twitter and Podcasts should be explored.
- Traditional communication methods should also be retained to ensure the widest possible coverage of the network.
- Ben Forsyth to develop a sample Internet forum to demonstrate what can be achieved with these forums.

### *Theme 3. Effective governance and policy settings across all levels of government*

- Policy development must be changed from a top down, expert driven approach to one where there is an effective contribution from local knowledge of producers.
- Strategies developed to better inform government and the wider community of arid rangelands issues, particularly the importance of TGP control.
- A funding submission be written to access the resources necessary to review policies, identify the gaps and develop supporting documentation to influence government, industry and the community.
- Work to ensure on-ground TGP control activities continue during this process and that on-ground experiences of producers continue to inform these policy driven activities.
- Identify producer champions in each region and a high level champion who has a national profile.

Since the Adelaide meeting, the organising committee has met by phone and commissioned the production of a summary report of the meeting for wide distribution and for use promoting the Total Grazing Pressure control initiative.

Ben Forsyth reported that he will have a draft of the Internet-based Communications Forum to present to the committee in the next few weeks.

The Arid Rangelands NRM Alliance has organised a Canberra meeting in April with key national policy influencers to continue the campaign to achieve supportive government policy and strong funding support with realistic time lines. State government agency specialists will be invited to attend this meeting.

The Cooperative Research Centre for Remote Economic Participation (CRC-REP) has committed to continue as an active contributor to the TGP control initiative.

## The continuing TGP committee

| | |
|---|---|
| Ben Forsyth | Pastoralist, Three Rivers station, Meekatharra, WA |
| Ashley McMurtrie | Pastoralist, Gilgunnia station, Cobar, NSW |
| Greg Brennan | Industry Development – Rangelands, Department of Agriculture and Food WA |
| Deb Agnew | Acting General Manager, SA Arid Lands Natural Resources Management Board |
| Russell Grant | Operations Manager, Western Catchment (NSW) Management Authority |
| Kate Forrest | National Rangeland NRM Alliance Coordinator (SA) |
| Mark Ashley | General Manager Commercial Development, Ninti One Limited (NT), the commercial arm of the CRC-REP. |

The morning after the workshop, the WA contingent gathered to collect their thoughts before heading off in different directions. Some of the points raised were:

- In some regards, the WA Rangelands could be considered 'lucky', with considerably less restriction and red tape than other jurisdictions.
- The success of any future initiative in WA would depend on engaging other interested stakeholders, for example Aboriginal, mining, MLA and DEC which has already agreed to contribute.
- To make genuine progress, WA pastoralists needed secure tenure if they were to invest with confidence in TGP control.
- The pastoral industry can no longer 'wait for Government'.

The WA group agreed that the investment in attending the workshop was well justified as it was 'energising' to share experiences with fellow producers and to participate in developing an action-focussed national plan.

## WA pastoralist delegation

| | |
|---|---|
| Ben Forsyth | Pastoralist, Three Rivers station, Meekatharra, WA |
| Michael Clinch | Pastoralist, Nallan station, Cue, WA |
| Jorgen Jensen | Pastoralist, Yowergabbie station, Mt Magnet, WA |
| Mark Halleen | Pastoralist, Boolardy station, Murchison Settlement, WA |
| Brian Wake | Pastoralist, Hamelin station, Shark Bay, WA |
| Ross Wood | Pastoralist, Kalgoorlie, WA |

*Acknowledgments*

The attendance of pastoralists was funded by Rangelands NRM WA, Murchison LCDC via the Murchison Shire Crosslands Community Fund, Mt Magnet Food and Fibre Group and the Cue Shire.

The workshop organisation and facilitation was funded by the South Australian Arid Lands Natural Resources Management Board with substantial funds also from the Cooperative Research Centre for Remote Economic Participation.

*WA contingent discussing meeting outcomes*

# ARS CONFERENCE SUMMARY BOURKE NSW – 2010

*Kath Ryan, Development Officer, Carnarvon*

'Rain on the Rangelands' was the overall theme for the 16th Biennial Conference and the response of pastures in the Murray–Darling area to three above-average seasons following a prolonged drought was evidently buoying the spirits of those who live and work there. The themed sessions covered were: 'The Practitioner's View', including rain-driven production systems and Aboriginal land management; 'The Rangeland Basins: Wetlands and Drylands', including issues of the Murray–Darling Basin, the big picture—basin issues across the rangelands, and young scientist/student presentations; and 'A Variable Resource', encompassing managing the trade-offs, rangeland resilience and tipping points.

## Messages and ideas for consideration

The most important resource in the rangelands is the people and this message was stated or otherwise demonstrated in many of the talks and papers presented throughout the conference. The people in the WA rangelands and their relationship with DAFWA will have a significant influence on the outcomes of activities and programs provided in our role as an economic development agency.

Several ideas and options for comprehensive and coordinated approaches to high priority rangeland management issues across Australia were presented throughout the conference and DAFWA's participation in these initiatives will have a positive outcome for the agency as well as for the rangelands resource in a state and national context.

Stewardship models are in development in Australia and around the world and several case studies and pilot projects were presented and discussed at the conference. Natural resource management outcomes can be achieved outside reserve systems, using stewardship systems to complement sustainable pastoral land use. This idea is gaining momentum as an economically viable option for the rangelands and its people.

Lease-specific rangeland monitoring is undergoing significant changes in WA and is developing along somewhat similar lines in other states. In Queensland, for example, lease-term extension is the 'carrot' for compliance with monitoring requirements and achievement of improved rangeland condition. A minimum of 40 fixed-point photo sites must be installed on each lease; these are self-assessed every five years and subject to a review every 10 years.

The WARMS model for broadscale monitoring has formed the basis for development of a similar system in Argentina.

Dr Joel Brown's summation of the conference recommended a shift in scientific efforts toward large-scale analyses of aggregated data and emphasised the importance of presenting scientific information to land managers in a decision-making context to maintain objectivity, reduce uptake time and improve rangeland condition outcomes.

## Social events/networking

It was a pleasure to meet so many of the people whose work I've been reading about for the last 10 years or more. Talking with land managers committed to improving rangeland condition and

frontline staff from across Australia and the world was inspiring. The prospect of Kununurra hosting the next conference was on my mind the whole time and it will be quite a challenge to match the turnout that the host organisations and Bourke provided for the attendees.

**The next Biennial Conference will be held in Kununurra, Western Australia, 23–27 September 2012. This conference will bring together managers, users and researchers of rangelands for discussion of 'hot topics' and current rangeland issues. The conference will feature the latest research and development and the synthesis and application of knowledge.**

# AUSTRALIAN RANGELANDS SOCIETY

## CONFERENCE FIELD TOUR OCTOBER 2010: DIJOE STATION, NSW

*Kath Ryan, Development Officer, Carnarvon*

Dijoe Station is a relatively small lease by WA standards (21 000 ha), supporting a family-run mixed cattle, dorper sheep and Boer goat grazing enterprise with a feral goat harvest and domestication component. Presentations explored several management issues and options for the Cobar peneplain with a particular focus on the interlinked implementation of total grazing pressure (TGP) management, 'invasive native scrub' management and waterspreading systems at Dijoe. Speakers included Rana Manns (lessee), Ken Hodgkinson (CSIRO Sustainable Ecosystems), Nick Reid (UNE) and Ray Thompson (Central West CMA).

- 'Invasive native scrub' or woody weed invasion has been recognised as a legitimate issue in the Murray–Darling basin for some time, and lessees can apply to improve the productivity of affected country using various methods through the Catchment Management authorities.
- Numerous methods of managing 'invasive native scrub' have been investigated and researched by CSIRO and UNE, all methods trialled are partially effective and an integrated approach using a combination of methods is most effective.
- Healthy grass cover has been found to be critical in out-competing 'invasive native scrub' seedlings.
- The rule-of-thumb for safe grazing developed by CSIRO for the area is that grasses should not be grazed to below 10–15 cm in height and need to be allowed to set seed.
- As a result of controlling the feral component of TGP using improved fencing and trap yards, the lessees are able to concentrate on managing grazing by domestic stock, resulting in improved pasture condition and animal production.
- Waterspreading banks have been constructed at Dijoe on areas that had been previously cleared of 'invasive native scrub' and cropped for several years. The gap spreader banks have improved water infiltration and groundcover, including desirable native grasses on these areas that were previously considered unproductive for grazing.

*Waterspreading banks at Dijoe.* Photo: © Hugh Pringle

*Ray Thompson explains construction of banks.* Photo: © Hugh Pringle

# DRY SEASON LEAD POISONING OF CATTLE

*Jim Addison, Senior Technical Officer, Kalgoorlie*

Lead is highly toxic. In some locations cattle will lick and chew old batteries, attracted by remnant battery acid salts. In the process they ingest quantities of lead—resulting in poisoning. Lead previously exposed to acid conditions in batteries is more easily absorbed across the gut wall and therefore presents a higher risk.

**Lead poisoning risks can increase during drought.** Often it is individual hungry animals with a depraved appetite that become victims. These insidious deaths often go undiagnosed.

The most likely sources of poisoning are rubbish dumps where old vehicle batteries, discarded oil filters, old paint tins and discarded sump oil (all containing lead) are often found. Cattle may be attracted by the sweetness of some lead compounds.

Depending on how acute the poisoning, symptoms in cattle may include:

- blindness—which may result in the animal perishing or starving
- muscle tremors—notably in the neck and head
- uncoordination, staggering/circling, salivation and teeth grinding
- final collapse and convulsions leading to death.

Treatments under veterinary direction are unlikely to be timely or cost-effective under rangeland conditions. Euthanasia of animals showing symptoms may be a preferred option.

To prevent poisoning opportunities, station rubbish tips should be fenced to prevent cattle access. Removal of old batteries to a secure storage or nominated local government recycling point is recommended. Alternatively, toxic products that may cause lead poisoning should be buried under 2 metres of soil in a location that will not contaminate groundwater supplies.

# PINGANDY STATION MOVABLE STOCK WATER PROJECT

*Jason Hastie, Pingandy Station*

Late in 2009, I applied for a Woolworths sustainable farming grant to fund an idea I had on improving or intensifying our rotational grazing system. Providing water, by poly-piping or establishing a new bore, is a big expense. My idea was to use 'lay flat' hose for up to 3 km from existing waters. This would allow further paddock subdivision, improve pasture utilisation, reduce environmental impact on land around existing waters and be a cost-effective means of establishing new water points. I saw the possibility of one piping investment being used and reused to create many new water points.

My sustainable farming grant application was successful and I received $13 000 from Woolworths, via Landcare Australia, for the project. The majority of this money funded the purchase of 3500 m of 'lay flat' hose and hose fittings.

After some experimentation and improvement, the system consists of: medium duty, 65 mm 'lay flat' hose cut into 50 m lengths; two trailers to store the hose and for lay out and recovery of the hose; and a hose reel system mounted on one of the trailers. Cam and groove hose fittings are used throughout.

The hose reel system was manufactured from 20 mm by 20 mm square tube, 13 mm pump rod and various pieces of pipe and angle steel for the base. The reel comes apart to allow hose to be loaded/unloaded. Hose is laid out by loading a 50 m hose onto the reel, securing the loose end to a pump, tank or hose already laid and then driving forward. Hose is wound up by disconnecting and manually emptying the hose of water; one end is then started on the reel before a 12 volt electric motor, coupled to the reel via a gear box, v-belt and pulleys, is used to wind in the hose. The hose reel needed some form of mechanical operation to wind it in as it was too difficult to do manually when the operation had to be completed repeatedly.

Winding up the hose takes longer and requires the greatest effort due to the requirement to manually empty the hose of water. This is a problem yet to be overcome. Despite this, the 'lay flat' hose system is relatively easy for one fit person to lay out and wind up.

A 3 inch diesel powered water transfer pump is used to transfer water from the existing water point to the remote water point. A poly tank is positioned at the remote water point and the pump is filled with enough fuel to fill the tank only.

Fifty millimetre rural poly is used to connect the tank to the trough. However, through our experimentation, 'lay flat' hose was sometimes run directly to the water trough. While cattle did stand on the hose, resulting in a couple of holes, overall we have found the hose to be rugged enough for the job.

Our research indicates the 'lay flat' hose should last five years and we have used six temporary water points with the system. Compared to the cost of laying permanent poly-pipe or drilling and equipping new bores, we believe the system has been cost-effective. However, the labour requirement to deploy the hose and wind it up is a disadvantage.

This project had the objectives of increasing the effectiveness of the existing water points on the station, with the associated positive impact on rangeland condition, pasture utilisation and

economic return. The effectiveness of existing water points has certainly been increased and pasture utilisation has been improved. The impact on rangeland condition and economic return has yet to be determined, however, with recent rains it is expected to be beneficial.

If you have any questions or would like further information, please do not hesitate to contact me on 9943 0586 or email danhastie@gmail.com

*Reeling hose in with electric motor*

*Hose being reeled out by driving forward*

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# REGIONAL LANDCARE FACILITATORS
## NOW ON THE GROUND

Rangelands NRM have successfully secured Regional Landcare Facilitator funding from the Caring for our Country program until June 2013. This funding has enabled Rangelands NRM to create three part-time positions to assist with integrating pastoral opportunities into both new and existing regional projects.

The new Regional Landcare Facilitators are part of a national network of skilled people that links, and supports, community Landcare and production groups participating in sustainable farm and land management practices. The team will work to provide an interface between regional bodies, industry groups, R&D organisations, the Australian Government and the National Landcare Facilitator Network.

A major role of the Regional Landcare Facilitators is to promote opportunities for groups and networks to access public and private funds to address public benefit sustainable farm and land management practices. In addition to accessing information, organising workshops or training on sustainable land management topics and providing general support.

If you have any thoughts on how WA Rangelands Landcare can help your group, please get in touch with one of our friendly ***Regional Landcare Facilitators***

**So who is your Regional Landcare Facilitator ??**

**Northern Rangelands**
Kimberley & Pilbara

**Mel McDonald**

Phone: (08) 9192 5771
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# ANIMAL WELFARE ASPECTS OF THE RANGELAND GOAT INDUSTRY

*Don Moir, Senior Veterinary Officer, DAFWA*

Animal welfare in the livestock industries has been an area of increasing public interest. As a consequence there are new regulatory arrangements being developed which will have a direct effect on the pastoral industries in WA, such as the Land Transport Standards and the coming Cattle Standards and Sheep Standards.

Even though the rangeland goat industry often operates in remote locations, participants need to be aware of these developments and ensure they comply with good welfare practices.

## Who's writing the standards?

For each set of standards there are representatives from the peak industry bodies at a national level, as well as those from the Federal Government, all state and territory governments, the CSIRO, the Australian Veterinary Association and animal welfare organisations involved in writing and reviewing.

For example in developing the cattle standards, producers are represented by the Cattle Council of Australia, Dairy Australia and the Australian Lot Feeders Association. For the sheep standards there are representatives from Sheep Meats Council of Australia and Wool Producers Australia. The Goat Industry Council of Australia is involved with the sheep standards as an affiliated party.

In Western Australia, either the Western Australian Farmers Federation and/or Pastoralists & Graziers Association have input to most of these groups.

There is a public consultation period for each set of standards as they get to the draft stage. After further editing, each state then undertakes to put the standards into regulation, providing consistent animal welfare legislation across Australia.

In Western Australia progress so far has been:

1. Regulations for the commercial poultry industry were enacted under the *Animal Welfare Act* in 2008.
2. Regulations for the pig industry were enacted in 2010.
3. Standards for the land transport of livestock have been agreed nationally and are awaiting the process to convert into regulations (probably about 2012).
4. Standards covering both the sheep and cattle industries are in the process of being written. It will be two or more years before the standards are finalised and converted into regulations.

## Legal aspects

There are different roles for legislation, Codes of Practice and Standards.

1. The *Animal Welfare Act 2002*. The Act covers offences of cruelty to animals generally and prescribes maximum penalties of $50 000 and five years imprisonment for individuals, or five times that amount for corporate bodies. More information can be seen on the Department of Local Government website at http://dlg.wa.gov.au/Content/Legislation/AnimalWelfare/AnimalWelfareAct2002.aspx

2. Codes of Practice (CoP) are intended to provide guidance on animal husbandry practices to anyone working with animals. They are not legally enforceable and are not written in a legalistic manner. The codes can serve as a defence against a charge of cruelty. Relevant to rangeland goats is the '*Code of practice for the capture and marketing of feral animals in Western Australia'*. All of the codes can be seen at http://dlg.wa.gov.au/Content/Legislation/AnimalWelfare/CodesofPractice.aspx
3. The Land Transport Standards are a nationally agreed set of standards that reflect minimum practices acceptable to the Australian community, including producer organisations. They are intended to be written into legislation under the Animal Welfare Act, possibly about 2012. The Land Transport Standards can be seen on the website www.animalwelfarestandards.net.au

For your information, some relevant sections from each of the above have been extracted.

### *1. The Animal Welfare Act*

… a person in charge of an animal is cruel to an animal if the animal —

(a) is transported in a way that causes, or is likely to cause, it unnecessary harm;
(b) is confined, restrained or caught in a manner that —
… (ii) causes, or is likely to cause, it unnecessary harm; …
(d) is not provided with proper and sufficient food or water …

### *2. Code of practice for the capture and marketing of feral animals in Western Australia*

**Unacceptable methods of capture**

- Deliberate chasing to exhaustion.
- The use of dogs to attack and bring down goats.

**Transportation**

Intractable or unmanageable animals should not be transported.

**Segregation for transport** (into the following categories)

- bucks
- nannies with kids at foot
- heavily pregnant does
- goats which differ greatly in size.

**Handling practices**

Electric prods should not be used to assist in the handling of feral goats.

Only trained sheep dogs should be used to assist in moving and handling feral goats. Their use should be kept to a minimum.

### *3. Land Transport Standards*

The nationally agreed Land Transport Standards cover all species of livestock. It is intended that the standards will in future become law by regulation under the *Animal Welfare Act 2002*.

The following selected standards are extracted from the Land Transport Standards. Consignors and drivers are advised to see the full document at www.animalwelfarestandards.net.au

**SA4.1** Livestock must be assessed as fit for the intended journey at every loading. An animal is not fit for a journey if it is:

- unable to walk on its own by bearing weight on all legs
- severely emaciated

- visibly dehydrated
- showing visible signs of severe injury or distress
- suffering from conditions that are likely to cause increased pain or distress during transport
- blind in both eyes
- known to be, or visually assessed to be within two weeks of parturition, unless the water-deprivation time and journey is less than four hours duration to another property.

# QUANBUN DOWNS AND ETHEL CREEK STATION BEEF UP FORUMS

Quanbun Downs (Fitzroy Crossing) and Ethel Creek station (Newman) are both set to host forums designed simply to help cattle producers identify opportunities to build their skills and subsequently make more money from their business.

The 'Beef Up – More beef, More money' forums to be held on Tuesday 10 May at Quanbun Downs, outside of Fitzroy Crossing and Thursday 12 May at Ethel Creek station, outside of Newman, aim to provide producers with on-property management ideas and practical tools to improve their business.

Meat & Livestock Australia (MLA) northern research manager Dr Wayne Hall said the Beef Up forums are organised in collaboration with local producers and industry to provide clear, concise and practical information, which can be taken away today and applied tomorrow.

'The presentations will focus on the key profit drivers of beef businesses that can make a real difference to a producer's bottom line,' Dr Hall said.

'We will have the right experts there on the day that producers can talk to. Importantly, producers will also be able to get information and advice on follow-up support and training to help make it happen.'

The forums will provide a beef industry update, an insight into some key financial measures for beef businesses, along with practical information on estimating and addressing the key issue of breeder cow mortality.

During the last six months the Department of Agriculture and Food and MLA have been undertaking a survey of producer practices and performance. This will be the first opportunity for producers to hear what the researchers have found and understand where they sit in terms of regional practices and performance. A hands-on demonstration of muscle seaming and value adding will finish off the formal part of the day, followed by a BBQ and taste testing. The Ethel Creek forum will also demonstrate how to break down a side of beef.

Producers will have the opportunity to ask questions and talk directly with presenters and other expert advisers individually on the day.

Both days start at noon. The cost of entry will be $20 (on a per business basis). Lunch, refreshments and a BBQ dinner will be provided. Registrations can be made by calling 1800 675 717.

The forums are an ongoing initiative of MLA in partnership with the Department of Agriculture and Food Western Australia, the Queensland Department of Primary Industries and Fisheries and the Northern Territory Department of Resources.

# WELFARE STANDARDS – GET INVOLVED OR GET LEFT BEHIND

*Charlotte McIntyre, Technical Officer Animal Welfare, Albany*

As global interest in animal welfare increases, particularly for livestock, Australia has responded by developing the Australian Animal Welfare Strategy (AAWS). A federal government initiative, the AAWS '*aims to protect the welfare of all sentient animals in Australia by developing, adopting and promoting sound standards and practices'.*

One of the results of this Strategy is the development of national Standards for the livestock industry, and the process is well underway. The first cab off the rank—the *Australian Animal Welfare Standards – Land Transport of Livestock* (LTS)—has already been approved by the council of agriculture ministers. The LTS will soon be written into every state and territory legislation so they will be enforceable. Under development at present are Standards for the welfare of cattle and sheep. Industry groups play an important role in the development of these Standards and it is important that the pastoral sector is well represented.

The LTS were developed by a group consisting of government (all jurisdictions), industry representatives, and animal welfare organisations. Crucial elements of the LTS which are relevant to all pastoral operations across Australia are:

- *Maximum times off water*. Animals can only be held off water up to the maximum times stated—no exceptions. This includes the time spent mustering, yarding (curfew) and loading the animals, as well as transport. For example, the maximum time for adult cattle is 48 hours. After this they have to be unloaded for 36 hours, fed and watered before starting the journey again.
- *Fit for the journey*. All animals must be fit enough to cope with the journey, unless they are being moved under veterinary advice. Unfit animals includes those which are severely emaciated, cannot walk normally, are distressed, or have a condition likely to be made worse by transport.
- *Responsibility.* There are several links in the chain of livestock transport. The Standards make ALL those involved, from the owner/agent/truck driver/receiver, responsible for ensuring that the welfare of the animals is taken care of. Responsible can also mean liable if the Standards are not adhered to and things go wrong.

But that's not the end of the story. The LTS are just the first in a series of Standards to be developed in relation to the livestock industry; and the Standards for the welfare of sheep and cattle are well underway. These Standards will govern management of cattle and sheep and will replace the Codes of Practice, which were used as a benchmark for normal practice. For example, the *Model Code of Practice for the Welfare of Cattle* suggests the maximum age that calves should be castrated without the use of anaesthetic and outlines the circumstances under which cows should be spayed. The difference between Standards and Codes is that Standards will be enforceable—and as such have the potential to impact on the way animals are managed.

The pastoral industry is likely to be impacted as much as any other by the new Standards and it is therefore important to contribute to their development. The Standards for the Welfare of Cattle and Sheep are currently in draft stage and it is important that pastoralists and other livestock producers get involved now.

Contact your State representative on Cattle Council of Australia, Wool Producers of Australia or Sheepmeats Council of Australia or your industry organisation.

The Department of Agriculture and Food can assist pastoralists to be better informed about the process for developing the Standards and the next steps. A series of video/telephone conferences with RBG groups has been suggested as a means of initially delivering this information. If you are interested in participating, please contact Charlotte McIntyre at the department on 9892 8511 or cmcintyre@agric.wa.gov.au.

Information about the development of the Standards can also be found at: www.animalwelfarestandards.net.au

*Procedures such as dehorning and castration are likely to be regulated under the new cattle welfare standards.*

# STOCK LEAVING WA? CHECK INTERSTATE NLIS REQUIREMENTS

*Dr Farran Dixon, Brands Registrar, DAFWA*

Producers are reminded to ensure their stock meet National Livestock Identification System (NLIS) requirements of the destination state and any transit state.

While NLIS operates as a national system to achieve effective disease, meat contamination or chemical residue traceability, there are some small variations in NLIS regulations across the individual states.

## Cattle

In Western Australia, cattle are eligible for an exemption from NLIS electronic tagging if sent direct from their property of birth to an abattoir or export depot within WA. This exemption does not apply if the cattle are sent to an abattoir or depot in another state. If cattle are being sent to another state, they **must all** be correctly NLIS electronically identified.

## Sheep

Some states require sheep to be identified with an approved NLIS sheep ear tag, which must have the NLIS logo imprinted on it.

While WA producers are permitted to use up old stock of sheep ear tags without the NLIS logo, be aware that if the sheep are sent interstate they may not meet the interstate identification requirements.

When buying new sheep ear tags, WA producers must ensure they are from an NLIS-accredited tag manufacturer and have the producer's brand and an NLIS logo imprinted on them.

To check NLIS rules in WA, go to the Department of Agriculture and Food website at www.agric.wa.gov.au and search on 'NLIS' or ring the Brands Office on 9780 6100.

To check NLIS rules in other states, search on 'livestock movement' and select the links to the relevant destination and transit states' departments of primary industries.

# ELANCO COMMENTS ON HORMONE FREE BEEF

As you are no doubt aware, Coles has announced it will market only 'hormone free' beef in its supermarkets effective from 1 January 2011. Accompanying this has been a major advertising and in-store promotional campaign. Elanco is a firm advocate of free choice and respects Coles' decision in regards to its procurement policy. However, the four key messages contained in its promotional campaign cannot remain unchallenged.

Elanco and other industry stakeholders believe these messages are misleading and potentially very damaging for Australian beef producers and the reputation of the Australian beef industry.

## Claim No 1: No added hormones

To claim that any food product contains 'no added hormones' implies that hormones are in some way unsafe and therefore 'hormone-free' products are safer for consumers. Hormones are naturally-occurring organic chemicals found in all mammals – humans and cattle included – that regulate physiological processes in the body, such as growth and reproduction. Put simply, there is no such thing as 'hormone free' beef.

All meat and dairy products (and many vegetables, for that matter) contain extremely low levels of hormones.[1, 2, 3] Believe it or not; a 100 g serve of cabbage contains as much oestrogen as 100 kg of mince from an implanted steer!

Next time you're having a BBQ, perhaps you might consider that beer, potato chips and coleslaw contain *hundreds of times* more oestrogen than your steak from an implanted steer! And quite regardless, we humans produce *tens of thousands* of times more oestrogen every day than a steak from an implanted steer.

## Claim No 2: No added cost to consumers

A recent MLA report found that implants add an additional $210 million to the Australian beef industry via increased growth rates, improved feed efficiency and reduced age of turn-off.[4] All told, implants contribute an extra 160,000 tonnes of beef each year, equivalent to about seven per cent of Australia's total beef production.[4]

Assuming the value of the Australian beef industry is about $6.5 billion, the domestic market accounts for about 35 per cent of total beef production and that Coles has a 20 per cent share of the domestic beef market and that beef producers will be adequately compensated for not using implants, Coles' decision to procure non-implanted beef will cost the organisation about $30 million per year.

Coles has publicly announced that this cost will not be passed onto consumers. This may be the case, but any decision to increase procurement costs without delivering any value for consumers seems somewhat incongruous with its commitment to providing quality food at low, everyday prices.

## Claim No 3: 'Hormone-free' beef is more tender

The use of implants plays a vital role in allowing Australian beef producers to meet demanding market specifications by increasing growth rates and reducing the age of turn off. It is recognised that some implants or implant strategies can affect the eating quality of certain cuts by reducing marbling and/or increasing ossification.

Meat Standards Australia research has shown that eating quality is affected by many different factors throughout the supply chain, including breed, age, nutrition, handling and processing techniques. Furthermore, MSA guidelines clearly state that any potential impact of implants upon eating quality can be successfully managed via other MSA pathways.[5]

It is worth remembering that the overwhelming majority of carcases obtaining MSA grades in Queensland (the country's major supplier of MSA cattle) are from implanted cattle.[4] It is misleading to imply that the procurement of non-implanted cattle alone will improve tenderness.

### Claim No 4: Hormones are banned in Europe

A number of recent media reports have cited that implants are banned in Europe. This is correct. However, this fact needs to be placed in context.

Implants have been used in the beef industry for more than 50 years to improve weight gains, feed efficiency and total lean meat production. Implants are registered for use in more than 30 countries. Implanted cattle are accepted for slaughter by every major domestic and export market for Australian beef and live cattle, including Japan, Korean, Taiwan, USA, Canada, Indonesia, Malaysia and the Philippines.

The EU, which accounts for less than 0.4% of Australian beef production, is the only export market that does not accept beef from implanted cattle. There is no scientific evidence to support the EU's position on the use of implants in beef production and world trade organisations recognize this ban as an artificial trade barrier.

### Conclusion

In short, Elanco believes Cole's beef procurement policy is a marketing gimmick that has no scientific validation and delivers little or no benefit for consumers.

Conversely, it has the potential to seriously affect the productivity and profitability of Australian beef producers and the reputation of the Australian beef industry.

As a distributor of animal health products, I urge you and your staff to become advocates for the continued use of implants in the Australian beef industry.

*The following facts are irrefutable:*

- Implants deliver important economic, management and environment benefits for the Australian beef industry via increased growth rates, reduced age of turn-off and increased productivity per hectare.
- Implants pose no risk to human safety when used in accordance with the label directions.
- Implanted cattle are accepted for slaughter by every major domestic and export market for Australian beef and live cattle.
- Implanted cattle are eligible for MSA grading and routinely achieve MSA grades.

Your organisation and staff can have complete confidence in recommending implants. Likewise, your customers can continue to use implants to produce world-class Australian beef that is nutritious, safe and affordable.

In the meantime, please be assured that Elanco is working with other animal health manufacturers and industry organisations, such as the Cattle Council of Australia, Australian Lot Feeders Association and the World Wildlife Organisation, to address this important issue.

Jim Aspinall
Country Director – Australia
Elanco Animal Health


[1]BF5330 [2]BF5951 [3]BF6583 [4]Davies, B.L. (2008) Economic evaluation of hormonal growth promotants, Meat and Livestock Australia Project B.NBP.0506. [5]MSA tips and Tools (2010): The effect of growth promotants on beef eating quality, Meat and Livestock Australia.

# AVOIDING SHEEP LOSSES DUE TO HYPOTHERMIA AFTER SHEARING BETWEEN NOVEMBER AND MAY

*Chris Oldham, Principal Research Officer, Sheep Industries, Albany*

Sheep that are within two or three weeks after shearing are very susceptible to cold stress (hypothermia) in wet, windy summer conditions. These conditions have already been experienced this summer and are likely to happen again, given the number of large lows travelling down the west coast. The good news is that sheep managers have some options for reducing the risk of sheep dying from hypothermia.

Hypothermia can occur at any time of the year, if conditions are right, and newly shorn sheep in summer–autumn are particularly prone to hypothermia. Sheep are at greatest risk from hypothermia when wet, windy and cool weather occurs soon after shearing and extends for more than one day. Many sheep have died in these conditions up to four weeks after shearing. Recently shorn sheep have only about 3 mm of insulating wool remaining, which may lead to a threefold increase in heat loss compared to when in full fleece.

Sheep shorn in winter or early spring have already been exposed to cold weather, and are acclimatised and at little or no risk from hypothermia. This acclimatisation takes about two weeks to develop and lasts about two months. Once acclimatised, sheep are less likely to die from hypothermia, even if a cold spell occurs immediately after shearing. By contrast, sheep that have been shorn in summer are conditioned to hot weather, and if cold weather occurs after shearing, they are at great risk of dying from hypothermia.

The killer storms in summer consist of light to medium intensity rain over two to three days, and have moderate to high winds. This sort of event may not trigger a ‘sheep weather alert’.

If you have susceptible sheep and bad conditions are forecast, we recommend that you:

- separate the most vulnerable sheep (such as young sheep in poorer body condition and those newly shorn)
- relocate vulnerable animals to a shed, or an area with solid shelter before it gets bad. Sheep may be reluctant to move once they have become wet and cold. Very dense bush or dense windbreaks will give some protection if the sheep are contained in that area
- arrange with neighbours to use their shed space if it is available.

Do not rely on feeding extra grain or hay to provide protection. Sheep stop eating when it is wet and windy and heat loss is much greater than heat generated from metabolising feed.

# MURCHISON REGIONAL VERMIN COUNCIL

*L Murray McQuie, President, Murchison Regional Vermin Council*

The Murchison Regional Vermin Council (MRVC) is the Local Government body set up to administer the Vermin Proof Fence, which is the southern half of original No. 1 Rabbit Proof Fence.

The Council is made up of two members from each of the Murchison councils of Yalgoo, Cue, Mt Magnet, Meekatharra and Sandstone and is administered from Mt Magnet.

For years the income of this Council has amounted to approximately $60 000 per annum, with roughly 50% coming from the Department of Agriculture and Food APB budget and 50% from rates and precepts from stations and shires bordering the fence. With these very limited funds the Council has endeavoured to maintain the 560 km of fence in sound condition.

Goats, kangaroos and emus have constantly damaged the 100-year old structure, and in places it has even been used as a major goat trapping line, complete with illegal entry traps to yard.

However, in the past decade the influx of wild dogs has become the primary concern of the Council. In that time, dogs have virtually eliminated the sheep and goat population in the Eastern Goldfields, so attention has been focused on getting the fence up to a dog-proof standard.

This has been thwarted by a number of major rainfall events which have caused damage to both the fence and its maintenance road. This track has become overgrown for much of its length and has become a creek in other parts, threatening the fence itself.

Some years ago rehabilitation of washed and overgrown sections was undertaken south of the Mt Magnet–Sandstone Road to prevent erosion and enable maintenance personnel access to the fence.

Last year with the advent of Royalties for Regions funding, an approach was made to the five member Councils for funds from the Year 2 Regional Projects funding. All contributed. These funds enabled a contract to be let for the re-clearing and grading of east side, through to the northern end of the fence at Lake King, thereby allowing unfettered access for maintenance contractors.

Over the past five or so years the standard of maintenance of the fence itself has improved to the point that it now presents a barrier to the migration of dogs from the east. Bearing in mind that it is a 100-year-old fence, built as a rabbit barrier not a dog fence, this is a considerable achievement.

Dog-proof it is not but it is a ‘line in the sand’ separating the Murchison from the Eastern Goldfields. Much of the netting is in sound, strong condition albeit with sections in flood and wash country that need renewing,

It is there—all 560 km of it—from the State Emu Fence in the south to Lake King in the north.

What is needed is sufficient funds spent upgrading it, so that the annual budget can employ a full-time maintenance/dogging contractor to make it a serious barrier against dogs, for the benefit of the pastoral and farming industry west of it.

Hopefully further funds from Royalties for Regions funding will enable reconstruction of the worst sections, but the support of the stakeholders west of the fence will be needed for this to happen.

Ultimately it would be ideal to create a ‘cell’ situation inside this fence. It is too late for the Eastern Goldfields where dogs have taken out all but a few sheep and goats, but it isn’t too late to make use of this incredible fence for the Murchison area.

# WILD DOG CONTROL – A YEAR-ROUND ISSUE

*Jessica Paterson, Halls Creek, Biosecurity & Stock Inspection*

Wild dogs harassing and attacking livestock on pastoral leases is a significant and costly problem in the Kimberley, all year round. Successful management of wild dog populations requires a whole-of-year approach, coordinating both effective ground and aerial baiting. DAFWA biosecurity officers are available to assist in implementing appropriate and cost-effective control strategies, such as injecting 1080 baits, supplying 1080 oats and sourcing manufactured baits to assist pastoralists with their wild dog management programs.

Ground baiting, particularly in the autumn (late April, May), is well timed to coincide with breeding activity. Mating is taking place and bitches are in early pregnancy. Efficient ground baiting should focus on accessible watering points and freshly graded tracks. As 1080 is highly water soluble and leaches from baits, it is best not to bait in wet conditions.

Wild dogs can be targeted using less baits and specifically targeting areas known for dog activity. Lures such as a decomposing carcass can also be used to attract the dogs into the baited area. Research has shown that dried meat baits can still kill dogs up to seven weeks after being laid.

During the spring (August and September) the Department of Agriculture and Food collaborates with Kimberley pastoralists on a 'Kimberley aerial baiting program'. This is an excellent opportunity for pastoralists to bait the more remote and inaccessible areas of their leases, by utilising the resources of DAFWA staff, a baiting plane, pilot and bombardier. The aerial baiting program is well timed to coincide with pups starting to move around, food being in higher demand and surface water usually becoming more restricted; thus making it easier to target remote and limited water sources. A navigator is required and the path followed by the plane is automatically logged into the onboard GPS, keeping accurate records of the baiting operations. Sensors are incorporated into the bait chute and the data linked to the GPS, so the location and number of baits dropped is logged simultaneously. This technology enables accurate recordkeeping and can assist with reviewing baiting campaigns and future planning.

The Kimberley aerial baiting program, integrated with targeted and precise ongoing ground baiting, has the potential to deliver excellent results in the control of wild dog populations.

There is a basic training requirement in the 'Safe Use and Management of 1080' that needs to be satisfied to be eligible to handle 1080 products. Once the training requirements are met, individuals' names are entered into a database and their training is valid statewide. Any pastoralists or staff who have not yet undergone the training and would like to be registered, can contact their local biosecurity officer who will be able to carry out the training with them.

# WILD DOG EXCLUSION FENCING

*Jim Addison, Senior Technical Officer, Kalgoorlie*

With the demise of a large part of the small stock industry in the Southern Rangelands there is ongoing interest in the use of wild dog exclusion fencing to manage dog predation. The issue is more complex and problematical than first appears and requires close examination.

**Initial questions that need to be addressed include:**

- *Will the fence exclude all dogs that challenge it?*

Fence location, design and construction must focus on delivering an effective barrier requiring a minimum of ongoing maintenance. Fence alignment should target watershed areas where possible, preferable with minimal micro-relief. Fabricated fencing with mesh size 150 mm wide x 100 mm high is a fairly standard design. A fence height of 1500 mm with an exterior apron of around 500 mm is required. It should be noted that wild dogs will generally attempt to push through fences rather than jump over. Gates and creek crossings are inevitable in most pastoral situations. These represent the weakest points in an exclusion fence and their number should be minimised. Self-closing gates with an offset lower hinge are recommended. Double gates should be avoided as a gap between the two gates is difficult to eliminate.

Ongoing timely maintenance is required if dog incursions are to be eliminated. This will require regular maintenance vehicle access on both sides of the fence. Buffer protection zone (where conventional control measures are practised) should be established outside the fence to minimise dog challenges. A buffer requirement means that the fence itself should not bound a buffer area over which there is no management capacity.

- *Once the fence is built can all dogs within the exclusion fence be killed?*

Conventional control measures include 1080 baiting, trapping and shooting.

Sufficient skilled operators must be available to carry out these eradication tasks within the required timeframe.

- *Can the dogs within the exclusion fence be killed faster than replacement breeding?*

The timeframe for complete dog eradication within the exclusion zone must focus on minimising natural increase within the remaining dog population. It is likely that the last 10% of dogs to be eliminated will require much the same level of resourcing as the first 90%.

- *Can dogs, at low densities, within the exclusion fence be detected?*

Ongoing detection will require skilled operator observation. Patrol frequency and geographic cover must ensure that refuges with poor access are regularly scrutinised.

- *What might be the cost-benefit of an exclusion fence?*

This requires the budgeting of the infrastructure cost and maintenance versus the dollar returns from livestock production. Inherent pastoral potential of the area behind wire will limit the number of livestock units carried. This, together with low livestock productivity, may not support the annual cost of the infrastructure.

The annual cost of the fence will have to be met over a range of seasons. Livestock productivity during dry seasons may not be sufficient to meet this requirement. For this reason initial budgeting should err on the conservative side.

Short-term costs of fence construction and the eradication of dogs within should be compared with long-term costs of sustained conventional control.

The Report of the Wild Dog Barrier Fence Working Party (1980) provides some historical insight into this issue:

> '*A consideration of the economic costs and benefits associated with wild dog barrier fencing suggests that the costs of fencing will in general outweigh the likely benefits. With the exception of a small group of stations, the likely level of benefit from eradicating wild dogs only breaks even with a very low level of expenditure on wild dog barrier fencing. This level of expenditure on fencing for wild dogs is unlikely to be sufficient to prevent wild dogs from crossing the fence relatively easily and re-infesting the area.'*

It should be noted the pastoral terms-of-trade have deteriorated significantly since 1980.

- *Are there any unforseen negative consequences of dog eradication?*

Kangaroo numbers may increase in the absence of dog predation. Any increase will have a discounting effect on livestock productivity.

- *Is the social environment favourable?*

Behaviour of the non-pastoral community may jeopardise the integrity of the fence through fence damage/theft/vandalism and through negligence in closing gates. Fences within easy vehicle access distance from population centres will be most at risk. Landscapes in which non-pastoral land use is common (mineral exploration, recreational, etc.) present additional problems for the maintenance of exclusion fence integrity.

# FAREWELL TO ANDREW CRAIG

*Kununurra Office*

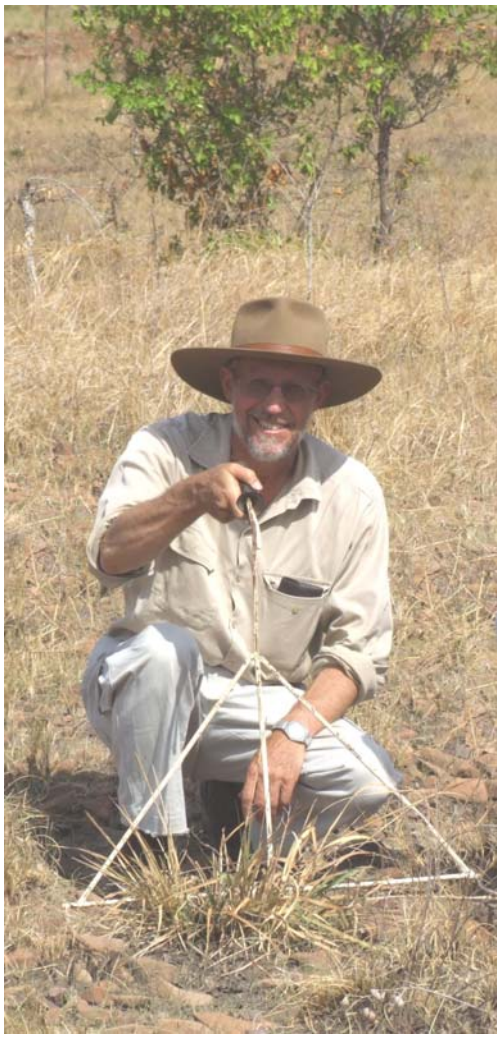
After 19 years with the Department of Agriculture and Food, Andrew Craig has closed the lid on his monitoring box and moved to a cooler climate near family and friends in Canberra.

Andrew was originally employed as a research officer to study the effect of fire on the northern rangelands. During his time with the department he fulfilled his role as a fire ecologist with a thoroughness and exactitude that has provided and will continue to provide invaluable information for many years to come. Although his fire work initially absorbed the majority of his efforts, over time he became increasingly involved in all facets of rangeland monitoring and rangeland condition assessment, to the extent that in recent years his contribution to WARMS and Pastoral Lease assessment eclipsed his fire work.

In November 2002 Andrew took on the role of project manager of the Northern Range Condition and monitoring project; a thankless position he excelled at until relinquishing it in June 2008.

Andrew brought a plethora of skills to his position, not least of which were his botanical knowledge and his absolute mastery of the English language. Under his tutelage many an officer working alongside him honed their plant identification and report writing abilities.

In addition to his skills and his many accomplishments, Andrew will also be missed by all those who knew him or had dealings with him for his integrity, good manners and friendliness.



*Andrew, comfortable with quadrat in hand*

Andrew, we thank you for your many years of unstinting service and look forward to hopefully meeting up with you again in the future.

## RANGELANDS MEMO *IS AVAILABLE ONLINE*

For all the avid readers of the *Rangelands Memo* who would like to send an electronic copy to a friend or to see colour photographs, please go to our website and download your copy.

www.agric.wa.gov.au/PC_94329.html?s=1504498899

# NORTHERN GRAZING SYSTEMS PROJECT SUMMARY

*Anne Marie Huey, Development Officer, Broome*

Stage 1 of the Northern Grazing Systems (NGS) project was all about collating existing research into northern beef production and assessing the relevance of these findings in the Kimberley. In order to do this, DAFWA held two initial workshops in Kununurra and Broome where producers were invited to help develop what they believed represented a 'typical' cattle enterprise. This was a fairly involved process that included describing the physical aspects of the station (land types, location, land condition etc.), the herd dynamics (number of breeders, weaning and mortality rates, bull percentages etc.) and management strategies (number of staff etc.).

Once the business was described, the project focussed on the four main areas that have the most impact on land condition and future profit. These are:

- wet season spelling
- managing stocking rates
- prescribed burning
- infrastructure development.

Producers were asked to document how they currently manage these areas and, where different, what they believed would be the ideal management practices. This information was then analysed by a team of modellers who ran a number of different scenarios for each theme. The results were then 'ground-truthed' by local producers at a second workshop in Fitzroy Crossing last November. A brief summary of some key results are presented below.

## Wet season spelling

- ***Pindan paddock with cattle going into a bush paddock***

  This was a typical four-paddock rotation where the four paddocks were assumed to be of the same size and in poor condition (10% perennial pasture composition). The stocking strategy was flexible with numbers being allowed to increase as land condition improved. Overall, wet season spelling was shown to be beneficial to both land condition and the bottom line. The results showed:

  – a significant increase in the proportion of perennial grasses in the pasture (up to 80% increase with a one-in-four-year spelling regime)
  – a marked increase in profit (an average of $262 000 with no spelling and an average of $404 000 with spelling).

  However, it is important to recognise that there will be a lag between implementing a spelling regime and the associated response in land condition and liveweight gain. This could potentially take a couple of cycles, which needs to be factored into subsequent management plans.

- ***Poor condition black soil paddock with cattle being 'loaded up' into paddocks that are already stocked***

  Three stocking rates (low, moderate and high) were modelled in this scenario and the effect on the percentage of perennial pastures was determined. Each paddock was spelled for six months from 1 December every fourth year, with the extra animals being 'loaded up' into the remaining three paddocks for the duration of the spell.

  Some important conclusions included:

  – In all cases, the first paddock to receive a spell also received the greatest benefit.
  – While spelling can have a beneficial effect on pastures, it is still critical to manage overall grazing pressure. If the stocking rate is low, recovery will occur even without spelling. If the stocking rate is high, then spelling alone won't be enough to effect improvement.

– The sequence of seasons will have a major impact on the results. A high rainfall year may have the same impact on spelled and unspelled pastures. In low rainfall years the benefits of spelling may be limited or lost through subsequent grazing.
– In general, longer and more frequent spells will have the greatest impact on recovery. Six-month spells were the most effective and there was little obvious difference between two and three-month spells.
– While it may be possible to increase stock numbers if spelling is done regularly and results in an improvement in land condition, it is not feasible if the paddock/property is already carrying too many cattle.

## Comparing four different levels of fixed stocking rates

Modelling was conducted for two paddocks, one being a black soil paddock in good condition and the other being a pindan paddock in poor condition. The results focussed on the effects of different stocking rates on perennial grasses, liveweight gain per head, liveweight gain per hectare and economic performance. The outcomes are presented below.

### *Black soil, good condition*

*Stocking rate and perennial pastures*

- High stocking rates resulted in significant decrease in the proportion of perennial pastures (50% to less than 10%).
- Moderate stocking resulted in an increase in the proportion of perennial pastures.
- Low stocking rates resulted in a significant increase in perennial pastures (50% to approximately 90%).

*Stocking rate and liveweight gain/head*

- Initially all strategies showed similar gains.
- Over time, high stocking rates showed a marked decrease in liveweight gain/head.
- There was little difference in gains between moderate stocking and light stocking rates.

*Stocking rate and liveweight gain/hectare*

- All four stocking rates resulted in a similar liveweight gain per hectare over the long term.
- While there was no benefit from running fewer animals in this scenario, there was also no advantage from running higher numbers. As variable costs such as vaccinations, dips and sprays, and ear tags increase with more animals, there would likely be a cost penalty associated with high stocking rates compared to conservative or moderate stocking rates.

### *Total gross margin and profit*

The economic impact of the different stocking rates was applied to the whole property.

- The total gross margin and profit were both highest with moderate stocking and lowest with heavy stocking.
- Importantly, implementing a high stocking rate was the only strategy that resulted in a loss over the modelling period.

While it is important to recognise that managing a pastoral operation can be challenging, having a well thought out grazing management plan can lead to both an increase in land condition and profitability of the overall business.

***For more information on any of the points discussed in this article please contact:***
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# LARRAWA STATION PRODUCER DEMONSTRATION SITE – UPDATE

*Kevin Brockhurst, Larrawa Station and Matthew Fletcher, Kununurra*

Kevin and Wendy Brockhurst from Larrawa station in the east Kimberley are participating in a Producer Demonstration Site (PDS) to *investigate the practicality of regenerating degraded pastoral land.* The area attempting to be regenerated became degraded due to overgrazing early in the 1970s, resulting in the loss of topsoil and the formation of a small gully. The site is in poor condition with no perennial and minimal annual vegetation present (see photo A). While subsequent management strategies, such as excluding stock, have resulted in some regeneration of native species, few palatable perennial species have returned.

The PDS began in 2009 and five different types of mechanical regeneration (as outlined in the table below) have been trialled. A combination of mechanical regeneration methods has proven successful at holding up water flow and providing conditions favourable for perennial and annual grass establishment and growth.

| Mechanical regeneration | Description |
|---|---|
| **Pits** gouged by crocodile plough | Pits gouged in soil were 20 cm in diameter and 10 cm deep. A contour line was not followed. |
| **Ridges** formed with agro-plough along contour line | Ridges 50 cm high were constructed in a brick work pattern with two rippers followed by two opposed discs. |
| **Closed ponds** constructed with grader | Ponds were 50 m in diameter with 65 cm high banks, 2 m wide bases and were built on flat surface with a slope of 0.4% (40cm in 100m) |
| **Open ponds** constructed with grader along contour line | Bank were up to 200 m long, 65 cm high and were 2 m wide at the base. The ends were surveyed to give a maximum ponding depth of 7 cm. |
| **Waterspreaders** constructed with grader along contour line | Bank 65 cm high, base 2 m wide and had a break/100 m. There is a sill on the downslope to hold water and spread evenly when full. |

No recruitment of perennial vegetation was recorded in areas where the crocodile plough was used. Due to the hard and impermeable nature of the soil surface this plough was unable to create large enough soil pits to trap sufficient water. The use of a crocodile plough heavier than the one currently being used could overcome this problem.

Ridges, and more specifically the furrows created by the agro-plough, provided an ideal environment for seedling recruitment. This was most evident following the 2010/11 wet season (see photo B).

At the time of writing, the closed ponds looked like rice paddies. Because rainfall run-off is only harvested within the ponds themselves the ponds are unable to catch overland flow. Due to an above average 2010/11 wet season, rainfall in each pond has been sufficient to initiate and maintain pasture growth. Depending on the wet season this may not always prove to be the case.

Due to the simple construction method adopted open ponds were quick to build (45 minutes) and were able to pond a significant amount of water (see photo C).

Water spreader banks were used in the transition areas where the vegetated landscape stopped and scalds began. Water spreader banks did not trap the same amount of water as an open pond, however they are of a more robust design and were used to spread out and slow down the overland water flow before it reached the other earth works.

Sterile forage sorghum (Sprint) was spread in selected areas to assess if it would germinate and provide groundcover. Plant frequency and vigour following the 2009/10 wet season was low when compared to that following the 2010/11 wet season. This was attributed to the difference in the two wet seasons. Over the period December 2009–March 2010, 12 days recorded rainfall over 5 mm compared to the period December 2010–March 2011 when approximately 27 days recorded rainfall over 5 mm. Where sorghum was used satisfactory groundcover was recorded (see photo B). Other plants that have colonised the mechanically disturbed areas are buffel grass (*Cenchrus ciliaris*) button grass (*Cynodon dactylon*) and tar vine (*Boerhavia spp*).

Although results following the 2010/11 wet season have been positive, the real trick will be to achieve sufficient perennial cover before some of the installed earthworks are too diminished to be effective.

The PDS on Larrawa station is jointly funded by Meat and Livestock Australia and the Department of Agriculture and Food. A field day at Larrawa station is planned for early 2012. This will be a great opportunity for interested land managers and the community members to visit and discuss the Larrawa station PDS.

Photo A *Larrawa station rangeland regeneration monitoring site at start of project in November 2009.*

Photo B *Annual forage sorghum growing in furrows created by agro-plough.*

Photo C *Open pond holding water on either side of bank .*

## Further reading

Invasive Native Scrub Case Study: Waterspreading and restoring native grasslands on 'Florida'; Central West & Western Catchment Management Authority publication.

Addison, J 1997, A Guide to Mechanical Rangeland Regeneration, Department of Agriculture and Food.
[Email matthew.fletcher@agric.wa.gov.au for a copy.]

# SCHEDULE FOR RANGELAND CONDITION MONITORING WORKSHOPS IN THE PILBARA AND KIMBERLEY

During May 2011 the Pastoral Lands Board will be holding numerous Rangeland Condition Monitoring workshops across the Pilbara and Kimberley. These workshops will bring pastoralists up-to-speed on the Rangeland Condition Monitoring system that is to be commenced on all pastoral leases in WA during 2011. Workshops will be held over two days, starting after smoko on the first day and finishing after afternoon tea on the second day.

Each workshop will focus on three key areas:

1. Lessee installation of rangeland condition monitoring sites
2. Data collection
3. Data entry and electronic submission on-line.

The table below shows the date and location for each workshop in the Pilbara and Kimberley. It is expected that workshops in the southern rangelands will be held in the latter half of 2011.

| Region | Workshop | Training group | Proposed date | Location | Other |
|---|---|---|---|---|---|
| **Pilbara** | | | | | |
| | 1 | Roebourne | 2–3 May | Indee | |
| | 2 | West Pilbara | 5–6 May | Red Hill | |
| | 3 | De Grey | 23–24 May | Yarrie | |
| | 4 | East Pilbara | 26–27 May | Ethel Creek | |
| | 5 | Ashburton | 31 May–1 June | Rocklea | |
| **Kimberley** | | | | | |
| | 6 | Broome | 2–3 May | Nita Downs | |
| | 7 | Halls Creek | 4–5 May | | To be confirmed |
| | 8 | West Kimberley | 5–6 May | Napier Downs | |
| | 9 | East Kimberley | 16–17 May | Home Valley | |
| | 10 | Fitzroy West | 16–17 May | Leopold Downs | To be confirmed |
| | 11 | Fitzroy East | 19–20 May | Larrawa | |
| | 12 | North Kimberley | 19–20 May | | To be confirmed |

For further information or to confirm your attendance at a workshop, please call the Pastoral Lands Board on 9347 5126.

# CLEANING UP CALTROP? GRAZE CAREFULLY!

*Helen Blake, Veterinary Officer, Geraldton*

Weeds are on everyone's agenda this month, but before you turn to your livestock as a spray rig alternative, have a careful look at what they will be grazing, and keep watching closely!

## Caltrop – prickly and toxic!

*Tribulus terrestris,* bindii or yellow vine as it is also known, is a common summer weed which can be dangerous for stock at certain times.

Caltrop can cause sheep to become photosensitised, or abnormally sensitive to sunlight. Bare skin or areas with less wool are more susceptible, such as around eyes, ears, the nose, udder and under the tail.

Eyes may become crusted and glued shut, while extra mucus and sensitivity around the nose makes it hard to breathe, so animals may stand with necks extended.

Lips and eyes can become yellowed and a red ring can form at the top of each hoof. Affected animals are usually depressed, reluctant to move and may seek shade. Many affected animals die and survivors may have bare areas where lesions have healed.

## Times to watch for signs

The reason caltrop can be toxic is not well understood and clinical signs of toxicity will not always be seen when it is grazed. Outbreaks of photosensitisation tend to occur when plants have used all available moisture and begin to wilt. If grazing caltrop, watch animals closely for clinical signs and remove sheep before the plants get to this stage.

Photosensitivity from caltrop has a high death rate, so it is best to avoid conditions that may precipitate an outbreak, for example grazing wilted plants.

## Managing affected sheep

All affected animals will require close attention. Severely affected animals should be humanely euthanased, and others should be moved to shade or put in a dark shed. Green feed, high protein grain such as lupins and worm drenches should be avoided until animals are fully recovered, which may take several weeks.

Nasal crusts can be gently removed with warm water, which will help ease breathing, and your private veterinarian will be able to provide advice as to whether antibiotics and/or anti-inflammatories are required.

## More information

For more information on the toxic effects of caltrop, management of caltrop on your property, or if you have concerns about your sheep, please contact your local Department of Agriculture and Food office, or see the DAFWA website at www.agric.wa.gov.au for Farmnotes.

- Farmnote159 http://www.agric.wa.gov.au/objtwr/imported_assets/content/aap/sl/hea/caltrop.pdf.
- Farmnote 42/203 http://www.agric.wa.gov.au/objtwr/imported_assets/content/pw/weed/wc/fn042_2003.pdf

To give feedback on this article or seek more information, contact Helen Blake at the Geraldton office on 9956 8512.

# WHAT'S COMING UP....?

## Erosion Control Workshop

**What:** Darryl Hill, of Soil Save in the Northern Territory, is coming to the Kimberley in June to run a series of one-day erosion control workshops.

These workshops will provide practical guidelines, grader use demonstration and information on design and maintenance of station roads, tracks and fence lines.

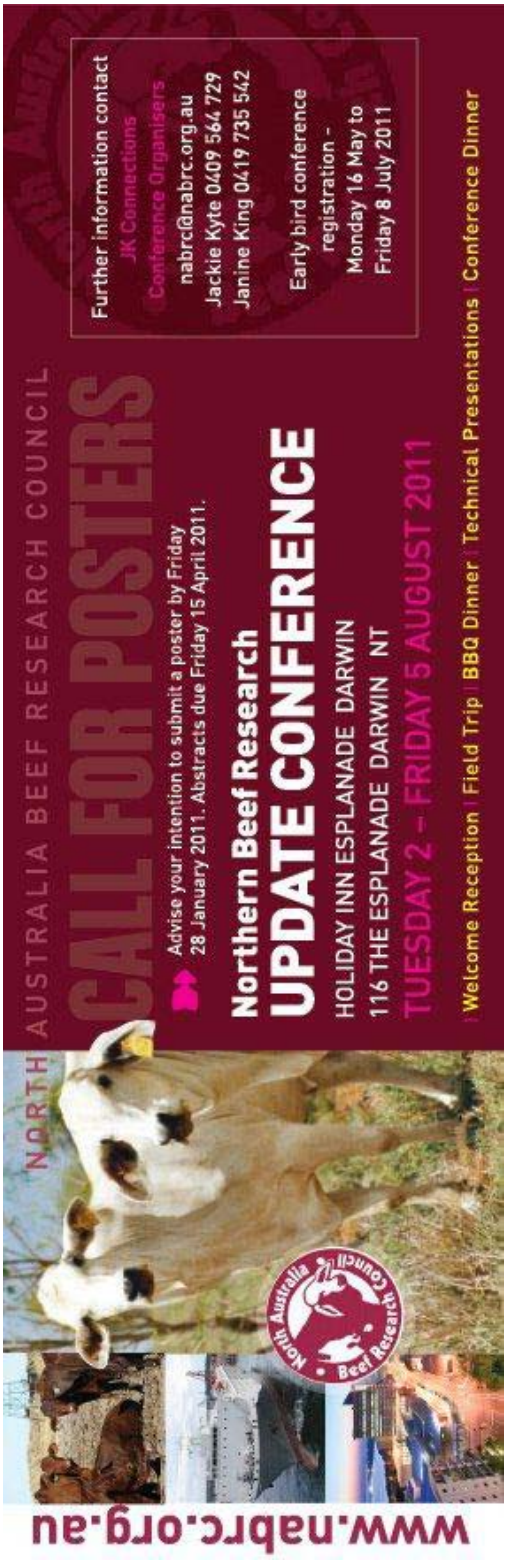
***Please note:*** The aim of this school is not to teach general grader operation but to demonstrate the principles and practices of effective grading techniques when constructing and maintaining station tracks and roads.

**When:** June 2011

**Where:** West Kimberley – Liveringa station
East Kimberley – To be announced

**How much: FREE!!!** (supported by Rangelands NRM)

**How to get involved:** If you are interested in attending or hosting a workshop, please contact Anne Marie Huey
Tel: 9194 1428; Mobile: 0417 993 142
Email: annemarie.huey@agric.wa.gov.au




## Rangeland Management Workshops

**What:** A one-day workshop aimed at anyone working in the pastoral industry. The workshops cover topics including:

- pasture dynamics—what grows, why it grows and how to look after it
- weeds—identification, prevention, control and eradication
- fire as a management tool—the good and bad effects of fire
- animal nutrition—nutrition and growth, matching supply and demand.

This workshop also serves as an introduction to the Grazing Land Management workshop and as such is suitable for all levels of experience.

**Where & When:**

Workshops can be delivered on any station in the Kimberley, at a time that suits your schedule.

**How much: FREE!!!!!**

**How to get involved:** If you are interested in attending or hosting a workshop, please contact Anne Marie Huey
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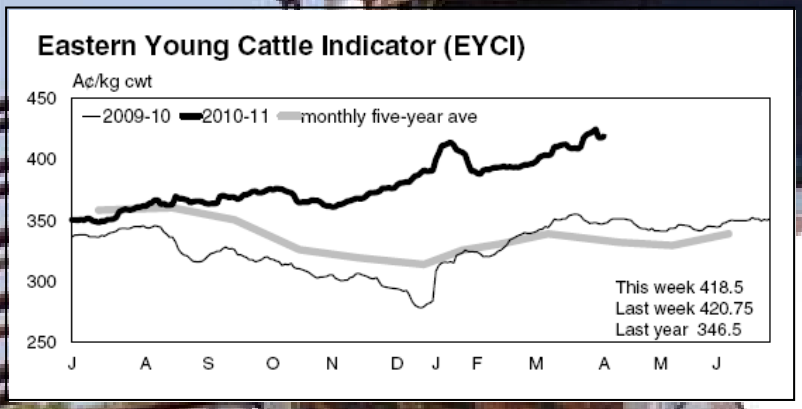
# CATTLE MARKET UPDATE – 1 APRIL 2011


**National saleyard indicator**

| Cattle | Weight | Muscle/Fat | | TW | LW | LY |
|---|---|---|---|---|---|---|
| Trade steer | 330-400kg | C3 | (¢/kg lwt) | 206 | 224 | 183 |
| | | | (¢/kg cwt) | 401 | 413 | 345 |
| Medium steer | 400-500kg | C3 | (¢/kg lwt) | 197 | 198 | 179 |
| | | | (¢/kg cwt) | 370 | 372 | 331 |
| Japan ox | 500-600kg | C4 | (¢/kg lwt) | 206 | 207 | 171 |
| | | | (¢/kg cwt) | 376 | 376 | 310 |
| Medium cow | 400-520kg | D3 | (¢/kg lwt) | 156 | 157 | 127 |
| | | | (¢/kg cwt) | 318 | 320 | 264 |
| Feeder steer | 330-400kg | C2 | (¢/kg lwt) | 222 | 222 | 182 |

**WA Saleyard cattle indicators**
**(¢/kg lwt)** MLA's NLRS

| | TW | LW | LY |
|---|---|---|---|
| Pastoral cow | 116 | 127 | 73 |
| Heavy cow | 161 | 149 | 126 |
| Heavy yearling | 205 | 210 | nq |
| Feeder yearling | 218 | 200 | nq |

## Export numbers
## (Northern Ports in 2010)

- 0 head of cattle left the Port Hedland Port in 2010
- 92 768 head of cattle left the Broome Port in 2010
- 46 614 head of cattle left the Wyndham Port in 2010