Managing the Impacts of Feral Camels in the Northern Territory
Glenn Edwards, Department of Land Resource Management

Caring for Our Country project
Feral camels occur over 875,000 square km of the southern NT, with an estimated NT population of 250,000-300,000 camels in 2008. They cause significant damage to the environment, including degradation of wetlands and destruction of vegetation, as well as economic and cultural impacts over about half of this area (Figure 1). The problem crosses pastoral, Aboriginal and conservation land tenures.

Through the Caring for Our Country initiative, the Australian Government supported a four-year national project (The Australian Feral Camel Management Project- AFCMP) to reduce the impacts of feral camels around identified environmental assets, which commenced in 2009-10. The project is administered through Ninti One (the business arm of the previous Desert Knowledge CRC). The project involves 20 partner agencies including the NT Government (through the Department of Land Resource Management), the Central Land Council and the NT Cattlemen’s Association. The NT Government has contributed new funding of $3.3 million over four years to support the project ($300,000 in 2009-10, $1 million pa in 2010-11 to 2012-13).
Cont. p. 3.

Figure 1. Camel damage to water infrastructure at Docker River in 2009.
Dear Reader

Welcome to the last edition of the Rural Review for 2012. It has been another eventful year with a new Territory government, a new Department of Primary Industry and Fisheries and a new Chief Executive Officer. Many of you will know Alister Trier, our new CE. Alister is familiar with the Pastoral Industry having been involved in the live export trade, managed pastoral properties and he also managed our Pastoral Production Group for the Department over a number of years. Alister recently visited OMP Research Station to familiarise himself with our current research activities underway.

The Alice Springs Industry Advisory Committee (ASPIAC) met on 3 December at the Arid Zone Research Institute where they were briefed by the pastoral production team on progress with a number of research trials.

The role of ASPIAC is to advise the Minister on issues relating to the cattle industry as well as to review results of pastoral research and act as a body through which these results can be communicated to industry. By participating in the planning and assessment of departmental programs such as the OMP grazing trial they support and service the pastoral industry in central Australia.

ASPIAC is made up of 9 members with 7 being producers as well as a representative from CLMA and DPIF providing the secretariat. Members are elected and appointed on a 3 year basis with current members being: Chris Nott (Chairman), Alastair Bayly, Liz Bird, Dick Cadzow, Jamie Evans, Lance Cramer, Nicole Hayes, Rob Cook, Camilla Osborn (CMLA) and Pieter Conradie (DPIF). ASPIAC can be contacted through this office or directly through committee members.

During November I had the opportunity to visit two stations in the Alice district. During discussions I was interested to hear that both these stations had managed the previous drought without external input while maintaining their core breeder herd. Both these stations have a policy of conservatively stocking. If you are interested in having an assessment of the long term safe carrying capacity for your station, please contact this office.

On behalf of the Pastoral Production staff at AZRI we now wish you a Merry Christmas and a prosperous 2013.

Pieter Conradie
Managing the Impacts of Feral Camels in the Northern Territory

(Cont from front page)

Under the AFCMP, camels are managed in accordance with landholder wishes. Aerial culling is the most effective method of reducing the numbers of feral camels in a short period of time. The Department of Land Resource Management, in partnership with the Parks and Wildlife Commission, conducts all aerial culling of feral camels within the NT under the AFCMP.

**Project achievements**

The Central Land Council has conducted extensive consultations with Aboriginal stakeholders and for the first time consents are in place for the management of camels on almost all Aboriginal land in the southern NT. This consent work will assist camel aerial culling operations on Aboriginal land well into the future.

Very little camel management was undertaken in the NT during 2010-11 due to the very wet seasonal conditions. Management operations resumed in October 2011 with the return of drier conditions and since that time nine aerial culling operations have been conducted on Aboriginal and pastoral land. The final cull for 2012 was completed in October. Culling will resume in March 2013 when the hot weather abates and it is anticipated that culling will occur each month until the end of June 2013.

Over the life of the project, almost 52,000 camels have been aerially culled in the NT at an overall operational cost per camel of about $35. Around 95% of the camels culled were taken on Aboriginal land. Taking into account the number of camels removed by landholders through ground culling and mustering (estimated 12,000) it is likely that at this point in time there has been about a 60% reduction in the number of camels in the western deserts of the NT and about a 20% reduction in the Simpson since 2009. It is anticipated that an additional 25-30,000 camels may be removed during 2013 (using a combination of aerial culling, ground culling and commercial extraction) if conditions remain favourable.

Contingencies are in place to rapidly deal with any significant congregations of camels in remote Aboriginal communities or on pastoral leases over the summer months.

To fulfil requirements under the AFCMP, the Department of Land Resource Management is monitoring camel numbers and improvement in asset condition as a result of the removal of feral camels. A key focus for this monitoring work is arid wetlands where remote cameras have been deployed to monitor animal visitation and wetland condition (Figure 2).

**Commercial use of camels**

Caboolture and Peterborough abattoirs currently process 10,000-15,000 camels/year but have the capacity to process up to double this number. There are some challenges with the supply chain and high transport costs that need to be resolved before more camels can be processed for meat. Wamboden abattoir in Alice Springs typically processes up to 20 camels per week for the local market.
The Central Land Council has mustered and sold camels from Aboriginal land west of Alice Springs during 2012 with the assistance of ranger groups and traditional owners (see below). Individual pastoralists are also involved in the muster and sale of camels but the number participating is small.

Recent reports indicate that it will be very difficult to obtain meat hygiene standards for human consumption of camel meat using portable abattoirs. Therefore the likely application of the approach would be for pet meat. However, risks associated with indospicine contamination have stopped camels being taken for pet meat. Indospicine is a toxin found in plants belonging to the genus *Indigofera*. The toxin is known to accumulate in the tissues of horses and camels and can cause death in dogs that eat this meat. The Department of Primary Industry and Fisheries is currently investigating this issue.

**Building capacity for future management**

An important aspect of the AFCMP is building capacity in landholders to manage the impacts of feral camels into the future. To this effect, the Central Land Council conducted four musters between April and September 2012 during which 566 camels were removed and Aboriginal rangers and traditional owners acquired skills in mustering and trucking of camels (Figure 3). Two water points have been installed near Papunya and Docker River to facilitate camel mustering operations. Rangers have also been trained in firearms safety and the humane conduct of ground culling operations. Ground-based culling is now occurring on Aboriginal land as a result of this initiative.

Twelve pastoralists have recently undertaken firearms training delivered under AFCMP and two property owners (for 3 properties) have taken up an offer to obtain ammunition through the project to cull feral camels on their properties. Personnel from the Department of Land Resource Management have delivered training in assessment of wetland condition to Aboriginal rangers, traditional owners and pastoral land managers on a regular basis under the AFCMP.

![Camel mustering operation on Aboriginal land involving Central Land Council rangers](image)

**Figure 3.** Camel mustering operation on Aboriginal land involving Central Land Council rangers.
New Loss Carry-back Scheme for Tax

Christine Long, Director Policy and Services, DPIF.

The 2012 Australian Government Budget announced a new tax concession as part of its business tax reform measures that will benefit businesses run by companies and/or taxed as companies who elect to carry back losses. The Australian Taxation Office is currently in the process of determining how these rules will operate and recently released draft legislation for comment.

Broadly speaking, the new scheme allows for “Company Loss carry-back”, meaning that companies which have paid tax in previous tax years and find themselves in a tax loss position in future can claim back some of the tax they have paid in past tax years (at the company tax rate). This enables the losses to be used more quickly. It only applies to revenue losses.

This will start in the 2012-13 year, allowing for a loss carry-back refund to be claimed against tax paid last financial year in 2011-12. From 2013-14, this can then be claimed for the two years previous.

The maximum amount of losses which can be carried back is $1 million per year, so the maximum cash benefit in a given year will be $300,000.

Obviously, DPIF is not able to give you taxation and financial advice. If you think this tax refund scheme may benefit your company’s business enterprise, talk to your accountant about this initiative to clarify and expand on any issues.

Further information can be obtained from your accountant and the Australian Taxation Office website at: http://www.ato.gov.au/content/00331932.htm or, email: LossCarryBack@treasury.gov.au

BBC VISIT AZRI

Coral Allan, Pastoral Production Alice Springs

A BBC film crew visited the AZRI complex on 25th-26th September filming a program called Naomi’s Nightmares of Nature. The story line is that Naomi is scared of all things in nature and is trying to overcome her fears by confronting the various creatures from her nightmares. Here at AZRI Naomi dealt with the nightmares of red kangaroos and dung beetles then into town to deal with snakes with a local reptile handler. After leaving Alice Springs the crew were visiting Uluru searching for scorpions and thorny devils then onto Queensland to look for the aquatic menaces of Naomi’s nightmares.
The dung beetles episode gave us all some good laughs but created quite a few squeals from Naomi as she tried holding a handful of squirming/flying beetles. Of course when she released the beetles onto a cow pat and watched them all burrow into it, another whole range of noises were expressed by her but the beetles were great and kept to the script! Laughter and jokes aside the information presented by Dr Bernard Boube from Dung Beetle Solutions Australia based in Adelaide was very informative and he can be contacted at bernardo@internode.on.net should you like any information on Dung Beetles.

The crew really enjoyed their time at AZRI and Naomi particularly loved our baby Droughtmaster calves that were very playful and curious during the filming!

So, when are we going to see this program on Australian TV? The crew were not able to tell us that but keep your eyes out for it and no, there is no budding actor’s from staff at AZRI in the program!

Ord Stage Three

Lorraine Corowa, Senior Director Major Project Development, DPIF

The Department of Primary Industry & Fisheries has received an additional $400,000 funding under the NT Government’s recent mini budget to establish an Ord Development Unit. The new Unit will focus on progressing Ord Stage 3, which could see up to 15,000 hectares developed for agricultural use on the Territory side of the border.

Ord Stage 3 was also given major project status by the Chief Minister on 23 November and it is the first time this status has been granted to a primary industry project in the Northern Territory.

The WA Government recently announced that the preferred developer for Ord Stage 2 was Chinese company, Shanghai Zhongfu. This company, trading as Kimberley Agricultural Investment, will develop 15,000 hectares in WA and plans to invest up to $700 million over six years to establish a sugar industry in Kununurra, including the construction of a $250 million sugar mill.
The WA Government has invested around $300 million to build 31 kilometres of new channels and roads to extend the project to within six kilometres of the NT border. This infrastructure will become the catalyst for development of Ord Stage 2.

A Memorandum of Understanding between Western Australia, the Northern Territory and the Commonwealth Government to work together to extend the Ord Irrigation Scheme (Stage 3) into the Northern Territory was signed recently in Kununurra following the Northern Australia Ministerial Forum (NAMF).

NAMF is chaired by the Australian Government Minister for Regional Australia, the Hon. Simon Crean and includes the Regional Development Ministers from Western Australia, Northern Territory and Queensland.

The Hon. Alison Anderson, Minister for Regional Development and Indigenous Advancement is the NT’s representative at this forum, and she was joined by Chief Minister Terry Mills and the Minister for Primary Industry the Hon. Willem Westra van Holthe. The department’s C.E. Alister Trier provided support to Ministers at the NAMF and official channel opening ceremony which followed.

A cross agency taskforce is being formed and will be chaired by Alister Trier, with the department’s Lorraine Corowa to lead the Ord Development Team.

While there has been no formal decision on how the NT land in the Knox Plain and Keep River areas will be developed, the NT Government is working with counterparts in Western Australia, the Commonwealth Government and with Traditional Owners to ensure early engagement and respectful consultation occur.

Much work is to be done to address native title, obtain environmental clearances, release the land and make biosecurity arrangements.

A number of additional important issues for the Northern Territory’s primary industries were also discussed at the NAMF meeting, including:

- A report on the strategic directions for the Northern Australia Beef Industry and required joint Government and Industry action. This report was developed by the QLD, WA, NT and Australian Governments in close partnership with pastoral industry bodies from those jurisdictions.
- New work by CSIRO identifies the challenges and opportunities for the emerging carbon economy in Northern Australia. A new publication will be released shortly and available on line.
- Discussion around the role of Northern Australia in the ‘Asian Century’ and the need for private sector and Government investment in infrastructure for potential to be realised.
- A new study into food and fibre supply chains across Northern Australia and the continuation of transport logistics modelling work to identify infrastructure needs under various growth scenarios.
Woody Biomass and Remote Sensing
Gary Bastin, CSIRO, Alice Springs

CSIRO has an agreement with the Chinese Academy of Science to promote scientific exchange between the two organisations. Part of that agreement extends to furthering our joint understanding of carbon stocks in soil and vegetation and better using remote sensing to monitor change in these stocks. To that end, a small group of scientists in the CSIRO Sustainable Agriculture Flagship visited the Chinese Earth Observation and Digital Earth (CEODE) facility in Beijing last year to exchange knowledge of our respective environments and plan joint small-scale research projects involving remote sensing.

CSIRO’s component of the collaborative research involved developing some preliminary arid-zone tree and shrub allometry to add to its data that have been compiled for semi-arid species in environmental plantings in parts of southern Australia. Allometry is the estimation of woody biomass (both above and below ground) based on stem diameter and height. These relationships mean that indirect measurements can be used to estimate change in woody biomass (and associated rates of carbon sequestration) without having to use further destructive sampling. There is potential for southern farmers to earn carbon dollars through environmental plantings they have established for shelter, land reclamation and biodiversity purposes.

What we did
We selected three replicates of three shrub densities for biomass measurement on calcareous country on part of Old Man Plains Research Station. Sites ranged from 0.56 ha (low density) to 0.16 ha for the medium and high shrub densities.

The main species present were witchetty bush (Acacia kempeana) and broom bushes (two sub-species of Senna artemisiodes). Sites were selected with the aid of a high resolution satellite image acquired in late January 2012. This image had 0.5m pixels which allowed identification of most of the shrubs using an unsupervised classification. The low-density replicates had canopy covers of <5%, the medium-density sites 5-10% canopy cover and the high-density sites 10-20% canopy cover. No attempt was made to sample areas with >20% canopy cover.

The intention was to measure the height of all individuals (by species), then record the diameter of all stems for each individual and finally, cut and weigh each individual. However, some witchetty bushes had up to 50 stems branching near ground level which made sufficiently precise measurement prior to cutting impossible (and not helped by dense buffel grass, myriad ants and hot weather at the time of sampling). We thus cut and weighed individuals (photos 1 & 2) prior to measuring their stem diameters (photo 3). This effectively defeats the purpose of allometry but we were able to substitute remotely-sensed measurement of canopy cover for combined stem diameter to indirectly estimate above-ground woody biomass (see following results).

Finally, we sectioned representative samples of different size-classes of the main species into leaf, twig, fine and coarse stemmed material, determined their fresh weights, oven dried at 60°C until dried weights had stabilised and used the resultant moisture contents to calculate the dry weight of all harvested individuals.

ALICE SPRINGS RURAL REVIEW, page 8
Preparation to attack a large witchetty bush.

What we found
We measured the stem diameters, heights and above-ground biomass of all individuals on eight of the nine sites in the time available (nine days in April). I was very dependent, and grateful, for volunteer labour from both within CSIRO and the NT Government to get the job done.

Weighing part of the resultant biomass.

Measuring stem diameters near ground level with a digital vernier calliper when all woody material removed.
Some summary statistics are shown in the following table:

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<tbody>
<tr>
<td>Number of sites sampled</td>
<td>8</td>
</tr>
<tr>
<td>Total area sampled (ha)</td>
<td>2.48</td>
</tr>
<tr>
<td>Number of species encountered</td>
<td>12</td>
</tr>
<tr>
<td>Number of individuals measured</td>
<td>626</td>
</tr>
<tr>
<td>Number of stems measured</td>
<td>7,890</td>
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<tr>
<td>Woody biomass harvested (kg fresh weight)</td>
<td>6,185</td>
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A strong statistical relationship was developed between stem basal area of all shrubs and their corresponding above-ground woody biomass (dry weight, following graph). Similar relationships held for the main species (witchetty bush and the two species of broom bush). This means that if it was possible to reliably measure the stem diameters of other witchetty bush (and associated species) near ground level, we could reliably estimate their above-ground dry weight and follow how this changes over time.

Graph: Relationship between stem basal area of individual trees/shrubs and their above-ground biomass. Data values were log-transformed to produce a linear relationship.

Not all was lost though. The high resolution satellite image meant the reliable identification of all medium-sized and larger trees and shrubs. From there, it was possible to:
1. accurately determine total canopy cover for each of the eight sites sampled, and
2. develop a relationship between canopy cover per hectare and harvested woody biomass (adjusted to dry weight).

From there, it was possible to estimate above-ground woody biomass for the calcareous country in the paddock (following map). Total above-ground woody biomass (dry weight) was estimated to be approximately 1,500 tonnes giving an average value of just over one tonne per hectare.

Limitations of this work
It must be stated here that these results are preliminary and are limited to a few species on one type of country. There is a need to expand this type of work to be confident that the methods and results apply to other land types and woody species in the arid zone. Further data that includes the other main woody species (particularly mulga, gidyea, ironwood etc) will show how robust our preliminary allometric relationship between stem diameter (or tree basal area) and biomass is. Further work will also show whether high resolution remote sensing has a useful role in estimating, and monitoring, above-ground woody biomass.
Changing of the guard at Atula Station

Danny Hoogstraten, Indigenous Pastoral Advisory Officer, Alice Springs

Atula is one of the stations included in the Indigenous Pastoral Program (IPP). The third phase of this very successful program focuses on supporting the development of viable, Indigenous pastoral operations and enabling economic opportunity via pastoral activity on indigenous held land.

The IPP is a multi-agency partnership that includes the Department of Primary Industry and Fisheries with the Northern and Central Land Councils, the Northern Territory Cattlemen’s Association, the Australian Government Department of Employment, Education and Workplace Relations and the Indigenous Land Corporation (ILC). Significant funding for the program is being provided by the ILC.

The Central Land Council covers an area of approximately 750,000 Sq Km and includes many aboriginal owned grazing properties, from “Atula Station” on the Plenty River to “Mistake Creek” on the Western Australian Border.

Rob Brown, new manager at Atula

Robert (Rob) Brown, originally from the Kimberly Region is taking up the position of manager at Atula and will oversee the operations on the Plenty River property. Rob has good experience in the industry having grown up and worked on cattle stations throughout the NT. He has good mechanical knowledge and has driven road trains interstate carting general freight and livestock. Along with the Indigenous stockmen, Rob will be supported by Tom Cleary, who will be retiring on the property. After 24 year as manager, Tom will be able to pass on valuable knowledge of the country and mustering activities.

Atula presently breeds beef cattle for local and interstate markets. The herds are made up of Santa Gurtrudis and Droughtmaster breeds which are ideally suited to the climatic conditions within the Plenty River district. All cattle at Atula are mustered on horseback, reflecting the good temperament of the cattle. Watering points are controlled with spear traps and holding paddocks where cattle are then mustered and walked to drafting yards.

Weaners drafted at Atula Station Yards
Atula Station cont.
The experienced stockmen at Atula continue to work the traditional way, without the use of helicopters or motorbikes. The Head Stockman at Atula has a lifetime of experience and with his quietly spoken manner, is passing on his knowledge to the younger stockmen.

One of the experienced stockmen with his horse

With the season almost done at Atula, the final round of mustering almost completed and the last road train of cattle being sent off, it’s time to hang up the saddles, relax and hopefully watch the rain fall and the calves grow over the next few months.

Merry Christmas from the staff at AZRI, DPIF

The Department of Primary Industry and Fisheries staff here at AZRI wish all our Rural Review readers a safe and happy festive season, and extend their warmest wishes for the New Year.
Patchy start to the 2012/13 season
Chris Materne, Pastoral Production, Alice Springs
AussieGRASS – December 2012 update
2012/13 Pasture Growth

Figure 1: 2012/13 Pasture Growth relative to historical records since 1957
(1st September 2012 to 30th November 2012)

Total Standing Dry Matter (TSDM)

Figure 2: TSDM relative to historical records
(as at the 1st December 2012)

Figure 3: Median district pasture growth (running total)

What is AussieGRASS?
AussieGRASS is a spatial modelling framework that estimates various pasture characteristics (such as growth and total standing dry matter) over a given time period and compares it with historical records. It does this by using rainfall, climate, soil and pasture type information to estimate average pasture growth (among other parameters) over 5km x 5km square grids across Australia. Seasonal benchmarking tools such as this are potentially valuable in assisting pastoralists make informed land management decisions.

For more information on AussieGRASS see http://www.longpaddock.qld.gov.au/
Neutral rainfall conditions across the NT
(Sourced from the Australian Bureau of Meteorology)

The national outlook for December 2012 to February 2013 indicates that:
- **Neutral** rainfall conditions expected across the majority of the NT (Figure 4)
- **Warmer** days are more likely over northern Australia (Figure 5).

This outlook is mostly a result of warmer than normal waters in the Indian Ocean; warmer than normal waters in the Pacific Ocean had less of an impact on rainfall but not on temperature.  


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<tr>
<th>Seasonal Indicators</th>
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<tr>
<td>El Niño Southern Oscillation (ENSO)</td>
<td>Tropical Pacific remains ENSO neutral</td>
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<tr>
<td><a href="http://www.bom.gov.au/climate/enso/">http://www.bom.gov.au/climate/enso/</a></td>
<td>The tropical Pacific remains neutral with respect to ENSO, that is, neither El Niño nor La Niña. Climate models indicate this situation is likely to remain through the southern hemisphere summer. Hence, in contrast to the previous two summers, Australian rainfall and temperatures are unlikely to be strongly influenced by ENSO. Atmospheric indicators of ENSO, such as the Southern Oscillation Index (SOI), trade winds, and tropical cloud patterns have persisted at neutral levels over recent months. Temperatures in the tropical Pacific Ocean were consistently warmer than normal during winter and spring, occasionally reaching or exceeding El Niño thresholds. Temperatures in the tropical Pacific are now at neutral levels.</td>
</tr>
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<tr>
<th>Indian Ocean Dipole (IOD)</th>
<th>IOD returns to neutral</th>
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<tr>
<td><a href="http://www.bom.gov.au/climate/enso/">http://www.bom.gov.au/climate/enso/</a></td>
<td>After reaching positive levels during spring, the IOD has returned to neutral. The IOD has limited influence upon Australian climate over summer and autumn.</td>
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Figure 4: Rainfall outlook
Figure 5: Temperature outlook
Figure 6: 30 day moving SOI
Figure 7: Modelled tropical Pacific Ocean sea surface temperature
Figure 8: Modelled Indian Ocean sea surface temperature
I was recently invited to attend a Landscape Literacy course based on Ecosystem Management Understanding (EMU™). The course was run by Ecologist Dr Hugh Pringle and hosted by the Department of Primary Industry and Fisheries (DPIF) at their property Old Man Plains Research Station (OMP) near Alice Springs.

Participants were introduced to drainage system ecology and in particular the key patterns and processes that optimise rainfall infiltration and primary productivity, and how these pattern and processes can be damaged.

The course started with an understanding of how important local knowledge is and the value of recording information and issues onto aerial photography to see how they interact with landscape processes. We then went onto the ground and followed a drainage system, sketching where water was coming from, why it was concentrating, where it was going and what damage it was doing. Then we flew over the drainage system to get another perspective.

A key concept of the course was the identification of ‘nick points’ in the landscape. These are places where the landscape has been lowered and therefore attract water. Nick points can be caused by many things including cattle pads, tracks, fence lines and culverts. Because water will always take the path of least resistance it flows to these lowered points. The water no longer spreads slowly over the surface infiltrating to feed grasses. Instead its velocity slowly increases as the nick point becomes a gully that eats back upslope in the direction of water flow.

Exposed mulga roots - where did all the soil go?

This can dehydrate country around the gully as it effectively drains the surrounding land.

Hugh explained that to properly understand a problem you need to look at it from a variety of scales, including from the top of a catchment to the bottom where the plug has
been pulled, prioritise action to protect valuable country under threat from approaching gullies and dehydration, and make sure the plug is put back in so the problem doesn’t reoccur.

Thanks to Centralian Land Management Association (CLMA) and Territory NRM for organising and sponsoring the course.

Acknowledgement: Camilla Osborn, CLMA
Photos: Coral Allan, DPIF

Participants in the field classroom

New Territory Chief Veterinary Officer

A new Chief Veterinary Officer (CVO), Dr Malcolm Anderson started work in the Northern Territory on 26th November 2012.

Dr Anderson will have big shoes to fill as he takes over the reins from his highly respected predecessor Dr BrianRadunz and a series of other well-known NT CVO’s including Colonel Lionel Rose after whom part of the Darwin Berrimah Veterinary Laboratory is named.

Malcolm has been working with Biosecurity South Australia since 2007 as the Manager of their Disease Surveillance program and is well known by the SA livestock industry. Whilst working in that role he has also been the SA Planning Manager in their team for responses to outbreaks of exotic animal diseases and in 2011 was a member of a team working in Cambodia and Laos on an Australian Centre for International Agricultural Research (ACIAR) project on Foot and Mouth Disease (FMD). He has also been involved with a project on Rabies in Bali.
Originally a graduate of Murdoch University, WA, Malcolm has previously worked in a variety of government or private roles in South Australia and Western Australia including as an export consultant veterinarian with shipments of live animals to the Middle East, Malaysia and Pakistan. Along the way, Malcolm has studied Bahasa Indonesia and has a Masters in Veterinary Public Health from Sydney University.

Malcolm says he is greatly looking forward to working with the NT team and will be based at the Berrimah Research Farm in Darwin.

**Introduction of the Land Transport Standards in the Territory**

The *Australian Animal Welfare Standards and Guidelines - Land Transport of Livestock*, known as the *Land Transport Standards (LTS)*, is a set of nationally agreed standards and guidelines developed to ensure appropriate livestock welfare during the transport process. The LTS are based on the revision of the *Model Codes of Practice for Welfare* for the transport of various livestock species and were developed by the livestock industries and government in consultation with stakeholders.

The LTS cover the transport of livestock by road. A separate set of standards, the *Australian Standards for the Export of Livestock (ASEL)*, cover the requirements for export of livestock by ship. The ASEL are currently being reviewed.

**Responsibilities during transport**

The LTS apply to all people responsible for the management of livestock at all stages in the livestock transport process. The consignor is responsible for mustering and assembling of livestock in yards, preparation of livestock and selection as fit for the intended journey, supply of feed and water prior to transport and holding periods before loading.

The transporter is responsible for final inspection as fit for the intended journey, loading and loading density, inspections during transport, spelling periods during the journey and unloading.

For a journey over 24 hours, the transporter must have records of the date and time that stock last had access to water, inspections, any welfare concerns, actions taken and emergency contact details. This information must be provided to the person in charge when the responsibility for stock is transferred during the journey.

The receiver is responsible for the management of stock after unloading.

The LTS are divided into two sections. Part A outlines general standards and guidelines that apply to all livestock species and Part B provides specific standards and guidelines for each livestock species.

**Standards** are the *MUST DO* requirements for livestock welfare and are the minimum standards for livestock management practices. **Guidelines** are recommended practices to achieve desirable welfare outcomes - the *SHOULD DO* and complement the standards.
How will LTS be enforced?
In the Northern Territory, the LTS has been adopted under the Livestock Regulations. Compliance and enforcement activity will be undertaken by Department of Primary Industry and Fisheries Veterinary Officers and Livestock Biosecurity Officers from 1 January 2013. In other States, LTS will be regulated by government agencies responsible for animal welfare legislation.

Information on LTS was posted to all properties in October and information sessions were held in Regions during early December.

Cattle Standards and Guidelines
The cattle standards and guidelines are the next in the series of livestock standards to be developed and will likely be available for public consultation during January 2013. A copy of the cattle standards and guidelines will be available for public comment at http://www.animalwelfarestandards.net.au/cattle/ during this time.

More information
Department of Primary Industry and Fisheries website www.nt.gov.au/d/livestockstandards
Land Transport Standards website www.livestockwelfarestandards.net.au/

Release of Hendra virus vaccine
After several years research, a vaccine against Hendra virus – Equivac HeV has been released under a minor use permit to accredited veterinarians. It is expected that the vaccine will be available to accredited Northern Territory vets from December 2012. Under permit conditions, the accredited vet must microchip vaccinated horses and record details on a national vaccine register for horses. Two doses of vaccine are required 21 days apart for primary immunisation. Initial vaccine trials have shown complete protection when vaccinated horses have been challenged with Hendra virus. The vaccine will reduce the risk of Hendra virus exposure to horse owners, handlers and vets.

Hendra virus is a virus present in flying foxes (fruit bats) that on very rare occasions may spill-over and cause disease in horses and people in contact with infected horses. It can be fatal. Four species of Australian flying foxes (grey-headed flying fox, black flying fox, little red flying fox and spectacled flying fox) carry the virus but do not show symptoms of disease. Only the little red flying fox and the black flying fox are found in Northern Territory.

Hendra virus is believed to be spread between flying foxes through faeces, urine and saliva in colonies. Scientists believe infection in horses may occur through ingestion of grass or partially eaten fruit contaminated with bat urine, saliva or other body fluids, such as birthing fluids. Hendra virus has only been transmitted to people through very close contact with secretions or body fluids of infected horses. There is no evidence of spread between flying foxes and humans or human to human spread.

Hendra virus has not been reported in horses or humans in the Territory however it is important that all suspect cases are reported to your local vet for investigation. Hendra virus is a notifiable disease. The vaccine is only available from accredited vets. Please contact your local vet if you wish to have your horses vaccinated.

Further information
Vets http://www.vetsaustralia.com.au
Bayticol Pour-on – Discontinued supply by Bayer

Bayer has recently discontinued the supply of Bayticol pour-on to the Australian market. This is due to concerns raised by SAFEMEAT about the potential risk of cattle treated with the product which have been rejected from live export, entering the domestic and export meat supply chain.

The registration of Bayticol pour-on for use as a general tickicide was cancelled in 2002. As a result, Bayticol pour-on was no longer used for routine tick control on property or for pre-treatment of cattle tick prior to inspection and supervised treatment in a plunge-dip for movement to tick free areas. The use of Bayticol pour-on for live export cattle was not affected at this time.

The Australian Pesticide and Veterinary Medicine Authority (APVMA) began a review of the product in December 2001 following concerns that the use of the product according to label instructions would result in beef fat residues that exceeded the Maximum Residue Limit (MRL) which would pose a potential risk to Australia’s international trade. Flumethrin, the active ingredient of Bayticol pour-on is not registered in some overseas countries. The US has a zero tolerance to flumethrin residues. Detection of flumethrin residues in Australian meat would have a significant impact on access to these markets. In February 2002, Bayer voluntarily requested that the APVMA cancel the registration of Bayticol pour-on cattle tickicide and APVMA cancelled the registration on 31 March 2002.

NT resellers and producers with existing product may continue to sell existing stocks and use the product as directed on the label. The potential risk associated with rejected cattle from live export supply chain treated with Bayticol pour-on must be managed by cattle producers and exporters until the supply runs out, so that treated cattle do not enter the meat export supply chain.

The product label clearly outlines conditions for use. It is important to remember that until supplies run out, Bayticol pour-on may only be used as a live export clearing tickicide prior to IMMEDIATE live export.

Animal Biosecurity Disease Investigations

A large proportion of laboratory submissions have been for disease surveillance and research activities as well as health certification for animals going to export markets. A few cases of downer animals were investigated with bovine ephemeral fever as the most likely cause. Several submissions to check for internal parasites were received. In one case 23 out of 750 weaner cattle died after showing signs of diarrhoea. Salmonella was cultured from half of the faecal samples submitted. In two separate incidents, goats were diagnosed with enterotoxaemia due to the sudden increase of supplementary feed prompted by very dry pastures.

Bronchopneumonia after transp ortation – Exotic Contagious Bovine Pleuropneumonia excluded

A post mortem was carried out on a 6-year-old cow that died in the spelling yards following long distance road transport. Histopathology revealed the presence of severe bronchopneumonia combined with severe liver lesions. Two bacteria *Pasteurella multocida* and *Trueperella pyogenes* were isolated from the lung tissue.

*P. multocida* is an important pathogen of the bovine respiratory system. The stress associated with road transportation is the most probable factor that precipitated the severe pneumonia. *T. pyogenes* is an opportunistic pathogen that is occasionally isolated along with other respiratory pathogens. Contagious Bovine Pleuropneumonia was excluded at the Australian Animal Health Laboratories (AAHL) in Geelong, Victoria from samples of lung tissue and pleural fluid.
Bovine Herpes Virus-2 (BHV-2) skin lesions – Exotic Lumpy Skin disease excluded

Nodular skin lesions were reported in a 6-year-old Brahman cow. The nodules could be easily removed, leaving a hairless skin patch. There were also lesions on the legs and flanks. Microscopy confirmed chronic dermatitis with secondary bacterial infection. This is consistent with bovine herpes virus-2 (BHV-2) infection, known as pseudo-lumpy skin disease. Capripox virus infection, causing true lumpy skin disease was excluded at AAHL.

This is the fourth report of the disease in the Katherine region this year. An Australia wide survey has shown that the virus appears to be more prevalent in the far north of the Northern Territory, with 93% of herds showing positive antibodies to BHV-2. The disease generally has a high infection rate which is usually self-limiting. Animals completely recover within a couple of months. It is spread from one animal to another by biting flies.

A reminder that the use of shotguns using lead shot as an aid to mustering is an unacceptable practice. Industry needs to aware of the risks to the meat export market as well as local meat trade associated with detections of lead pellet contamination in carcases at abattoirs. Firearm operators also need to understand the welfare issues associated with the inappropriate use of ammunition when mustering stock and suitable firearms for the effective destruction of stock.

What When & Where

2012
AZRI will be closed on the public holidays over the Christmas and New Year period.

2013
Northern Territory Cattlemen’s Association Annual Conference
Alice Springs 21 – 22 March 2013
For the movement of cattle in the NT there are certain requirements that need to be completed. These requirements are used for the identification and tracing of livestock. These systems provide whole-of-life identification that enables individual animals to be tracked from property of birth to slaughter for food safety, product integrity and market access purposes. Failure to meet these requirements is an offence under the Livestock Act or Regulations and penalties may occur.

**NT Waybills**
1. A completed Waybill (white copy) must be given to the person in charge of the livestock before the journey begins.
2. If there are livestock in the consignment that you are not the owner of, a second Waybill must be issued for those cattle.
3. The pink copy of the completed Waybill must be sent to the Department within 28 days.

**Importing livestock**
1. All imported livestock must be issued with a NT Health Certificate before entering the NT.

**National Livestock Identification System (NLIS)** - The NLIS device is not proof of ownership
1. Approved NLIS devices are registered to that property only and must be purchased by the property owner or have owner’s permission to purchase.
2. Approved NLIS devices must only be applied to livestock on the property that the devices are registered to.
3. All livestock leaving the property must be identified with the appropriate NLIS device registered to the property.
   a. Breeder devices (white) must be applied to livestock born on the property.
   b. Post Breeder devices (orange) must be applied to livestock which were not born on the property and do not have a NLIS device already attached.
4. It is the responsibility of the receiver to complete the NLIS transfer onto their PIC and that the transfer is completed on the NLIS database within 48 hours.
5. If a NLIS device is attached to livestock another NLIS device must not be applied.
6. A person must not tamper with a NLIS device.
7. A person must not remove a NLIS device from any livestock unless authorised by an Inspector.

**Branding**
1. Determines proof of livestock ownership.
2. A Brand is registered for use on the property that is identified on the brand certificate only.
3. All livestock **8 months and older** must be branded with a legible brand before departing the property.
4. When you brand livestock it is optional to apply a registered earmark.
5. The earmark is for quick identification to a producer only and not proof of ownership.
6. If an animal has an earmark then there must be a brand on the livestock.
7. Livestock can only have one earmark applied.
8. Cross branding of purchased livestock is optional and it is owner’s decision.
9. Cattle ownership disputes or theft are a police matter.

**NT Contacts – Regional Livestock Biosecurity Officers**

<table>
<thead>
<tr>
<th>Region</th>
<th>Ph</th>
<th>M</th>
<th>Address</th>
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<tbody>
<tr>
<td>Darwin Region</td>
<td>8999 2030</td>
<td>0439 270 039</td>
<td>GPO Box 3000, Darwin NT 0801</td>
</tr>
<tr>
<td>Ian Doddrell (RLBO)</td>
<td>8999 2146</td>
<td></td>
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<tr>
<td>Katherine Region</td>
<td>8973 9754</td>
<td>0418 895 084</td>
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<td>Greg Scott (RLBO)</td>
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<td>8962 4458</td>
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<td>Tom Haines (RLBO)</td>
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<tr>
<td>Alice Springs Region</td>
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<td>0401 118 125</td>
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<tr>
<td>Greg Crawford (RLBO)</td>
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Livestock Producer Assurance (LPA)
1. The National Vendor Declaration/Waybill (NVD) is an industry market requirement.
2. NVD books are purchased through the LPA and not from the Department.

LPA Contacts: LPA Hotline Ph: 1800 683 111 | Email: lpa@mla.com.au
Live Cattle Exports via Darwin Port - NOVEMBER 2012

Please note that the “NT CATTLE” figures are NT cattle exported through the Port of Darwin only, some NT cattle are exported through interstate ports.

### Destination

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<tr>
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<th>Total Cattle</th>
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<td>PHILIPPINES</td>
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<td>W-MALAYSIA</td>
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### November at a glance

- 19,763 head of cattle through the Port of Darwin during November, 4,483 more than October and 1,193 more than November last year.
- 2012 total cattle figures indicate 13,279 head more than last year. NT cattle 15,458 more than last year.

199 breeders were airfreighted to Indonesia and have been included in the figures.

### Total Live Cattle Exports thru Port of Darwin

- **2011**: 272,749
- **2012**: 253,797

### NT Live Cattle Exports thru Port of Darwin

- **2011**: 12,784
- **2012**: 8,495

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**Pastoral Market Update**
### OTHER LIVESTOCK EXPORTS VIA DARWIN PORT (includes NT and Interstate Stock)

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### NATIONAL CATTLE PRICES - W/E 30/11/2012

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<th>Year ago</th>
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### CURRENCY EXCHANGE RATES

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**Prices courtesy of Meat & Livestock Australia**

www.mla.com.au
| ASPIAC: | Alice Springs Pastoral Industry Advisory Committee |
| CAGLM: | Central Australian Grazing Land Management |
| CLMA: | Central Land Management Association |
| CSIRO: | Commonwealth Scientific & Industrial Research Organisation |
| DAFF: | Department of Agriculture, Fisheries & Forestry |
| DCQ: | Desert Channels Queensland Inc. |
| DET: | Department of Education & Training |
| DK-CRC: | Desert Knowledge Cooperative Research Centre |
| DNRETAS: | Department of Natural Resources, Environment, the Arts and Sport |
| DPIF: | Department Primary Industry & Fisheries |
| GRASSp: | Pasture Growth Model |
| MLA: | Meat & Livestock Australia |
| NABRC: | North Australian Beef Research Council |
| NBRUC: | Northern Beef Research Update Conference |
| NLIS: | National Livestock Identification System |
| NLP: | National Landcare Program |
| NTCA: | Northern Territory Cattlemen’s Association |
| PIC: | Property Identification Code |
| RFID: | Radio Frequency Identification Device |
| VRD: | Victoria River District |