

EXECUTIVE SUMMARY

The pastoral industry has historically been the backbone of the Northern Territory's economy, and while other sectors such as mining and tourism have since surpassed it, the pastoral industry remains fundamental to the Northern Territory's regional economic growth, employment and export income.

The pastoral estate of the Northern Territory covers around 601,892 km² comprising 45% of the area of the Northern Territory. The 223 pastoral leases vary from the smallest station of 198 km² to the Northern Territory's largest station which runs cattle over 12,212 km².

The Northern Territory's cattle population is estimated to be around 2.1 million head, which amounts to 9% of the Australian total. The estimated gross value of production for the NT cattle industry was \$325 million in 2011-12, an increase of 0.2% compared to the previous year. Cattle production value in 2012-13 has been projected to increase by 2.6% to \$334 million.

The Pastoral Land Board is a statutory authority made up of five members, including a Chairman appointed by the Minister for Land Resource Management. One of the key functions of the Board is to monitor the condition and use of pastoral land to facilitate both its sustainable use and the economic viability of the pastoral industry.

The Board is committed to the maintenance, and where possible, the improvement of the condition of the Territory's pastoral land.

"It's our vision to support a viable pastoral industry in the NT"

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CHAIRMAN'S FOREWORD



I am pleased to present the 2012-13 Pastoral Land Board Annual Report highlighting the condition of the NT pastoral estate, the operations of the Board, the issues facing pastoralists through bushfires, weeds and feral animals, and some supplementary information on the pastoral industry provided by the Department of Primary Industries and Fisheries.

I was appointed Chairman of the Pastoral Land Board on 25 June 2013 following Tony Young's retirement after 6 years of service. Having lived and worked in many of the Territory's urban, rural and remote regions for the past 30 years, I am confident I am able to positively contribute to the orderly and sustained development of Northern Australia.

The Board welcomed the commitment from the Northern Territory Government in May 2013 to support its operations and to revitalise the rangeland monitoring program. This commitment highlights the importance of ensuring the condition of the NT pastoral estate is maintained and improved for a profitable and sustainable pastoral industry. The Board is using this assistance to conduct regular visitations and increase its visibility through improved communication.

The recent amendments to non-pastoral use provisions under the Pastoral Land Act provide pastoralists with improved opportunities to diversify and develop new income streams to support their cattle enterprise. The amendments were tabled during the August 2013 parliamentary sittings so the Board looks forward to the amendments being passed and enacted in 2014. In the interim, the Board is busily developing new guidelines and an application form to align with the amended legislation.

On a final note, I wish to thank Board members for their time, effort and support to the pastoral industry through their representation on the Board, particularly when they have such little time to spare. I thank the Board's Executive Officer for her continued support and and the work done on the non-pastoral use amendments and to the officers of the Department of Land Resource Management, particularly the Rangeland Monitoring Branch, for their hard work in providing the land condition information presented in this report.



MEMBERSHIP OF THE BOARD

Name	Position	Commenced	Current Term	Term Expiry Date
Richard Galton	Chairman	2013	3 years	25 June 2016
Colleen Costello	Member	2005	3 years	30 April 2016
Steven Craig	Member	2002	3 years	30 April 2016
Thomas Stockwell	Member	2005	3 years	30 April 2016
Dr Campbell (Joe) Miller	Member	2012	3 years	25 June 2015

The former Chairman, Mr Anthony Young, tendered his resignation 25 June 2013.

Executive Officer

Ms Trephina Bradley / Mrs Karlie Weinert

FUNCTIONS OF THE BOARD

Section 29 of the *Pastoral Land Act* outlines the function of the Board:

- a. to report regularly to, and as directed by, the Minister, but in any case not less than once a year, on the general condition of pastoral land and the operations of the Board;
- b. to consider applications for the subdivision or consolidation of pastoral land and make recommendations to the Minister in relation to them;
- c. to plan, establish, operate and maintain systems for monitoring the condition and use of pastoral land on a District or other basis;
- d. to assess the suitability of proposed new pastoral leases over vacant Crown land;
- e. to direct the preparation, and monitor the implementation of, remedial plans;
- f. to monitor, supervise or cause to be carried out work in relation to the rectification of degradation or other damage to pastoral land;
- g. to monitor the numbers and effect of stock and feral and other animals on pastoral land;
- h. to monitor and administer the conditions to which pastoral leases are subject;
- ha. to consider and determine applications for permission to use pastoral land for a non-pastoral purpose in accordance with Part 7;
- j. to make recommendations to the Minister on any matter relating to the administration of the Act;
- k. to hear and determine all questions, and consider and make recommendations on all matters, referred to it by the Minister; and
- m. such other functions as are imposed on it by or under the *Pastoral Land Act* or any other Act or as directed by the Minister.

Other functions outlined in the Act include:

- 1. to determine applications for clearing pastoral land [section38(1)(h)]
- 2. to consider breaches of conditions referred by the Minister [section 41]
- 3. to consider and make recommendations to the Minister on application for conversion of term pastoral leases to perpetual tenure [section 62]
- 4. to administer the access provision of the Act, including nomination of access routes under PART 6
- 5. to determine applications for non-pastoral use of pastoral land under PART 7.
- 6. to consider and make recommendations to the Minister on application for subdivision [section 61]; and
- 7. to consider and make recommendations to the Minister on application for consent to transfer a pastoral lease or sub-lease should the advice of the Board be sought [section 68(2)].

LAND CONDITION

Land condition should be an assessment of vegetation and soil health as indicated by ground species composition, tree and shrub density, abundance of invading plants (native and exotic), soil surface condition and soil erosion. These indicators are relatively unaffected by season or seasonal conditions compared with indicators like ground cover and pasture yield. The former, more stable attributes are assessed relative to land in near-pristine condition.

The main influences on land condition are grazing by domestic, native and feral grazers, fire and combinations of the two. Grazing is managed by manipulating stocking rate, stock water distribution, feral grazing control and fire. Fire on its own can change land condition by being too frequent or too infrequent over a long period of time, but its main effect on land condition is through changing the distribution of grazing as grazers prefer younger grass.

Implementation of Management Plans to address Land Condition Issues

In cases where land condition issues are identified on a pastoral property, the Pastoral Land Board may request the lessee to prepare a management plan detailing the action to be taken to address the land management issues which have been identified. It is a basic tenet of the *Pastoral Land Act* that pastoral lessees acknowledge their duty to adopt sound management practices and their responsibility to address any land condition issues that may arise. In line with this philosophy, the Pastoral Land Board seeks voluntary collaboration with pastoral lessees to address land condition issues and implementation of rehabilitation programs.

While voluntary management plans are preferred in the first instance, if the Board is of the opinion that pastoral land has been degraded or otherwise damaged they may require a remedial plan detailing the proposed management of the pastoral land over a specified period of time. Remedial plans need to be endorsed by the Board and are registered on the title.

The Board has two voluntary management plans currently in place, one in the Southern Alice Springs Pastoral District where land degradation has been caused by over grazing and poorly located linear infrastructure, and one in the Katherine Pastoral District addressing land degradation caused by heavy grazing, poorly located linear infrastructure and weed infestations. There are currently no remedial plans in place.

Erosion on Roads, Fences and other Infrastructure

Erosion on roads, tracks and fence lines continues to be a significant soil management issue on pastoral leases throughout the Northern Territory. Officers of the Department of Land Resource Management's Rangelands Division adopt a co-operative approach to assist station managers with appropriate soil conservation earthwork design and construction. Voluntary management plans have been prepared by pastoral lessees and successfully implemented on a number of properties to address issues arising from the poor siting of infrastructure, and/or inappropriate maintenance techniques.

PASTORAL LAND MONITORING PROGRAM

The Northern Territory Government's Department of Land Resource Management (DLRM) is chartered with the assessment, monitoring and reporting of land condition on behalf of the Pastoral Land Board.

To provide information of the condition of the pastoral estate of the NT a photo point based monitoring program (known as Tier 1) was developed in 1993 at the recommendation of the Board.

The major roles of the monitoring program are to monitor the effect management regimes have upon the land and provide reports on the land condition of pastoral land, and to gain an understanding of landscape processes. The Tier 1 monitoring program uses visual estimates of plant species present and bare ground estimates and site photos, to make an assessment of land condition.

Even though the monitoring program has approximately 2230 established sites, which are re-assessed on a rolling three to five year program, the current data collected is unable to adequately inform many key reporting criteria of present day issues. To address this, a review was undertaken in November 2012 to assess reporting requirements and possible approaches to meeting these requirements.

The review determined that the current monitoring program needed to shift in focus from a point based monitoring program to a whole of landscape approach. The revised program requires the integration of satellite data with ground based data to provide whole of landscape reporting within a timely manner.

Integrated Monitoring Program

The revised pastoral land monitoring program required alterations to the methodology used in collection of data at the current network of Tier 1 monitoring sites. Changes include collecting measurements of vegetation cover over a one hectare site. Current Tier 1 sites are an area 50 m radius from the monitoring picket. New measurements will record total ground cover, including litter, bare ground, vegetation and species composition, providing a more consistent determination of land condition.

The current network of Tier 1 sites are used as the basis for the ground monitoring program. Some existing Tier 1 sites were not appropriate for monitoring landscape change. These sites have been moved up to 200m from their current location, to remove the effects of infrastructure, land type boundaries, and improve accessibility. Moving the sites has also made them appropriate to be used within the satellite based component of the integrated program.

The integrated program, like the Tier 1 monitoring program, is heavily reliant upon the knowledge and experience of land managers and lessees. Both the ground data collected and information products produced through the satellite based data requires on-ground local knowledge and understanding to explain changes and gain a further understanding of landscape dynamics. Measured field data collected is used with land manager knowledge and experience to inform not only ground and property based assessments, but also landscape and regional scale reporting from satellite based data products.



Remote Sensing Vegetation Monitoring

The remote sensing or satellite based data component of the integrated monitoring program is based upon methodology developed by the Remote Sensing Centre, Queensland (QLD), Department of Science, Information, Technology, Innovation and the Arts (DSITIA). This is a nationally recognised integrated ground and satellite based program that provides objective information of land cover and land cover change.

Implementation of Integrated Monitoring Program

The 2012-13 reporting period saw the introduction of the revised field methods, with the measured data collected used to inform on-ground reporting and satellite based products. As the number of revisits increase at a site, comparison and assessments will be able to be made of actual change at a site, as measurements will be compared with each other.

CRITERIA USED TO ASSESS PASTURE CONDITION

Three classes are used to assess pasture condition; good, fair and poor.

These classes are based on indicators of pasture condition such as the abundance of perennial plants known to increase or decrease following grazing, and ground surface indicators such as the exposure of bare soil to wind and water and its subsequent erosion. These indicators of pasture condition and associated assessment criteria have largely been determined from historical information, local knowledge, cross fence comparisons and stock grazing gradients out from water. The further from water the less intense the stock grazing pressure and the higher the condition class rating tends to be.

The condition classes can be described as follows:

Good

There is close to maximum diversity and cover of annual and perennial plant species possible for that pasture type with perennial species of various ages. There is no active erosion other than natural features and processes. Plant and litter cover protects the soil from wind and water in all seasons except following fire.

Pastures in good condition are stable and are at, or close to, their productive potential. Pastoral managers should be aiming for good pasture condition, which necessitates careful management practices that maintain or improve pasture condition.

Fair

Reduced cover and regeneration of palatable perennial species and there has been some establishment of less preferred unpalatable plants. Productivity remains high in good seasons but is markedly reduced in dry seasons. Lower plant cover increases the susceptibility of soil to erosion in most seasons and there is evidence of moderate erosion on susceptible land types.

Pastures in fair condition are productive, but below their productive potential. They are sometimes actively eroding and can rapidly deteriorate to poor condition. Maintaining pastures in fair condition is not a satisfactory status quo, as long term damage to their productive capacity will result. They should be managed with the aim of improving condition and ultimately achieving good condition status.

Poor

The palatable component of the pasture is depleted and the pasture is dominated by annual, ephemeral and unpalatable perennial species. There is no, or markedly reduced, regeneration of desirable perennial plants, productivity is impaired and the seasonal response is poor. Soils are unstable and susceptible to erosion in all seasons and past erosion leaves the site susceptible to further soil movement if grazed.

Pastures in poor condition have severely reduced productivity, which is most noticeable during dry periods. They require a very long period of spelling to improve condition or mechanical intervention such as erosion control earthworks or reseeding.



2012-13 MONITORING SEASON

During 2012-13 the DLRM Rangeland Monitoring Branch undertook rangeland monitoring assessments across six of the 11 Pastoral Districts – Darwin, Barkly, Gulf, VRD, Southern Alice Springs and Northern Alice Springs. A total of 29 properties were inspected and 323 sites monitored.

Seasonal conditions and rainfall for the 2012-13 reporting period were average to below average for the majority of the NT, with isolated areas in the Katherine-Daly and eastern Arnhem Land experiencing above average rainfall. As a result, pasture growth across the NT was average to below average, with the southern regions of the NT in particular experiencing poor pasture growth.

The majority of properties assessed during the 2012-13 reporting period were located in the Barkly and the Southern Alice Springs Pastoral Districts.

Eleven properties were assessed across the northern region of the Barkly Pastoral District. Tier 1 ground assessments and associated property inspections highlighted the below average seasonal conditions experienced by the District, with many sites, even though having perennial species present, had low to very low levels of ground cover.

The Southern Alice Springs Pastoral District was also targeted this reporting period with 13 properties inspected in the western portion of the District. Like the Barkly Pastoral District and majority of the NT, the Southern Alice Springs Pastoral District also experienced below average seasonal conditions, resulting in many sites and properties having low to very low levels of ground cover.

DARWIN PASTORAL DISTRICT



Historical Rainfall (mm)

District Median	1455 mm
District 20 year average rainfall	1440 mm
District 20 year summer (October to April) average rainfall	1412 mm
District 20 year winter (May to September) average rainfall	29 mm

2012/2013 Rainfall (mm)

District seasonal average	1228 mm
District summer (October to April) average	1194 mm
District winter (May to September) average	27 mm

Figure 1: Location of Darwin Pastoral District

Based on data from three weather stations located across the Darwin Pastoral District, below average rainfall was experienced for the reporting season.

Pasture growth for the region was average from October 2012 to September 2013, as determined by AussieGrass Models.

The standing biomass for May 2013 when compared to historical records was considered average, with some areas of the District experiencing extremely high levels of biomass and other regions having below to well below average biomass. When compared to historical records the standing biomass levels for

September 2013 ranged from average to well below average across the District.

During the 2012-13 reporting period, one Darwin Pastoral District property was assessed. Of the 13 sites across the property, eight sites were assessed, with the remaining sites inaccessible due to standing water.



Comparison of monitoring sites within the Darwin Pastoral District, from time of establishment through to the most recent assessments, indicate that the sites are in a stable state. Land condition is being maintained with 69% of sites assessed in the recent inspection having good condition.

KATHERINE PASTORAL DISTRICT

Historical Rainfall (mm)

District Median	1103 mm
District 20 year average rainfall	1130 mm
District 20 year summer (October to April) average rainfall	1083 mm
District 20 year winter (May to September) average rainfall	16mm

2012/2013 Rainfall (mm)

District seasonal average	1079 mm
District summer (October to April) average	1068 mm
District winter (May to September) average	311 mm



Figure 2: Location of Katherine Pastoral District

Based on data from one weather station located within the Katherine Pastoral District, average rainfall was experienced for the reporting season.

Pasture growth for the region was average from October 2012 to September 2013, as determined by AussieGrass models.

The standing pasture biomass for May 2013 for the region was average when compared to historical records. The trend declined through to September 2013 with pasture biomass levels ranging from average to extremely low levels, when compared to historical records.

No Katherine Pastoral District properties were assessed during the 2012-13 reporting period.



Due to no monitoring sites assessed during the current reporting period, assessment was made of the most recent inspection to the time of establishment. Comparison of the condition of sites from establishment 1993-1998 to the most recent assessments 2006-2010, shows a significant increase of the good condition class, from 50% up to 83%.

ROPER PASTORAL DISTRICT



Historical Rainfall (mm)

District Median	1036 mm
District 20 year average rainfall	1088 mm
District 20 year summer (October to April) average rainfall	1076 mm
District 20 year winter (May to September) average rainfall	1 mm

2012/2013 Rainfall (mm)

District seasonal average	1097 mm
District summer (October to April) average	1097 mm
District winter (May to September) average	0mm

Figure 3: Location of Roper Pastoral District

Based on data from one weather station located within the Roper Pastoral District, average rainfall was experienced for the reporting season.

Pasture growth for the reporting period October 2012 to September 2013, was average as determined by AussieGrass models.

Standing biomass levels for May 2013 were very high in some regions of the District, with some levels greater than 3000kg/ha. When compared to historical records, May 2013 standing biomass levels were average. Standing biomass levels declined through to September 2013, with levels of average to below average, when compared to historical records.

No Roper Pastoral District properties were assessed during the 2012-13 reporting period.



The Roper Pastoral District condition of sites at establishment 1993-1998, in comparison to the recent assessments 2008-2011, indicates the district is improving, with the number of sites assessed as good increasing from 48% to 60%. A number of sites assessed as fair decreased and the amount of sites assessed with good condition increased.

VRD PASTORAL DISTRICT

Historical Rainfall (mm)

District Median	770 mm
District 20 year average rainfall	771 mm
District 20 year summer (October to April) average rainfall	752 mm
District 20 year winter (May to September) average rainfall	19 mm

2012/2013 Rainfall (mm)

District seasonal average	511 mm
District summer (October to April) average	508 mm
District winter (May to September) average	3 mm



Figure 4: Location of VRD Pastoral District

Based on data from four weather stations across the VRD Pastoral District, below average rainfall was experienced for the reporting period.

Pasture growth for the reporting period October 2012 to September 2013, was average to below average, as determined by AussieGrass models.

The standing pasture biomass for May 2013 for the region was extremely high with some areas of the District with greater than 3000kg/ha. When compared to historical records, the District experienced average to above average biomass levels for May 2013. Towards the end of the dry season, September 2013, the District's standing biomass levels had fallen to below average with some areas having average biomass, in comparison to historical levels.

During the 2012-13 reporting period 30 sites over two stations were assessed. The remaining sites were not re-assessed due to inaccessibility, tracks not maintained or focus areas of management of the property had changed.



Comparison of monitoring sites within the VRD Pastoral District, from time of establishment through to the most recent assessments, indicate that the sites are in a stable increasing state. Rangeland condition is being maintained with 73% of sites assessed in the recent inspection having good condition.

STURT PLATEAU PASTORAL DISTRICT



Historical Rainfall (mm)

District Median	817 mm
District 20 year average rainfall	849 mm
District 20 year summer (October to April) average rainfall	837 mm
District 20 year winter (May to September) average rainfall	12 mm

2012/2013 Rainfall (mm)

District seasonal average	640 mm
District summer (October to April) average	639 mm
District winter (May to September) average	1 mm

Figure 5: Location of Sturt Plateau Pastoral District

Based on data from two weather stations located across the Sturt Plateau Pastoral District, below average rainfall was experienced for the reporting period.

Pasture growth for the reporting period October 2012 to September 2013, was below average to average, as determined by AussieGrass models.

The standing pasture biomass for May 2013 for the region ranged from average to extremely low when compared to historical records. This trend continued through to September 2013, with areas of the District having <1000kg/ha. When compared to historical records the District experienced average to extremely low standing biomass levels.

No Sturt Plateau Pastoral District properties were assessed during the 2012-13 reporting period.



The comparison of site condition between establishment 1993-2000 and the most recent 2005-2012 depict minor change in land condition between the periods. The Sturt Plateau Pastoral District sites have remained stable with good condition levels constant over the monitoring history.

GULF PASTORAL DISTRICT

Historical Rainfall (mm)

District Median	692 mm
District 20 year average rainfall	741 mm
District 20 year summer (October to April) average rainfall	733 mm
District 20 year winter (May to September) average rainfall	9 mm

2012/2013 Rainfall (mm)

District seasonal average	639 mm
District summer (October to April) average	638 mm
District winter (May to September) average	1 mm



Figure 6: Location of Gulf Pastoral District

Based on data from one weather station located within the Gulf Pastoral District, below to average rainfall was experienced for the reporting season.

Pasture growth for the reporting period October 2012 to September 2013, was average to below average, as determined by AussieGrass models.

The standing pasture biomass for May 2013 for the region was high. These levels are skewed by areas dominated by low productivity spinifex. When compared to historical records, standing biomass for May 2013 was average to below average. This trend continued through to September 2013 with pasture biomass levels of average to extremely low, when compared to historical records.

During the 2012-13 reporting period, one property was assessed for the Gulf Pastoral District. Of the 16 sites across the property, 14 were reassessed, with two sites unable to be accessed.



The comparison of site condition between establishment date 1993-1998 with the most recent re-assessments 2003-2013, highlight an overall improvement in the condition of the sites. From establishment through to recent re-assessment sites rated as good condition increased from 46% to 67%. The number of sites rated as fair reduced from 49% to 31%, with majority of sites moving from fair to good condition rating.

BARKLY PASTORAL DISTRICT



Figure 7: Location of Barkly Pastoral District

Historical Rainfall (mm)

District Median	479 mm
District 20 year average rainfall	497 mm
District 20 year summer (October to April) average rainfall	478 mm
District 20 year winter (May to September) average rainfall	29 mm

2012/2013 Rainfall (mm)

District seasonal average	339 mm
District summer (October to April) average	325 mm
District winter (May to September) average	14 mm

Based on data from two weather stations located across the Barkly Pastoral District, below average rainfall was experienced for the reporting season.

Pasture growth for the reporting period October 2012 to September 2013, was average to below average, as determined by AussieGrass models.

The standing pasture biomass for May 2013 for the region was average to below average when compared to historical records. This trend continued through to September 2013 with pasture biomass levels of average to extremely low, when compared to historical records.

During the 2012-13 reporting period, 11 Barkly Pastoral District properties were assessed. Of the total 144 sites across these properties 133 sites were reassessed.

The properties assessed are located in the western portion of the District. Properties experienced average to below average seasonal conditions, resulting in the majority of the sites assessed as having fair to good condition. Sites were rated as fair as they had reduced biomass and cover levels, with perennial species present. The table on the following page presents sites visited and corresponding condition assessment for the 2012-13 reporting period.

Station	Total no of sites	Sites assessed	Good Condition	Fair Condition	Poor Condition	Property Condition	Property condition comparison to the District
1	24	23	15	7	1	good	above average
2	7	7		6	1	fair	below average
3	13	12	8	4		good	above average
4	11	11		5	6	fair to poor	below average
5	19	19	2	7	10	fair to poor	below average
6	10	10	4	6		fair to good	average
7	9	6	4	2		fair to good	average
8	9	5	2	3		fair to good	average
9	11	10	3	6	1	fair to good	average
10	18	18	8	8	2	fair to good	average
11	13	12	4	3	5	fair	below average
Totals	144	133	50	57	26		

Seasonal growth for sites across the District, even though lower than previous years and reflected the seasonal conditions experienced, was fair to good in most areas across the properties inspected.

The Barkly Pastoral District is responding well to the seasonal conditions experienced. With the low pasture levels, managers were actively managing the properties to suit the conditions, and ensure sustainable use of fodder to last the season through.



The comparison of site condition between establishment 1994-1998 and with that of the recent 2012-13 re-assessment highlights a decline in the number of the sites assessed with good conditon from 53% to 42%. Sites at the 2012-13 re-assessment had moved from the good condition assessment to the fair and poor, with the number of sites assessed as poor increasing from 8% to 12%.

2012-13 monitoring incorporated some of the revised field methods under the Integrated Monitoring Program (refer p6) therefore altering the criteria for assessment of condition between the two comparisons above.

TENNANT CREEK PASTORAL DISTRICT



Pastoral District

Historical Rainfall (mm)

District Median	417 mm
District 20 year average rainfall	475 mm
District 20 year summer (October to April) average rainfall	452 mm
District 20 year winter (May to September) average rainfall	23 mm

2012/2013 Rainfall (mm)

District seasonal average	357 mm
District summer (October to April) average	333 mm
District winter (May to September) average	24 mm

Based on data from one weather station located within the Tennant Creek Pastoral District, below average rainfall was experienced for the reporting season.

Pasture growth for the reporting period October 2012 to September 2013 was average, as determined by AussieGrass models.

The standing pasture biomass for May 2013 for the region was very low with large areas of the District with <200kg/ha. When compared with historical records, the standing biomass was considered average to below average. This trend continued through to September 2013 with pasture biomass levels of average to below average, when compared to historical records.

No Tennant Creek Pastoral District properties were assessed during the 2012-13 reporting period.



From the time of establishment 1994-1997 through to the most recent assessment, 2005-2009, the number of sites assessed as having poor condition increased from 8% to 36%. The number of sites assessed as good conditon fell from 55% to 21%.

PLENTY PASTORAL DISTRICT

Historical Rainfall (mm)

District Median	222 mm
District 20 year average rainfall	273 mm
District 20 year summer (October to April) average rainfall	215 mm
District 20 year winter (May to September) average rainfall	59 mm

2012/2013 Rainfall (mm)

District seasonal average	133 mm
District summer (October to April) average	70 mm
District winter (May to September) average	62 mm



Figure 9: Location of Plenty Pastoral District

Based on data from one weather station located within the Plenty Pastoral District, below average rainfall was experienced for the reporting season.

Pasture growth for the reporting period October 2012 to September 2013, was average to below average, as determined by AussieGrass models.

The standing pasture biomass for May 2013 for the region was very low with areas of the District experiencing <200kg/ha. When compared to historical records, the standing biomass was considered average to below average. This trend continued through to September 2013 with pasture biomass levels of average to below average, when compared to historical records.

No Plenty Pastoral District properties were assessed during the 2012-13 reporting period.



The Plenty Pastoral District since site establishment 1994-1995, through to most recent assessment 2006-2009, has experienced a significant decline in the number of sites with good condition. The number of sites with a fair condition rating have remained relatively stable with a small decline in fair condition sites. The greatest change in condition is the increase of sites with poor condition assessment, increasing from 3% at establishment to 29% at the last assessment.

NORTHERN ALICE SPRINGS PASTORAL DISTRICT



Historical Rainfall (mm)

District Median	292 mm
District 20 year average rainfall	332 mm
District 20 year summer (October to April) average rainfall	273 mm
District 20 year winter (May to September) average rainfall	59 mm

2012/2013 Rainfall (mm)

District seasonal average	212 mm
District summer (October to April) average	149 mm
District winter (May to September) average	63 mm

Figure 10: Location of Northern Alice Springs Pastoral District

Based on data from three weather stations located across the Northern Alice Springs Pastoral District, below average rainfall was experienced for the reporting season.

Pasture growth for the reporting period October 2012 to September 2013, was average to below average, as determined by AussieGrass models.

The standing pasture biomass for May 2013 for the region was very low with areas of the District experiencing <200kg/ha. When compared with historical records the standing pasture biomass was considered average to below average. This trend continued through to September 2013 with pasture biomass levels of average to below average, when compared to historical records.

During the 2012-13 reporting period, one property was assessed for the Northern Alice Springs Pastoral District. All nine sites were assessed.



From the time of establishment 1994-1997 through to the most recent assessment, 2006-2009, the number of sites assessed as having poor condition increased from 12% to 28%. The number of sites assessed with fair condition decreased from 62% to 52% at the last assessment.

172 mm

91 mm

81 mm

SOUTHERN ALICE SPRINGS PASTORAL DISTRICT

Historical Rainfall (mm)

2012/2013 Rainfall (mm)

District summer (October to April) average

District winter (May to September) average

District seasonal average

District Median	218 mm
District 20 year average rainfall	262 mm
District 20 year summer (October to April) average rainfall	203 mm
District 20 year winter (May to September) average rainfall	59 mm

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Figure 11: Location of Southern Alice Springs Pastoral District

Based on data from three weather stations located across the Southern Alice Springs Pastoral District, below average rainfall was experienced for the reporting season.

Pasture growth for the reporting period October 2012 to September 2013, was average to below average, as determined by AussieGrass models.

The standing pasture biomass for May 2013 for the region was very low with some areas across the District experiencing <200kg/ha. When compared to historical records, the standing pasture biomass was ranked as below average to extremely low levels. When compared to historical levels, the September 2013 standing pasture biomass levels were extremely low, with areas of the District with low to extremely low levels.

The properties assessed in 2012-13 across the Southern Alice Springs District are located in the south western portion of the District. Properties experienced below average seasonal conditions, resulting in the majority of the sites assessed as having fair to poor condition.

The table on the following page presents sites visited and corresponding condition assessment for the 2012-13 reporting period. Erosion issues are reported for the Southern Alice Springs Pastoral District, due to the arid nature and land types associated with southern region of the NT.

The majority of land types in the southern region of the NT have naturally occurring sparsely vegetated areas with bare surfaces, characteristic of the arid environment.

During the inspections it was observed the monitoring sites and larger areas across the District had increased areas of bare ground and lower levels of ground cover, reflecting the lower than average rainfall, extended dry period and below average pasture growth. Sites across the District rated as having good condition had maintained cover levels and had a high number of perennial species present. Sites within the fair range had relatively consistent cover levels to previous visits, or if there was a decrease it could be attributed to seasonal conditions. While seasonal conditions would be a factor in the low cover levels recorded at poor sites the major influences were predominantly grazing pressure, both current and historic, and erosion processes which could be seen to be impacting upon water infiltration and therefore pasture growth.

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Station	Total no of sites	Sites assessed	Good Condition	Fair Condition	Poor Condition	Erosion issues	Property Condition	Property conditior comparison to the District
1	10	10	7		3	minor but present	fair	above average
2	16	14	3	8	3	severe gully and sheet across the property	fair to poor	average
3	15	14		9	5	severe gully and sheet across the property	fair to poor	average
4	10	9	2	5	2	minor but present	fair to good	above average
5	13	11	2	6	3	minor but present	fair to good	above average
6	10	7		1	6	minor but present	poor	below average
7	9	8	8			minor but present	good	above average
8	11	10	2	8		minor but present	fair to good	above average
9	17	13		6	7	severe gully and sheet across the property	fair to poor	average
10	17	14	2	10	2	severe gully and sheet across the property	fair	average
11	13	11		1	10	severe gully and sheet across the property	extremely poor	below average
12	11	12	10		2	minor but present	fair to good	above average
13	7	7	5	2		minor but present	fair to good	above average
Totals	159	140	41	56	43			

The Southern Alice Springs Pastoral District is responding to the seasonal conditions with below average seasonal growth and ground cover, with many properties having fair to poor land condition. Across similar land types on a number of properties throughout the District, where comparable rainfall and seasonal conditions were experienced, land condition varied considerably, from properties having a good level of ground cover and pasture, through to properties with extremely low levels. This difference in condition cannot be solely attributed to rainfall, nor to management practices however all these factors play an important role.



The comparison of site condition between establishment 1995-1997 and with that of the recent 2012-13 re-assessment highlights a decline in the number of the sites assessed with good conditon from 45% to 17%. Sites at the 2012-13 re-assessment had moved from the good condition assessment to the fair and poor, with the number of sites assessed as poor increasing from 15% to 32%.

2012-13 monitoring incorporated some of the revised field methods under the Integrated Monitoring Program (refer p6) therefore altering the criteria for assessment of condition between the two comparisons above.

BUSHFIRE ACTIVITY

Information supplied by the Department of Land Resource Management Bushfires NT Division

Savannah Region

The 2012-13 fire season was active and impacted upon many stations across the region.

Stations impacted by significant wildfires in late 2012 included Newry, Bullo River, Auvergne, Birrimba, Killarney, Hidden Valley, Scott Creek, Manbulloo, Mainoru, Mountain Valley, Tanambirini, Nutwood Downs, Gilnockie, Amungee Mungee, McArthur River, Calvert Hills, Broadmere and Auvergne. Approximately 27,256.15km2 was affected by wildfires across the stations mentioned above.

Several other properties were also affected by wildfire, but were not as significant nor required the same resources in order to contain them.

The 2012 fire season was quite intensive and lasted well into November with limited relief from rain in the following months.

Barkly Region

The 2012-13 fire season experienced below average rainfall with 160mL totals at some stations. Fire activity was reduced, due to reduced fuel loads and active management undertaken across properties throughout the District.

Mitigation burns conducted during 2012-13 included; Tennant Creek Town boundary, Mittiebah and Nicholson Block boundary and aerial burning Nicholson (conducted by the Northern Land Council rangers).

Fire Breaks during 2013 were established on Phillip Creek Station, Brunchilly Station boundary with Warrumungu Aboriginal Land Trust, Tennant Creek Station east boundary with Crown Lands.

Alice Springs Region

Due to below average rainfall and reduced fuel loads, the fire season for the Alice Springs region was greatly reduced, with only a limited number of smaller burns requiring assistance and having impact upon the greater District.

WEED ACTIVITY

Information supplied by the Department of Land Resource Management Weed Management Branch

Weeds threaten the sustainability of rural primary industries in the Northern Territory through increasing costs, reducing productivity, reducing efficiency and also potentially posing limitations on market options. They also threaten water resources, freshwater fishing, and conservation of the natural environment, recreation, tourism and traditional land use.

Parkinsonia

Parkinsonia (*Parkinsonia aculeata*) is a weed of concern across most of the NT. The 2013 field season mapped and treated substantial infestations in the Adelaide and Daly River catchments. Some significant reductions of Parkinsonia have occurred in the VRD, with some land managers increasing control activities. Two large scale Commonwealth funded weed management programs in the Barkly Tablelands, which focussed on the management of Parkinsonia within the Lake Tarrabool and Lake Sylvester catchments, were completed in June 2013. Management and control of Parkinsonia is also being undertaken in the Newcastle Creek and Lake Woods catchment, involving several pastoral properties.

A new biological control agent for Parkinsonia, the *Eueupithecia cisplatensis* ('Parkinsonia looper' or 'Uu') has been successfully raised by the DLRM Weed Management Branch and is being released in the Darwin, Katherine and Barkly regions.

Grasses

Rats tail grass (*Sporobolus spp*) and Grader grass (*Themeda quadrivalvis*) are emerging as weed threats for many pastoral properties across the Darwin, Katherine, Roper, Gulf and VRD regions.

Trial plots across the Finniss, Daly and Adelaide River catchments have been set up to examine the effects of different herbicide, rates and timing to determine best methods of chemical control of both species. Plots will allow analysis of the knock down and residual effect of the herbicides and the effect on improved and native pasture species. Results will be available after the 2014/15 wet season.

Rubbervine

Given the close proximity of Rubbervine (*Cryptostegia grandiflora*) to the NT border, both to the east and west, early detection of this weed remains a major priority. The Weed Management Branch aims to ensure each border is surveyed for Rubbervine on alternate years. The most recent survey in September 2013 mapped Rubbervine less than 8 kilometres from the QLD/NT border.

A small isolated infestation of Rubbervine was first identified on Soudan Station in November 2011. This new incursion of Rubbervine into the Barkly region continues to be monitored and under active surveillance by the Weed Management Branch, Barkly Landcare Association (BLCA), and the landholder with eradication of this outbreak an achievable outcome in the short term.

Bellyache bush

Bellyache bush (*Jatropha gossypiifolia*) management continues in the upper Daly region, with additional funding facilitating a significant increase in management activities. Other core infestation areas on the Roper River and Rosie Creek continue to spread into new areas and are becoming increasingly difficult to manage. Landholders with outlying infestations of Bellyache bush have been actively encouraged to undertake control work through use of free spray equipment loans and free herbicide.

Prickly acacia

A large Prickly acacia (*Acacia nilotica*) infestation located in the VRD in 2011 has since been intensively managed, with all known plants destroyed. A collaborative approach has resulted in extensive aerial and on-ground survey being carried out throughout the area, and all known plants destroyed through multiple control events. The infestation is now considered highly manageable. Management of all other known Prickly acacia infestations throughout the VRD and Barkly regions have also continued.

Rubber bush

A Meat and Livestock Australia (MLA) funded project focussing on improved management outcomes for Rubber bush in northern Australia including the Barkly Tablelands is continuing and due for completion in June 2015. The project focusses on various aspects of Rubber bush invasion, including ecology, phenology, distribution and rate of spread, as well as research into improving management options for the species including chemical, and physical options of control.

Mesquite

A large previously unidentified infestation of Mesquite (*Prosopis spp.*) mapped during the survey of the Lake Tarrabool project continues to be a regional management priority. Other infestations of both Mesquite and Prickly Acacia located on the Barkly Tablelands have been under active management programs with eradication of these two species seen as an achievable goal in the long term.

Parthenium

An infestation of Parthenium (*Parthenium hysterophorous*) was first identified within the township of Tennant Creek at a livestock holding facility in July 2010. The outbreak has been effectively controlled and monitored since initial identification. The last seedlings emerged in January 2012. The site remains under strict quarantine with an education and awareness campaign.

Athel Pine

The extremely dry conditions of 2013 have been beneficial to the Athel Pine (Tamarix aphylla) management program, as the recruitment of Athel Pine in the majority of the Finke River catchment has been greatly reduced. An aerial survey of the Finke River for the presence/absence of Athel Pine was undertaken in June 2013. Survey results indicate only minor recruitment of Athel Pine in some managed upstream sections of the catchment had occurred, and there was a general absence of Athel Pine for the majority of the upper managed 420 km of the Finke River.

Early in 2013 a survey of local pastoral enterprises in the Alice Springs region identified the priority weed species Athel Pine, Parkinsonia, Rubberbush, Cacti spp., Noogoora burr, and *Vachellia farnesiana*.

FERAL ANIMALS

Information supplied by the Department of Land Resource Management Flora and Fauna Division

Large feral vertebrates such as horses, donkeys and camels are a significant problem throughout the Northern Territory as a result of their negative impacts on the agrictural and natural environment. Feral animals have been associated with:

- Competition with domestic stock for feed and habitat;
- Increased soil erosion and sedimentation of natural waterways and water bodies as a result of trampling;
- Damage to fences and other infrastructure;
- Increased spread and establishment of weeds;
- Decreased agricultural productivity by reducing the availability of feed for stock; and
- Declines in the abundance and diversity of native plant communities due to trampling and ingestion of seedlings.

Australian Feral Camel Management Project

Through the 2009 Caring for Our Country Grant Scheme, the Australian Government funded a four year national program - the Australian Feral Camel Management Project (AFCMP) - to reduce the impacts of feral camels around 17 identified environmental assets.

The project will conclude in November 2013 and has had positive results and significant impacts upon the camel population.

Under the AFCMP, impact reduction was achieved by reducing camel numbers using aerial culling, ground culling and mustering/removal. Land managers determined the method of management undertaken on their land. DLRM, in partnership with the Parks and Wildlife Commission of the Northern Territory, conducted all aerial culling of feral camels within the Northern Territory under the AFCMP.

The Central Land Council (CLC) conducted extensive consultations with Aboriginal stakeholders and for the first time, consent was in place for the management of camels on most Aboriginal land in the southern Northern Territory. The consent work will guide camel management activities on Aboriginal land well into the future.

During the project, 27 aerial culling operations were undertaken in the Northern Territory, including emergency culls undertaken at Docker River in 2009 and on two pastoral properties in 2013. In total, approximately 80 000 feral camels were aerially culled at an overall operational cost per camel of about \$46. Landholders removed an additional number totalling about 15 000 camels using a combination of ground culling and mustering/removal.

To fulfil requirements under the AFCMP, DLRM monitored camel numbers and improvement in asset condition as a result of the removal of feral camels.

A recent aerial survey indicated that regional camel density in the Simpson Desert is now in the order of 0.03 camels per square km which is below the target range of 0.1-0.2. This represents a 96% reduction compared with figures obtained in 2010. While aerial culling operations contributed to the population decline in the Simpson, it is thought that considerable natural mortality occurred over the period October 2011-March 2013 due to prevailing dry conditions and extensive wildfire.

A similar survey in the western deserts indicated that the regional density of camels that remain is 0.25 camels per square km. This represents a 69% reduction compared with figures obtained in 2011. The current density is just outside the target range of 0.1-0.2 camels per square km.

Nationally, the AFCMP removed about 160 000 camels from the Australia-wide population and met agreed density reduction targets at all of the identified environmental assets. It improved landholder capacity to undertake camel management through training and installation of infrastructure including access tracks, water points and fencing.

The future of camel management in the Northern Territory

It is not known how many camels remain in the Northern Territory, as recent aerial surveys covered approximately 18% of the total known area occupied by camels. On the basis of aerial survey data, there may be as few as 4000 camels remaining in the Simpson Desert region of the Northern Territory. To keep this population static, an average of about 400 camels would need to be removed annually. Camel densities in the South Australian and Queensland parts of the Simpson Desert appear comparable to those in the Northern Territory at present. A similar level of management across these jurisdictions would be required to keep the overall Simpson Desert population static.

From results of the aerial survey, there are approximately 24 000 camels remaining in the Petermann and southern Tanami regions of the Northern Territory. To keep this population static, an average of about 2400 camels would need to be removed annually.

Camels are also present in the northern Tanami region of the Northern Territory. Although there are no reliable aerial survey data for this region, the density of camels is believed to be at or below 0.1 camels per square km and there are few concerns over impacts. However, the area is more than 200 000 square km in size and the size of the camel population there may be as high as 20 000. There is a need to obtain reliable aerial survey data for this region to inform the future management of feral camels.

MEETINGS OF THE BOARD

Six meetings of the Pastoral Land Board were held between 1 October 2012 and 30 September 2013 as follows:

90th Meeting: held 4 December 2012 in Darwin

The Board gave further consideration to a voluntary management plan, approved two non-pastoral use permit renewals and approved a land clearing application. The Board also determined to undertake two property inspections relating to applications for lease conversions to perpetuity. Other matters included the discussion of two development plans and two subdivision applications, the 2010-11 and 2011-12 Annual Reports. The Board was given a presentation by the Department of Land Resource Management regarding rangeland monitoring.

91st Meeting: teleconference held 8 March 2013

The Board approved a land clearing application.

92nd Meeting: held 23 May 2013 in Katherine

The Board approved five non-pastoral use permit renewals, gave further consideration to two development plans and two voluntary management plans, discussed two subdivision applications and a land clearing application. The Board determined to recommend the Minister approve a lease conversion to perpetuity and discussed a property inspection required for another lease conversion to perpetuity. Other matters included discussion of the NT Pastoral Land Clearing Guidelines, proposed amendments to non-pastoral use provisions, the 2010-11 and 2011-12 Annual Reports and the Board approved a variation to lease conditions.

93rd Meeting: teleconference held 19 June 2013

The Board amended a non-pastoral use permit and gave further consideration to the 2010-11 and 2011-12 Annual Reports.

94th Meeting: teleconference held 12 August 2013

The Board discussed a land clearing application and a subdivision application for the same property, and determined that a property inspection be carried out by the entire Board before making a decision.

95th Meeting: held 3-4 September 2013 at Tipperary Station

Following two property inspections the Board determined to recommend the Minister approve a lease conversion to perpetuity application and a subdivision application. The Board approved a land clearing application and a non-pastoral use application, gave further consideration to two voluntary management plans and a development plan, and noted the 2010-11 and 2011-12 Annual Reports were finalised and tabled in parliament. Other matters included the discussion of non-pastoral use legislation amendments and draft EPA guidelines for land clearing proposals.

APPLICATIONS CONSIDERED BY THE BOARD IN 2012-13

Land Clearing Applications

Station	Pastoral District	Purpose	Total Area (approx.)	Decision
Anthony Lagoon	Barkly	Introduced pastures for hay production and grazing purposes	500 hectares	Approved
Larrizona	Sturt Plateau	Introduced pastures for hay production and grazing purposes	853 hectares	Approved
Tipperary	Darwin	Introduced pastures for hay production and grazing purposes	18,126 hectares	Approved

Non-Pastoral Use Applications

Purpose	Number of Proposals	New Application	Renewal
Tourism	7	0	7
Horticulture	2	0	2
Total	9	0	9

Subdivision Applications

Under section 61 of the *Pastoral Land Act*, the Minister refers applications for subdivision of pastoral leases to the Board for consideration and recommendation. During 2012-13 the Board inspected one property and made a recommendation to the Minister supporting the subdivision into two perpetual pastoral leases.

Perpetual Pastoral Lease Applications

Under section 62 of the *Pastoral Land Act*, the Minister refers applications for conversion of term pastoral leases to perpetual tenure to the Board for consideration and recommendation. During 2012-13 the Board inspected two term leases and made recommendations to the Minister supporting conversion of both properties to perpetual pastoral leases.

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POLICY MATTERS

Amendments to Non-Pastoral Use Permits under the Pastoral Land Act:

The Board supported the proposed amendments to non-pastoral use provisions under Part 7 of the *Pastoral Land Act* that will help pastoralists diversify income streams and provide more long-term surety of non-pastoral use enterprises. The amendments were tabled during the August 2013 parliamentary sittings and it is hoped they will be passed and enacted by 1 January 2014.

The Board is developing a new application form and guidelines for non-pastoral use that align with these amendments.

Guidelines for Land Clearing:

The Board discussed the NT Pastoral Land Clearing Guidelines and agreed to include a section outlining the Board's responsibility when determining a clearing application, to be drafted by Dr Miller. The former Chairman, Mr Anthony Young, prepared a revised introduction which the Board accepted.

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NT Cattle Industry 2013

Source: Department of Primary Industries and Fisheries Pastoral Production Division

The NT cattle population is an estimated 2.1 million head, approximately 9% of the Australian total. By Pastoral District, Alice Springs has 20%, Barkly and Tennant Creek 30%, Victoria River District and Katherine 32%, and Darwin, Roper and Gulf 18% of the total NT herd.

In 2011-12, an estimated 623,008 head of cattle were turned off from Territory pastoral properties, a decrease of 0.8% on 2010/11.

Of the total Territory cattle turned off in 2011-12, 57% were destined for interstate trade, and 43% were exported live overseas reflecting the challenging conditions in live export markets. Some cattle were slaughtered in small private abattoirs as there is currently no commercial, domestic or exporting abattoir operating in the NT. Australian Agricultural Company (AACo) has commenced construction of a large-scale, state of the art meat processing facility at Livingstone (outside Darwin).

More recent figures for NT live cattle exports through the Port of Darwin show that in 2011-12, 266,120 head of NT cattle were exported, a decrease of 2% compared to 2010-11. The June 2011 temporary trade suspension of live exports to Indonesia by the Australian Government in mid-2011 and subsequent reduction in import permits by the Indonesian Government have impacted on export numbers.

Interstate movements' rose to 356,888, a 0.2% increase on 2010-11 as overall NT turn-off decreased marginally while Indonesian buyers were importing fewer cattle.



Gross Value of Production

The estimated gross value of production for the cattle industry was \$326 million in 2011-12, a 0.2% increase compared to the previous year. This was mainly due to a small decrease in the value of live cattle exports offset by an increase in value of cattle movements' interstate. In 2012-13, cattle production value is projected to increase by 2.6% to \$334 million.

Cattle contributed 51% of the total value of Territory rural industries and fisheries production in 2011-12.

a. Direct Contribution to Gross State Product (GSP)

NT cattle industry's value adding direct contribution (output) to NT GSP in 2011-12 is estimated to be \$166 million, or approximately 0.92% of total NT GSP.

b. Flow-on Value (Direct and Indirect Contribution)

The flow-on effects of additional output (direct contribution) of \$166 million and income (indirect contribution) of \$41 million by the pastoral industry on the rest of the NT economy is estimated to be \$207 million.

NT Farm Performance

The financial performance of beef producers in the NT on average in 2010-11 and 2011-12 was challenging, largely due to the live export ban and subsequent changes to Indonesian import quotas. This is responsible for the decrease in cattle receipts that were offset by a decrease in farm cash costs.¹ The Australian Bureau of Agricultural and Resource Economics (ABARE) estimates that average farm cash incomes ² (per farm) of Territory beef producers in 2010-11 was \$504 680, decreasing to \$175,900 in 2011-12 while farm cash incomes are projected to increase (on average) to \$309 000 in 2012-13. However, there are historically considerable variations in farm financial performance between the pastoral regions and between large and small cattle enterprises.

Rural Property Sales

During 2011-12, rural property sales recorded little activity in the market for beef cattle stations in the northern half of the NT. In June 2013 there were still 17 stations for sale in the Territory, covering more than 51,000sq km. Until this years' sale (September 2013) of the two cattle stations, Inverway and Riveren, just one station in the northern half of the Territory, Calvert Hills, had sold since March 2012.³

^{1.} Based on Northern Territory Cattlemen's Association 2011 Year Book p11

^{2.} ABARE Australian farm survey results 2010/11 to 2012–13 March 2012

^{3.} http://www.theaustralian.com.au/business/companies/sale-of-pastoral-stations-lifts-optimism-in-cattle-industry/story-fn91v9q3-1226733232405#sthash.f56YDkaj.dpuf

NT Cattle Industry 2013

Source: Department of Primary Industries and Fisheries Pastoral Production Division

Over the medium term saleyard beef cattle prices are projected to decline in real terms as cattle slaughter and beef production increase. Assuming favourable seasonal conditions, cattle prices are projected to stabilise toward the end of the projection period as growth in cattle slaughter and beef production slows. By 2017-18 the weighted average saleyard price for beef cattle is projected to be around 255 cents a kilogram (in 2012-13 dollars).

After rising to its highest in around 30 years, the Australian cattle herd is likely to fall slightly from 2012-13 reflecting increased cattle slaughtering's, particularly of breeding females. The national cattle herd is forecast to fall by 1% in 2013-14 to 28.6 million head (25.9 million beef cattle).

Over the medium term cattle numbers are projected to decline gradually as cattle slaughter increases. Increased beef production is expected to lead to lower saleyard prices in real terms over the projection period.

Prospects for Live Cattle Trade

The Australian Bureau of Agricultural and Resource Economics (ABARE) projections⁴ show Australian exports of live cattle for feeder and slaughter purposes in 2012-13 are forecast to fall by 22% to around 450 000 head and remain at that level in 2013-14. Indonesia will continue to dominate the live cattle trade in the short to medium term.

Over the medium term growth in exports of live cattle for feeder and slaughter purposes depend on the trade policies employed by the Indonesian Government, and the development of new markets for northern Australian cattle. Australian cattle exports to other markets in South-East Asia, including the Philippines, Malaysia and Vietnam, are likely to face ongoing competition from competitively priced exports of Latin American beef and Indian buffalo meat.



Prospects for Interstate Movements

In the short term a mixed export performance is forecast for Australian beef and veal in the three largest markets (Japan, the United States and the Republic of Korea)⁵. In Japan, higher supplies of US beef and low growth in consumer demand is expected to contribute to a decline in demand for Australian beef. In the United States and the Republic of Korea, a forecast decline in domestic beef production is expected to result in increased demand for imported beef, including from Australia.

In the short term, export volumes are forecast to increase by 3% in 2012-13 to 975 000 tonnes (shipped weight) and a further 3% in 2013-14 to one million tonnes.

Australian beef and veal exports to Japan are projected to decline over the next few years, before stabilising toward the end of the outlook period. Australian beef and veal exports to Japan are forecast to fall by 6% in 2012-13 to 305 000 tonnes (shipped weight) and a further 5% in 2013-14 to 290 000 tonnes.

In the short term, Japanese demand for imported beef is expected to increase. However, a relaxation of import restrictions to US beef is expected to result in increased shipments from the United States to Japan at the expense of Australian beef, particularly higher valued chilled cuts.

Australian beef and veal exports to the Republic of Korea are forecast to increase by 8% in 2012-13 to 133 000 tonnes (shipped weight), and a further 5% in 2013-14 to 140 000 tonnes. Korean beef production is forecast to fall from its recent highs, while beef consumption is expected to continue rising, resulting in increased demand for imports. In the short term Australian beef is expected to maintain the largest share of the Korean beef import market, despite increasing competition from US beef.

Australian beef and veal exports to the United States are forecast to increase by 12% in 2012-13 to 230 000 tonnes (shipped weight), and a further 9% in 2013-14 to 250 000 tonnes. In the short term increased exports to the United States reflects lower US beef production and high US import prices for manufacturing beef.

Over the medium term Australian beef and veal exports to the United States are projected to increase to 275 000 tonnes by 2017-18. Strong US demand for manufacturing beef and declining domestic supplies are expected to result in higher prices in real terms for imported beef. The US cattle herd is currently at its lowest since 1952 and is forecast to decline further over the medium term.

In many smaller and emerging export markets, per person beef consumption is projected to continue rising over the outlook period, underpinning increased demand for Australian exports. However, supplies of beef from two of the world's largest exporters, India and Brazil, are expected to increase, leading to higher competition for Australian beef.

India's largest beef export markets include many of Australia's export destinations, such as Vietnam, Malaysia, the Middle East and the Philippines. Brazilian beef exports are also expected to rise in the short term. Beef exports to other emerging markets such as China and Taiwan are forecast to increase in the short term.

Provided the relatively favourable seasonal conditions continue in the NT, the interstate movement of NT cattle will increase.

- 4. ABARE Agricultural commodities vol. 3 no. 1 March quarter 2013 p 86-95
- 5. ABARE Agricultural commodities vol. 3 no. 1 March quarter 2013 p 86-95

Pastoral Production Activities

Source: Department of Primary Industries and Fisheries Pastoral Production Division

DPIF Pastoral Production Group provides research, development and extension services to facilitate the sustainable development of the Northern Territory pastoral industry. Areas of expertise include rangeland management, animal production, genetics, improved pastures and market development. DPIF Pastoral Production also plays a role in Indigenous economic development through its partnership in the Indigenous Pastoral Program.

The DPIF Rangeland Program's research and extension activities aim to optimise the sustainable and productive use of native pastures. Recent research efforts have focussed on investigating the benefits and costs of a range of grazing systems and land management practices. Over the past 12 years, DPIF has developed a nationally-significant catalogue of pasture growth models for the important pastoral land types of the NT. These models are used to estimate sustainable livestock carrying capacity and to test management scenarios with potential to increase the resilience of pastoral businesses to seasonal variability and climate change. The following sections summarise the outcomes of some of the main activities undertaken by the Rangeland Program. This is followed by a summary of the seasonal conditions and pasture growth experienced across the NT between October 2012 and September 2013.

Quarterly Advisory Bulletin

In late 2011, DPIF began producing a quarterly bulletin that summarises the seasonal outlook, recent forage growth and current standing pasture biomass in each of the 11 pastoral districts of the NT. The Rangeland Program team developed the bulletin to alert the industry and its advisers to issues such as low pasture levels, increasing drought risk and high fire risk. The Quarterly Advisory Bulletin is distributed in March, June, September and December. The Bulletin is currently being modified so that it can be put on the DPIF website.

Carrying Capacity Research and Application

DPIF now has GRASP pasture growth models for more than 50 sites (covering in excess of 20 pasture types) across the NT. Median pasture growth estimates from these models are routinely used for property carrying capacity assessments, for assessment of development applications and subdivision requests through the Pastoral Land Board, in Grazing Land Management workshops and for testing the performance of management options/practices in research projects.

DPIF has developed a database to capture all of its information related to the estimation of carrying capacity. The database includes information on median pasture growth, recommended utilisation rates, recommended stocking rates, grazing accessibility ratings and the appropriate pasture growth model to use for a large number of land types. The database has streamlined the process for undertaking carrying capacity assessments and continues to be a repository for DPIF data.

It should be noted that it continues to be difficult for DPIF to undertake objective assessments of carrying capacity in some areas of the NT due to the adequacy of existing land type mapping. This is particularly the case for parts of the Roper, Gulf and southern Sturt Plateau Pastoral Districts. The DPIF values the assistance of DLRM staff in supplying customised land type mapping information in these areas, particularly for carrying capacity requests.

Grazing Systems

A new grazing systems trial commenced at Old Man Plains Research Station, Alice Springs in 2011. The Quality Graze trial has been designed to further test and demonstrate some of the recommendations that have been promoted through the Grazing Land Management (GLM) workshops as well as new approaches arising from recent research projects.

The strategies being investigated include:

- GLM methodology in setting sustainable stocking rates;
- Annual stocking rate adjustment for managing seasonal variability; and
- Pasture spelling.



The variable stocking rate strategy adjusts stocking rates annually at the end of summer. Based on recent advice from industry, stocking rate variations are capped to +20% or -50% compared to the previous year as any greater variation than this is considered impractical. The trial will determine the effectiveness of these strategies for both breeder and steer enterprises and will run until at least December 2015. See: http://www.nt.gov.au/d/Primary_Industry/Content/File/TB/TB347.html#_Toc343695311

DPIF has concluded several grazing systems trials across the NT; Mt Sanford and Pigeon Hole in the Victoria River District, Rockhampton Downs and Newcastle Waters in the Barkly region and Mt Riddock in the Alice Springs region. The main findings can be accessed in recent DPIF Annual Research Achievement Reports (see link above). In 2013, a producer manual drawing on the findings of the Pigeon Hole trial was published by Meat & Livestock Australia ("Guidelines for the development of extensive cattle stations in northern Australia. Insights from the Pigeon Hole Project").

The key messages include:

- Careful financial budgeting is required to determine the viability of increasing the carrying capacity of a property. The full costs should be budgeted for, including those that might not readily come to mind such as forgone sales of breeders to increase herd size and additional handling facilities;
- The potential carrying capacity of an area will be a key determinant of whether to develop it or not;
- Water points should be developed first, followed by subdivision fencing;
- Grazing systems that incorporate pasture spelling are recommended for the management of land condition;
- Management tools such as telemetry and water medication can improve management efficiency and reduce costs;
- Biodiversity may be impacted if the entire property is developed for grazing; and
- The producer manual can be accessed at: http://www.mla.com.au/News-and-resources/Publication-details?pubid=6103.

Sustainable Grazing Practices

Several DPIF research and extension projects continue to investigate the land condition, animal production and economic performance of various stocking rate management, pasture spelling, prescribed burning and paddock development practices. These projects include Climate Clever Beef, Pasture Sustainability at Kidman Springs and Shruburn. DPIF is also conducting the following on-property grazing land management projects:

- Alexandria Station (Barkly) Pasture spelling and stocking rate demonstration.
- Delamere Station (VRD) Pasture spelling and prescribed burning demonstration.
- Beetaloo Station (Barkly) Intensive development and rotational grazing demonstration (in partnership with the Barkly Landcare and Conservation Association).

Information about these projects and their findings can be found in recent DPIF Annual Research Achievement Reports (http://www.nt.gov.au/d/index cfm?header=Technical%20Publications) and the Proceedings of the Northern Beef Research Update Conference, 12-15 August 2013, Cairns. Three technical guides summarising DPIF current recommendations for sustainable grazing land management in the Victoria River, Barkly and Alice Springs Pastoral Districts were published in late 2013 and will be available via the DPIF website in 2014.

In mid-2012, DPIF commenced a three-year project to assess the viability and practicality of integrating "carbon farming" into northern beef enterprises. The project is working with producers in the Barkly, VRD and Douglas Daly to determine what carbon farming options are relevant, how much carbon might be sequestered, how much methane could be abated and how various carbon farming options perform in terms of their potential impact on land condition, animal productivity and economic performance.

The "Shruburn" experiment at Kidman Springs reached its 20-year milestone in 2013. The experiment is investigating the impact of fire management on woody vegetation cover and pasture condition. The trial plots are replicated on red and black soil sites, with grazed experimental plots burnt early or later in the dry season, every two, four and six years, and these are compared to unburnt control plots. The latest findings were presented at the 17th Biennial Australian Rangeland Society Conference in September 2012 (see http://www.austrangesoc.com.au/site/whatson_conference.php) and will be published in the Rangeland Journal in 2014. This is a particularly important experiment as it is the only long term replicated study in Australia that is relevant to grazed tropical savannas and thus picks up the dual impacts of fire and grazing.



Pastoral Project Updates

Pastoral Water Enhancement Scheme (PWES)

A total of seven (or six separate properties) have received assistance in the form of PWES for the 2012/13 financial year.

- Sturt Plateau Pastoral District four applications
- Gulf Pastoral District one application
- Southern Alice Springs Pastoral District two applications

The PWES was reviewed by the Northern Territory Government and subsequently ended 30 June 2013.

Drought

No properties were drought declared in the period 1 October 2012 to 30 September 2013 and no payments relating to drought were made in the above period.

Subsidised Interest Rate Scheme (SIRS)

The SIRS is an assistance measure announced by the Australian Government in the wake of the temporary suspension of the live cattle export trade to Indonesia on 7 June 2011 and is designed to assist pastoralists and service businesses (including transport operators, hay producers, stockfeed retailers etc.) in the Northern Territory, Western Australia and Queensland who were experiencing financial difficulties due to cash-flow shortfalls as a direct result of the suspension.

The SIRS provides subsidisation of interest for up to two years on the first \$300,000 of new or extended business loans or overdrafts taken up since 7 June 2011 and is capped at 8% for the first year, reduced to a capped rate of 4% for the second year. The maximum interest subsidy payable to an applicant based on a \$300 000 loan over two years is \$36 000. The Department of Primary Industry and Fisheries delivers SIRS on behalf of the Australian Government.

Of the 60 SIRS applications received in the Northern Territory, a total of 51 were deemed eligible to receive an interest subsidy. Upon receipt of bank statements a further four applicants were found ineligible due to borrowings and/or debt decreasing via principle and interest repayments or the new loan was used to extinguish an existing debt.

For the 2012/13 financial year, a total of \$463,578.71 in interest subsidy was paid to applicants - \$427,691.06 to pastoralists and \$35,887.65 to service businesses.

2012-2013 rainfall relative to historical records (1900 to 2012).

Source: Bureau of Meteorology.



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October 2012 to September 2013 pasture growth relative to historical records (1957-2013).

Source: AussieGRASS



Standing biomass (kg dry matter) in May 2013 Source: AussieGRASS



Standing biomass (kg dry matter) in May 2013 relative to historical records (1957-2013).

Source: AussieGRASS



Standing biomass (kg dry matter) in September 2013. Source: AussieGRASS





Standing biomass (kg dry matter) in September 2013 relative to historical records (1957-2011).

Source: AussieGRASS



www.lrm.nt.gov.au/pastoral-land-board