Improving the fertility of the Brahman through genetic selection

Renee Golding, Beef Cattle Research Officer, Pastoral Production, DoR

Brahman cattle are popular in northern Australia due to their high resistance to environmental stresses; however they are known to have lower fertility than other breeds. Improving the fertility of the Brahman through genetic selection has the potential to increase breeder herd productivity in northern Australia. Recent work by the Beef CRC has shown that fertility traits are a lot more heritable than was once originally thought and improvements in fertility are the most cost-effective way of increasing herd productivity.

The DoR began a project in 1994 in which animals have been selected for fertility using objective herd performance data. Results are now being generated from these animals which indicate that this Selected herd has significantly higher fertility measures when compared to Commercial Brahman cattle running under the same environmental and management conditions. This has been shown in two recent research papers.

A trial completed over three years at the Douglas Daly Research Farm found that in heifers mated as yearlings the Selected herd had pregnancy rates on average 35% higher than Commercial heifers.

When Selected and Commercial breeders at Victoria River Research Station in the VRD were compared over six years the Selected herd averaged 31% higher wet (lactating) cow re-conception rates at Round 1 muster (May).

In addition to these results the Selected Brahman herd are also part of the Breedplan genetic evaluation system. Fertility EBVs show that since selection began in 1994 values have improved markedly in the Selected herd compared to the Brahman Breed Average (Figures 1 and 2).

Selected herd breeders at Victoria River Research Station.
This project breeds bulls for use within this herd, and again males are selected for their fertility; early maturity (scrotal size) and breeding soundness assessment (BBSE). Both these characteristics have been shown to have a positive affect on the fertility of their female progeny. Excess bulls not required for mating are made available for tender to the public. For more information on bulls available please contact Sean Reed, Manager Douglas Daly Research Farm.

While this is an exceptional herd and is the result of 17 years of rigorous herd recording and animal selection, there is opportunity for producers to incorporate some of these management practices into their own systems. You may start on a small scale with a nucleus herd, and increase numbers as it becomes possible. With the potential for improved market options for cull females on the horizon this management system may be a more viable option.

The following points outline the first steps in implementing a similar program:

- Individually identify females and record lactation and pregnancy status at muster.
- Cull females which fail to rear a calf to weaning.
- Use bulls which have passed a BBSE and have favourable EBVs for fertility (positive scrotal size and negative days to calve).

Selected herd yearling heifers due to calve late 2011 at Douglas Daly Research Station.

Selected herd 2011 calves.

For more information on this project please contact Renee: Renee.Golding@nt.gov.au or phone 08 8973 9739.

For more information on bulls available for tender contact Sean: Sean.Reed@nt.gov.au or phone 08 8978 2442.
Assistant for those affected by the Live Export Suspension

Neil MacDonald, Regional Director, DoR Katherine

The live export suspension arrived like a bombshell at the end of May. It is encouraging to see the trade now slowly restarting but we all know that it will be months or years before the effects of this suspension are over and the trade is back to full strength and security. A lot of regional businesses will go through financial hardship in the meantime. The list of those affected is much wider than just the cattle producers. Fodder producers and transporters have been hit particularly hard.

It is also encouraging to see the way that the tide of public opinion swung back towards the cattle industry after the initial reaction. I would like to take this opportunity to express my admiration for the way that industry leaders (NTCA and others) have handled this crisis. Achieving this change in public perception, persuading the Indonesians not to react, and bringing the suspension to an end, were great achievements that at one stage seemed barely possible. This level of success was mainly due to the commitment of our industry leaders and they deserve the highest praise for their efforts. I would also applaud the large number of producers and their families who generated publicity by telling their story through the media and the internet, thus letting the public down south understand the human consequences of this crisis.

Below there is a short article from Charlie Goode, a rural financial counsellor who is helping us out for the next few months to promote and explain the assistance packages provided for those affected by the live export suspension. Most of these grants are not hard to apply for, and we would very much encourage everyone whose income has been affected to apply. For various reasons, only a small proportion of the allocated funding has so far been applied for. Please contact Charlie and he will lead you painlessly through the process.

**How much is a phone call worth to your business?**

Businesses and individuals affected by the live export trade suspension have until 30th September 2011 to apply for one of three forms of Live Export Business Assistance provided by the Australian Government.

The application process is quite easy, you call our Rural Business Support Officer Charlie Goode on 0418 850 251 and Charlie will talk you through the steps involved and prepare and lodge the paperwork. The assistance takes the form of income support, and two grants of $5,000 and $20,000.

So make that phone call, it could gain you some extra cash for very little effort and without you having to leave your property.

Kidman Springs Field Day 2010

**DVD now available**

For your copy contact the KRS office:  
(08) 8973 9739

A trailer of the DVD may be viewed at:

The Delamere Burning & Pasture Spelling Demonstration Site

Dionne Walsh, Rangeland Program Coordinator, DoR

A demonstration site has recently been set up at Delamere station to investigate how burning and wet season spelling could be used to improve and maintain land condition and pasture production on black soil country in the VRD.

The partners in the trial are the Australian Agricultural Company, Team Savanna (Katherine), the Department of Resources and Greening Australia. We aim to run the demonstration for at least five years.

Two trial paddocks have been fenced at the site, starting at 1km from an existing bore and heading away from the bore for 1.6km. Land condition closer to the bore is “poor” and improves to “good” towards the back of the paddocks. Each paddock contains six plots. Each plot is ~530m long by ~265m wide.

The following management options are being compared:

1. Wet season spelling without burning – every two years and every three years
2. Wet season spelling after early wet season burning – every two years and every three years
3. No spelling and no burning

Aerial photo of Delamere trial site taken in November 2010 just after the first burning treatment was applied (darker plots).

Burning is conducted in the early wet season after the first decent rains. In “spell” years, cattle are excluded from the paddocks for the entire wet season. The gates are opened again at the start of the following dry and cattle are allowed to graze the plots until the next burning and spelling period.
Results to Date
The first burns and spells were applied in the 2010/11 wet season. Pasture sampling was conducted in April 2011. The results from the first year of the trial show that:

- Annual species were most dominant, with 69% of the total pasture yield made up of annuals and 31% of perennials.
- Palatable species comprised 63% of the pasture yield.
- The most common species (by yield) on the site were Flinders grasses (*Iseilema* spp.), followed by sunflower daisy (*Wedelia asperrima*) and spurge *Phyllanthus* sp. The most common perennial grass on the site was curly bluegrass (*Dicanthium fecundum*).
- Pasture yields and groundcover were lowest closer to the bore and increased as the distance from the bore increased.
- The plots that had been burnt had lower pasture yields and cover compared to the plots that had not been burnt. Groundcover on the spelled (but unburnt) plots was similar to that on areas of the paddock more than 1.6km from the water point.
- For curly bluegrass (the most dominant palatable perennial grass), the plots that had been burnt and then spelled had more curly bluegrass than the plots that had only been spelled.
- Flinders grass yields were highest closer to water and declined as distance from water increased.
- Unburnt plots had higher Flinders grass yields than those that had been burnt and then spelled.

Future Activities
The next burns and spells are scheduled for the 2012/13 wet season. As the trial progresses, we will be doing some economic analyses for a range of practical burning and spelling regimes so that producers can determine the financial pros and cons of burning and spelling for pasture management. This will add to our understanding of the use of burning to manage woody vegetation thickening, which is being studied at Kidman Springs.

Acknowledgements
Funding to erect the fencing was provided by the Australian Government’s Caring for our Country Program. Research and extension activities at the site are currently being funded by the Australian Government’s Climate Change Research Program. Significant in-kind support to maintain the site and implement the burning is provided by Delamere station.

Land Condition Guides
Barkly, Sturt Plateau & Victoria River Districts
These booklets are a pastoral land condition assessment tool that has been produced to assist land managers. To assess a given area for land condition we look at four major features of the landscape: pasture structure and composition, soil condition, presence of weeds and woodland structure.

These guides include information on pasture growth, utilisation rates and carrying capacity for a selection of land systems in each district at different land condition categories (ABCD Framework). Above the land system name is a general land type description which also includes information on dominant pasture and tree species and management implications. Photos of each land condition for each land system are also included, making this a very easy to interpret guide for any rangeland manager.

If you would like a copy of any of these Land Condition Guides contact the Katherine Research Station office; phone 08 8973 9739.
Fusarium wilt found in NT Watermelons

Barry Condé and Lucy Tran-Nguyen, Plant Industries, DoR

Watermelon Fusarium wilt caused by the fungus, *Fusarium oxysporum* f. sp. *niveum* was recently found in the Northern Territory on seedlings and plants. Fusarium wilt has not previously been recorded in NT watermelons. The fungus causes a serious disease in watermelon but does not affect other cucurbits (e.g. rockmelons or cucumbers). Fusarium wilt is endemic in all other watermelon growing areas of Australia. Watermelon Fusarium Wilt is reported as a serious disease in the USA, Taiwan and Vietnam. There are four races of *F. o. f. sp. niveum*. At this stage we do not know what race(s) of this fungus are infecting watermelons in the NT, however, investigations are continuing.

Triploid seedless watermelons are the main group of varieties affected. Infected mature established plants show wilting in older leaves first, often on one or two leaves or one branch of a vine, followed by subsequent burning off, dieback, and then plant death. Leaf yellowing - typical of many Fusarium wilts, has not been observed in the NT situation with watermelons. Symptoms in very young field plants include vascular wilt – this is first observed with wilting in the older leaves. Similar symptoms are observed in artificially inoculated plants in the glasshouse. Severe wilting can begin at temperature ranges between 20–30 ºC.

Mortalities in seedling trays range from < 5 % to 60 %. Field mortalities on several lines vary from 5 % to 10 %. The fungus can be spread by infested seed, contaminated soil on plants, machinery and other objects, presence of infected plants, or by water. Infection is carried both externally and internally on the seed. This disease has highly resistant chlamydospores and can remain in soil for over a decade. Fusarium wilt was a problem in Queensland in seeded watermelons until resistant melons were developed. The seedless watermelon industry has developed rapidly and Fusarium resistance has not been incorporated into most seedless lines. At present, there are no seeded or seedless watermelon varieties with resistance to the new *F. o. f. sp. niveum* - race 3. Hence, the need for ongoing investigation into the exact race present in the NT.

![Seedless watermelon seedlings affected by Fusarium wilt.](image1)

![Infected watermelon plant suffering the effects of Watermelon Fusarium wilt.](image2)

Solutions for Growers

Fusarium wilts are notorious for spreading into new areas. If you do not have the disease in your crop, you may need to take quarantine measures such as controlling the entry of machinery, people and materials, to ensure that your property remains free of the disease for as long as possible. Monitoring your crop for early detection is essential. Moving towards resistant varieties (when these become available), is potentially the optimal strategy for larger commercial operations. Grafting onto resistant plants (for example, long melons / bottle gourd, *Lagenaria siceraria*) may be an interim option, recognising that it might be a tactic better suited to smaller-scale growers or gardeners. NOTE: There is a risk of importation of this disease from interstate sources where the disease is endemic. Ideally, ensure any seed, or seedlings you source are free of this disease.

If you have suspicious wilting with your watermelon crop please contact the NT DoR Biosecurity Group on: 08 8999 2118.
New staff in Plant Industries

Warren Hunt – Industry Development and Extension Leader, Darwin:
Warren is a career extension professional having previously worked in the grazing industries of north Queensland with the former Queensland Department of Primary Industry (QDPI), coordinated integrated pest management efforts across the Australian sugar industry for BSES Limited, and more recently managed a state-wide extension program in the Tasmanian sheep industries with the University of Tasmania. He also began a PhD in 2010 investigating the role of extension in building capacity and resilience in Australian rural industries. His aim is to make difference through building industry and agency capacity.

Peter Stork – Horticulturalist, Katherine:
Peter has worked in the grains industries of western Victoria as a weeds agronomist and canola breeder. Peter made his debut into research horticulture in 1996 in the northern Victoria with research into temperate fruits. He obtained a PhD in Soil Science from the University of Melbourne in 2001 for his research into the impact of different herbicides in soil. Peter undertook post-doctorate studies at the University of Florida where he investigated nutrient uptake mechanisms in vegetable crops. On returning to Australia Peter studied education at Monash University and then worked with QDPI in Bundaberg leading research projects in the vegetable, macadamia and sugarcane industries. In 2008, Peter left for rural Vietnam to work as trainer in an AusAID capacity-building project. Peter will be dedicating his time towards research and development activities for the mango industry within the Katherine region.

Cameron McConchie – Research and Development Leader
Dr Cameron McConchie is a graduate of Melbourne University where he specialised in plant reproductive biology and physiology. He has worked in tropical horticulture with CSIRO for over 20 years focusing on perennial tree crops including lychee, mango, citrus and most recently macadamia. This industry funded research includes plant propagation, control of flowering and fruit set, a range of on-farm production issues, including synchronising harvesting through to consumer preference testing and value adding. He established the national macadamia improvement and conservation program that selected a range of candidate cultivars predicted to increase industry profitability by 30% after second stage evaluation.

Getting the EDGE on business skills

Trisha Cowley, Katherine Pastoral Production, DoR
In late August the Katherine Research Station hosted a BusinessEDGE workshop which has been recently developed by MLA specifically for northern beef producers. Over two days Phil Holmes and Steve Petty took 18 participants (representing nine pastoral businesses) through basic accounting principles, how to monitor business performance, understanding and managing financial risk, capital allocation and funding, business analysis and tips on obtaining finance. Fictional case studies were used as working examples which consolidated the principles taught. Participants also took home a range of easy to use, custom designed spreadsheets and many rules of thumb for understanding and managing business performance and risk.

The feedback from course attendees was extremely positive. Participants felt that the skills they learnt were vital to the long term sustainability of their businesses. They also found the use of practical examples and the financial and industry experience of the presenters to be very valuable throughout the course.

DoR hope to host more BusinessEDGE courses in the future. If you are interested please contact Trisha Cowley; phone 08 8973 9770 or email trisha.cowley@nt.gov.au
Cyber Geek – website of interest

**Website**: Beef Central

**Address**: [http://beefcentral.com](http://beefcentral.com)

**What information does it provide?**

BeefCentral.com is a free online news and market intelligence service dedicated to the Australian beef industry. The site is owned and produced by two of Australia’s most experienced rural journalists, Jon Condon and James Nason. The content of this site is written professionally and objectively and is researched and presented by experienced journalists with the support of a network of national and international commentators and analysts.

Everyday the site is updated with content specific to the beef industry, including:

- local, national and international industry news
- market and price trends
- supply and demand updates
- sections with dedication to production, processing, lotfeeding, live export and domestic and international beef trade
- important management information including weather forecasts and market reports specific to your location

With a global trend towards web-based information services, sites like this enable stakeholders access to information as it happens, giving them the opportunity to make informed business decisions. By registering your email address with BeefCentral you can receive a daily email providing a snapshot of headlines of importance to the industry – keeping you on the cutting edge of information for the Australian beef industry.

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**Introducing the Precision Pastoral Management Tools Project**

_Sally Leigo, CRC-REP_

The Precision Pastoral Management Tools project is being undertaken by the Cooperative Research Centre for Remote Economic Participation (CRC-REP) with DoR being one of the partners.

The project aims to deliver a Precision Pastoralism Management System that will allow pastoralists to increase the efficiency of their pastoral enterprise through the combination of animal data collected by a Remote Livestock Management System (‘walk over weighing’ and automatic drafting) with spatial data on grazing lands to match livestock performance to environmental conditions.

For those not aware, the remote livestock management system was developed by CAWD engineering as part of the Desert Knowledge CRC’s 21st Century Pastoralism project. This project was able to demonstrate that through the use of walk-over-weighing, accurate weights of cattle could be collected at watering points without any need for labour in handling the cattle. In addition, the project also demonstrated that an automatic drafter could be used to draft cattle according to their NLIS tags without any labour requirements.

By combining the Remote Livestock Management System with relevant rangeland pasture data obtained from satellite imagery, pastoralists can monitor their cattle and land condition, and in response implement management decisions to maximise their returns.

The project is tied to the life of the CRC-REP and is in its second year of seven. At this stage we aim to have the project developed by the end of 2011, with input from pastoralists across Northern Australia and the project’s partners.

If you would like to learn more about the project, please do not hesitate to contact the Project Leader; Sally Leigo: phone: 08 8951 8144 or email: sally.leigo@nt.gov.au
Lessons from the 1974–1978 Beef Crisis

Some thoughts written the day following the closure to live export.

Bill Holmes, Principal Agricultural Economist (Ret’d), DEEDI, Townsville

The beef marketing crisis of 1974–1978 was triggered by an oil supply and price crisis that saw Japan suspend purchases of imported beef at a time when Australian cattle numbers were at an all time high. At the time the US was our biggest export market, not Japan. The closure of one market brought the whole industry down. Many graziers had shifted from sheep to cattle in response to the “wool crisis” that had begun in the late 1960s and were still carrying the debts from the changeover.

The collapse came when seasonal conditions were good, allowing producers to hold cattle back from the market, and the recovery came during a drought, when some had taken their losses and others had by then severely degraded their country.

These are some of the lessons from those days:

• The market fell faster and further than anyone thought possible.
• It stayed down for longer than anyone expected – at first producers hoped it would turn in a matter of weeks, and then months, but in the end it took four and a half years.
• When the recovery came the rise was faster than anyone expected.
• While all prices fell, the fattening margin was preserved allowing some to remain profitable.
• Store producers were hardest hit. The nearly lost art of spaying was rediscovered, allowing store producers to fatten and sell some cows while allowing steers to grow on.
• Many producers were paralysed by the thought that they had paid so much more for steers than they were now worth, so they kept hanging on to them. The smart psychology was to accept the loss and focus on the margin between sale prices and replacement costs.
• Many producers hung on to cattle waiting for the recovery. For some this worked but, for those who hung on to too many, the result was still a forced sale into a still depressed market.
• In many areas 1974–1978 represented an episode of massive land degradation from gross overstocking as cattle were held back from the market.
• Land prices took a big hit. Mulga country could be bought for 50 cents an acre, and some Gulf properties were advertised with stock for $40/head.
• Cattle husbandry and mustering were in many instances abandoned leading to large numbers of cattle being rediscovered in 1978. This was a bonus to property purchasers at this time, which also coincided with the introduction of helicopter mustering. Many properties bought at this time were paid for out of the windfall mustering result. The end of the slump was a time of opportunity for the bold.

Here are some thoughts for next time:

• Don’t hold your breath waiting for the recovery.
• Restructure to produce a fat turnoff. This will mean doing the sums on age of turnoff, and it may mean getting a tie up with some fattening country.
• Use good country for fattening rather than waste it on breeders.
• Restructure the herd rather than hoard it – by all means hang on to steers while they grow into some value, but get rid of fat cows while doing it.
• Don’t get hung up on what they still owe you – get on with the trading and take the win on the cheap replacements.
• Confine the cost cutting to the overheads but try to maintain husbandry standards.
• Be ready for the bargains when things start to come good again.
Industry notices

Property Identification Code (PIC)

Does your rural block / property have Livestock? Is your property registered with a PIC?

The owner of an identifiable property must have a PIC registered for that property. An identifiable property is a property that keeps any of the following livestock - Alpacas, buffalo, camels, cattle, deer, goats, horses, llamas, pigs, poultry, sheep.

The PIC is permanently registered to a specific parcel of land as described by the Lands Title Office, not to the owner of land. Upon sale of the property the PIC remains with the property, it cannot be transferred to another property.

The PIC is required to be used for most livestock movement and identification documents such as NT waybills. The PIC is also required for the National Livestock Identification System (NLIS). The property name and PIC are provided to the NLIS national database.

PIC Registration is free of charge – please complete PIC Registration form [www.nt.gov.au/d/nlis](http://www.nt.gov.au/d/nlis) or contact your Regional Livestock Biosecurity Officer (RLBO) for assistance.

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<td>Ted Martin (RLBO)</td>
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<td>Ph: 08 8973 9754</td>
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<td>Fax: 08 8999 2146</td>
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www.nt.gov.au

Waybill – PINK COPIES – Reminder

Have you sent your PINK copies in to your Regional Livestock Biosecurity Officer recently?

Waybills are used to record the movement of livestock in the Northern Territory. The waybill system also acts as a deterrent to stock stealing, provides certification of the property of origin for abattoirs and export markets and provides detailed documentation for station management.

It is compulsory to use waybills under the Livestock Act.

It is a mandatory requirement for cattle, buffalo, sheep, goats, camels, alpacas, llamas, deer and pig owners to complete a waybill whenever stock are moved outside the boundaries of a property.

**NOTE:** Post PINK copies within 28 days to Regional Livestock Biosecurity Officer

Check PICs – www.primaryindustry.nt.gov.au

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www.nt.gov.au
Bookworm’s review

_Jodie Ward, Pastoral Production_

**Title:** Hungerford’s Diseases of Livestock  
**Author:** T.G. Hungerford

Hungerford’s Diseases of Livestock is a highly recommended reference book for any person managing livestock. Its notable benefits include:

- a) it has been written in Australia
- b) it has been written in plain English with the average Australian producer in mind (it is not written as a veterinary text book, although I am informed it could easily be used as one), and most importantly,
- c) this 1,900 page book is easy to navigate through.

At first, the reader may find the sheer size of this book daunting to consult, however the author has cleverly devised a simple system the reader can easily follow. Firstly, each major livestock animal has its own chapter, so cattle, sheep, pigs, horses, goats, dogs and cats are covered. Secondly, in the first few pages of each chapter is what’s called a key to differential diagnosis. Here, each disease is listed in accordance to its major symptom in the order of the likeliness with a brief description. For example, if a producer noticed that a mob of breeders were coming in dry after being preg-tested in calf, the producer may then turn to the cattle chapter, look in the differential diagnosis key for abortion then read through the descriptions of each possible causal disease and then follow the page numbers to get further information about the disease/s that might be causing the condition. For the more common diseases, a full profile of cause, symptoms, effect of the disease on the animal, infectivity, treatment and control are provided.

Other useful information included in this book are the normal temperature range, respiratory rate and pulse rate for each of the species covered which can be helpful to know if a household animal is outside of, when discussing symptoms with a vet. Also included are the average gestation length and oestrus length for each species.

While this book is not a replacement for a veterinarian, it is certainly a terrific reference book for any producer, to help them know what illnesses they might be dealing with. Retailing between $210 and $280, Hungerford’s Diseases of Livestock may seem expensive, but what you are really purchasing is an investment in herd health and peace of mind.

Online retailers of this book follow:


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Top Springs Ladies Day

On Saturday 24th September at 10am there will be a second Ladies Day for 2011 held for all those Ladies on remote properties in the Top Springs area. The day will again be held at the Top Springs Road House.

We are looking for people involved in the following fields to come along and provide a service to woman who rarely get the chance to enjoy these things; hairdressers, massage, fashion, linen, beauty, arts and crafts and information services (law, health, etc).

So why not come along and have a ‘girls weekend’ and a good catch-up before the build-up sets in.

For more information contact: Susan Wratten, Camfield Station.  
Phone: 08 8975 0770 or email: edmondssusan44@yahoo.com.au
Katherine Region Events Calendar

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<th>Event</th>
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<td><strong>September</strong></td>
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<tr>
<td>Timber Creek Campdraft</td>
<td>Timber Creek</td>
<td>3–4</td>
<td>Julie Richter phone: 8975 0795</td>
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<tr>
<td>NT Country Womans Assoc.</td>
<td>CWA Bldg, Katherine Tce Katherine</td>
<td>2nd Wed of every month</td>
<td>Michelle Broughton phone: 8971 1318</td>
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<tr>
<td>Top Springs Ladies Day</td>
<td>Top Springs Road House</td>
<td>24th 10am</td>
<td>Susan Wrenn phone: 8975 0770</td>
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<td>Katherine Landcare Group Action Day – Woody Weed Treatment Day</td>
<td>Katherine Landcare Group Bldg</td>
<td>24th 8:30am</td>
<td>Sharon: phone: 0448 763 027</td>
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<td><strong>October</strong></td>
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<td>Katherine Landcare Group Bldg</td>
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<td>Later on…</td>
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<tr>
<td>Sturt Plateau &amp; Beyond Ladies Day</td>
<td>Hi-Way Inn Daly Waters</td>
<td>12th November</td>
<td>Amanda Murphy phone: 8975 9941</td>
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<td>Katherine Landcare Group Action Day – Tree Planting Day</td>
<td>Katherine Landcare Group Bldg</td>
<td>3rd December</td>
<td>Sharon: phone: 0448 763 027</td>
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Please email with updates of events happening in your area, [Renee.Golding@nt.gov.au](mailto:Renee.Golding@nt.gov.au)

If you know someone who would like to receive this newsletter or if you no longer wish to receive this newsletter, have a change of address or would prefer to receive this newsletter electronically please forward your request to [Krs.Dor@nt.gov.au](mailto:Krs.Dor@nt.gov.au).

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