

Western Australian Auditor General's Report



Management of Pastoral Lands in Western Australia



Report 17: October 2017

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WESTERN AUSTRALIAN AUDITOR GENERAL'S REPORT

Management of Pastoral Lands in Western Australia

Report 17
October 2017



**THE PRESIDENT
LEGISLATIVE COUNCIL**

**THE SPEAKER
LEGISLATIVE ASSEMBLY**

MANAGEMENT OF PASTORAL LANDS IN WESTERN AUSTRALIA

This report has been prepared for submission to Parliament under the provisions of section 25 of the *Auditor General Act 2006*.

Performance audits are an integral part of the overall audit program. They seek to provide Parliament with assessments of the effectiveness and efficiency of public sector programs and activities, and identify opportunities for improved performance.

This audit assessed whether there is a coordinated and effective approach to protect the ecological sustainability of pastoral lands. My report finds that the ecological sustainability is not adequately protected by the State's current system of land monitoring and administration.

I wish to acknowledge the Pastoral Lands Board, and staff at the Department of Planning, Lands and Heritage and the Department of Primary Industries and Regional Development for their cooperation with this audit. I also thank the various stakeholders for taking the time to help with this report.

COLIN MURPHY
AUDITOR GENERAL
11 October 2017

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Auditor General's overview

The pastoral industry contributes much to the social and economic fabric of this State, but, the industry faces many challenges, not least of which, the land on which it operates is some of the State's most fragile. Pastoral lands have been under threat for over 75 years and during that time there has been limited support to ensure the long-term productivity of the land.



There are benefits to both the State and lessees from the leasing of pastoral lands. Lessees have the opportunity to run a pastoral business and earn an income, and the State has land managed that might otherwise pose a higher risk of uncontrolled fire and feral animals. However, managing the sustainability of these areas is a complex task that requires consultation with a multitude of other land users. This is not easy, and to be successful requires government to play a key role in helping to ensure productive lands exist for future generations.

This audit reiterates the findings of previous inquiries into the pastoral industry, highlighting a need for lease level monitoring of land condition, and guidance on how best to manage pastoral lands. We saw many examples in localised areas where lessees had rehabilitated land and employed good management practices to the benefit of the land, the lessees and the State.

Following the 2015 renewal of pastoral leases, government agencies have an opportunity to work together, along with the many non-government and Indigenous organisations, private business, and families to achieve sustainable outcomes for the pastoral industry and the communities it supports.

I have focused on making practical and achievable recommendations that reflect the need to improve pastoral land management, and the constrained resource environment agencies are operating in.

I would like to acknowledge the contribution from the many land managers who shared their insights into the challenges they face, and the value of the landscapes they manage.

Executive summary

Introduction

This audit assessed whether there is a coordinated and effective approach to protect the ecological sustainability of pastoral lands.

We focused on strategies to understand environmental condition and compliance programs to prevent degradation and rehabilitate land. We sought extensive feedback from a range of industry and government stakeholders, who are involved in the management of the pastoral estate and neighbouring land tenures.

Background

Western Australia's (WA) rangelands cover 87% of the State. They are administered by the State Government. Around 39% of the State's rangelands (87 million hectares) is under pastoral lease. The remainder consists of unallocated Crown land (UCL), land reserved for conservation or indigenous purposes, non-pastoral leasehold, and freehold.

The pastoral industry commenced in WA in the 1860s. By 1910, the Crown had assigned most of the suitable grazing country to lessees through pastoral lease arrangements that exist in some form to this day. All pastoral leases expired on 30 June 2015. On 1 July 2015, the Minister for Lands renewed leases on 435 pastoral stations for periods of 18 to 50 years. The majority are located in the Southern Rangelands (Table 1).

Region	Number of stations	Land area (million ha)
Southern Rangelands (Carnarvon/Gascoyne, Murchison and Goldfields/Nullarbor regions)	286	52.3
Kimberley	92	21.2
Pilbara	57	13.0
Total	435	86.5

Source: Department of Planning, Lands and Heritage

Table 1: Pastoral leases in WA

The Kimberley region in northern WA is characterised by highly productive grasslands in the river valleys, extensive areas of low pastoral potential, and reliable rainfall. It is also prone to fire. The region has produced beef cattle since pastoralism commenced and sheep grazing was significant until the 1960s. In contrast, the Pilbara region is dominated by low woodlands over spinifex grasslands. The Southern Rangelands are predominantly less productive shrublands, with high rainfall variability and extended periods of drought. Sheep dominated these 2 regions until the 1990s when the Australian Wool Corporation's Reserve Price Scheme, a government initiative to stabilise wool prices, collapsed.

Beef cattle is now the focus for 324 of the 435 stations. Only 69, all in the Southern Rangelands focus on sheep and/or goat production, and the remaining 42 are destocked.

Pastoralists traditionally generate income from the sale of livestock and wool. Ongoing productivity depends on good pastoral management, and land condition. Land in good condition can support extensive livestock grazing on native pastures, land in poor condition cannot.

Pastoral leases are also held for reasons other than pastoralism. Examples include leases held by mining companies, indigenous groups for cultural and lifestyle purposes, and

philanthropic groups for conservation (Table 2). Some lessees, such as mining companies and Aboriginal corporations, engage land managers and have limited input into day-to-day pastoral business. Other small-scale activities such as tourism, agriculture, and businesses contracting to the mining sector are also common.

Customer type	Number of stations	% of area
Aboriginal corporation	55	12.5
Company (foreign mining)	7	1.8
Company (foreign owned)	13	3.4
Company (mining)	29	6.2
Company (private)	178	43.1
Company (public)	2	0.6
Government department/authority	2	0.4
Individual	149	32.0
Total	435	100

Source: DPLH

Table 2: Ownership of pastoral leases in WA in August 2017

Pastoral leases exist in a complex matrix of land tenures and uses (Appendix 1). Native title rights, which recognise the unique ties indigenous groups have to the land, and mining and widespread mineral exploration activities, commonly occur on pastoral lands. Regardless of tenure, the land requires people on the ground to manage it.

Reports over the years have highlighted a decline in rangeland condition (Appendix 2). In 1940, a Royal Commission, following the 1930s Great Depression and drought, reported widespread decline in stock feed with sheep numbers falling by up to 70% in some areas. In 2015¹ the then Department of Food and Agriculture WA (DAFWA) reported ongoing decline and serious implications for the sustainability of the pastoral industry and the State's resource.

This is the third audit of Pastoral Lands Board (PLB) activities conducted by the Office of the Auditor General. Previous audits assessed the Administration of the Pastoral Leasing Process (1994) with consideration for long-term sustainable development and economic return, with a follow-up audit in 1996. Recommendations included:

- the then Pastoral Board and Department of Agriculture consider developing an integrated information system to serve as a common reference for pastoral leases
- procedures for follow-up compliance with lease conditions and recommended land management measures should be enhanced
- operational policies and assessment procedures should be documented.

Roles and responsibilities

Managing pastoral lands involves many government (Appendix 3) and non-government agencies, private businesses, indigenous organisations and individual lessees.

The PLB is a statutory authority established under section 94 of the *Land Administration Act 1997* (LA Act). In accordance with Part 7 of the LA Act, the PLB and the Minister for Lands

¹ DAFWA (2015). Report to the Commissioner of Soil and Land Conservation on the Trend of the Western Australian Pastoral Resource Base.

administer pastoral leases. The PLBs functions include to advise the Minister on policy and the administration of leases, ensure leases are managed on an ecologically sustainable basis, develop policies to prevent degradation and rehabilitate degraded land, and develop and implement monitoring systems for pastoral land, livestock and feral animals.

The PLB is supported by:

- Department of Planning, Lands and Heritage (DPLH) – provide administrative services
- Department of Primary Industries and Regional Development (DPIRD) – provide services, which include lease assessment and inspection, and advice on applications for diversification permits, land management and land condition trend. A memorandum of understanding (MoU) between the PLB, DPIRD, the Commissioner of Soil and Land Conservation (the Commissioner) and the then Department of Regional Development and Lands expired in 2015.

Under the LA Act lessees must manage the land to its best pastoral potential to the satisfaction of the PLB, whilst the PLB must ensure that pastoral leases are managed for ecological sustainability. To achieve this, land condition, which is defined by DPIRD as the presence of perennial plant species attractive to livestock as fodder, and the condition of the soil, must be maintained. This presents challenges that include: minimising the impact of other land uses, such as mining and exploration, road works, and tourism; preventing and rehabilitating historic and ongoing land degradation; variability in how pastoral leases and adjacent lands are managed; decline in market prices and income; and isolation.

Sections 108 and 111 of the LA Act also requires that lessees:

- use methods of best pastoral and environmental management practice for the management of stock, and for the management, conservation and regeneration of pasture for grazing
- maintain the indigenous pasture and other vegetation to the satisfaction of the PLB
- control declared pests.

Audit conclusion

The ecological sustainability of pastoral lands is not adequately protected by the State's current system of land monitoring and administration. Pastoral lands have been under threat for over 75 years and during that time there has been limited progress to halt the decline in pastoral land condition.

Current knowledge of the environmental condition of individual leases is poor. A reduction in the scope of monitoring since 2009 and limited use of remote sensing tools has contributed to a lack of understanding of land condition at the lease level, and restricted visibility of the extent of land condition issues across the pastoral estate. Future sustainability of the pastoral industry and the Crown's land estate relies on being able to make informed decisions on how to address existing issues and prevent new ones.

The lead up to the 2015 lease renewal process resolved a significant number of outstanding land condition compliance issues. Since then, DPLH has adopted a pastoral liaison approach to its compliance work. However, this work is not well documented and does not provide good visibility into the extent of land condition issues or what is being done to address them. A rigorous documented compliance program is essential to ensure appropriate stewardship of Crown land.

A lack of support and guidance is impeding opportunities to achieve social, environmental and financial outcomes for pastoral businesses and their surrounding communities. There is

a need for the PLB, DPLH and DPIRD to explore opportunities to provide guidance to lessees on good practice land management and streamline diversification processes to protect our valuable pastoral estate and address these issues.

Key findings

The State does not have good knowledge of lease level land condition

The PLB relies on limited lease monitoring as part of its role to oversee and administer the pastoral estate. Since 2009 the scale of lease monitoring declined from 15% of all leases inspected each year to less than 3%. At the current rate of 20 lease inspections per year it will take more than 20 years to inspect each lease once. The PLB is unable to fulfil its mandated function to ensure individual leases are managed on an ecologically sustainable basis. Monitoring is also important, to assess if diversification projects are capable of improving land condition.

Between 2012 and 2015, DPLH led an audit to ensure lessees were compliant with the LA Act before the 2015 lease renewals. Over 500 outstanding directives were reduced to 34 by the time leases were renewed on 1 July 2015. This provided the PLB with a renewed basis on which to conduct compliance and enforcement activities. DPLH adopts a pastoral liaison approach to its compliance activities, in preference to issuing and following up on compliance directives. However, without comprehensive lease monitoring, the extent of land condition issues across the State is not well documented under this approach, leading to a high risk that broader scale degradation will continue.

The State's use of remote sensing technology to help monitor and understand changes in land condition at the lease level and across land tenures is limited. DPLH and DPIRD have independently worked to develop monitoring systems using remote sensing technology. But, difficulties interpreting remotely sensed data are in part responsible for delays in adopting the technology as a land management tool. Given reductions in agency resources, and the size of the pastoral estate, incorporating long-term remote sensing monitoring would provide more reliable trend information to inform management decisions, and allow the State to better use available resources.

Lessees receive limited support to manage the land for long-term productivity

The decline in DPIRD's pastoral liaison, advisory, research and compliance functions over the last decade, has contributed to limited opportunities for knowledge exchange with pastoralists. There are many examples of good practice driven by lessees, often aided by not-for-profit and private organisations, but little evidence that agencies help to develop and share this knowledge. The result is slow uptake of established regeneration techniques and insufficient landscape rehabilitation to reverse existing degradation.

The process to apply for a diversification permit to conduct activities on a pastoral lease is not transparent and can be lengthy. Proponents face a range of approval processes under different legislation and from multiple agencies. Pastoralists we spoke with expressed frustration in the process, highlighting delays to acquire multiple agency approvals, and significant up-front investment with no guarantee of the outcome. Pastoralists are looking at diversification options to facilitate improvements in land condition by reducing broad scale grazing pressure, and a method to improve economic and social outcomes.

At 1 June 2017, DPLH were managing 115 diversification permits. Between January 2015 and June 2017, the PLB received 54 diversification permit applications. Seventy-one percent of the 28 permits issued by the PLB in that time fell within DPLH's suggested 6-month timeframe. However, 5 were still waiting for a permit more than 12 months after initial application.

The State's Land Tenure Pathway for Irrigated Agriculture aims to increase transparency by outlining the process to develop land for irrigated agriculture. The pathway is detailed but has only been used to date for larger-scale industry development, due to the significant costs involved with completing some of the requirements under legislation such as the *Mining Act 1975* and *Environmental Protection Act 1986*.

Policies and agency information management offer little to support a sustainable pastoral industry

The PLB does not have policies and procedures to guide the long-term environmental, economic and social management of pastoral lands. For example:

- there is no accepted definition of 'ecological sustainability' despite the LA Act requirement to ensure leases are managed on an ecologically sustainable basis
- no policies to guide rehabilitation of degraded or eroded rangelands
- there are no action or implementation plans to support the PLB to achieve its Strategic Plan.

The sustainable use of natural resources and healthy functioning ecosystems are important to both the State, as the land owner, and the pastoral industry, as land users.

In 2015 the Public Sector Commission (PSC) recommended DPLH work through its 'Good Governance Checklist' with the PLB. In recognition that more is required, the PLB and DPLH have prioritised defining ecological sustainability. The PLB's Strategic Plan and Rangeland Management Compliance Policy and Procedures also represent recent effort to focus more on strategic priorities. A new, independent Chair, appointed in January 2017, provides further opportunity to refocus PLB priorities.

Inadequate data and knowledge management within DPIRD and DPLH is affecting their ability to best administer and guide land management. Important DPIRD research on land condition is not made available to the pastoral industry and lease information is poorly managed. The State does not have a comprehensive and accessible record of land condition and pastoral management information.

Shrinking agency resources and shifting priorities have also affected DPIRD's ability to provide the services sought by the PLB, DPLH and lessees. Information is siloed with a few key individuals, many of whom are nearing retirement. An MoU for service provision by DPIRD to the PLB expired in 2015 and has not been renewed to reflect the reduction in services. The PLB, DPLH, DPIRD and the Commissioner have been working to finalise a new MoU that reflects changes in priorities and resources.

Recommendations

1. By the end of June 2018, the PLB should:
 - a. finalise an MoU for DPIRD service provision
 - b. define and adopt an inter-agency definition of 'ecological sustainability' for pastoral lands
 - c. develop an annual action plan to accompany its Strategic Plan to inform pastoral land management.
2. By the end of December 2018, the PLB, with support from DPLH, should:
 - a. develop and implement a rigorous compliance program based on regular land condition monitoring that includes a combination of risk-based and systematic inspections, and checks of pastoral lessee annual returns
 - b. develop an accessible inter-agency database that contains lease compliance and compliance-related monitoring information
 - c. increase opportunity for agency, lessee and stakeholder engagement to promote better coordination of pastoral land management by all entities involved
 - d. undertake an independent review of its performance in line with the PSC's Good Governance Checklist.
3. By the end of December 2019, the PLB, with support from DPLH and DPIRD, should:
 - a. develop and implement a reliable statewide system to monitor changes in land condition within the rangelands:
 - i. to inform land management activities across land tenure boundaries
 - ii. at the individual lease level
 - iii. that includes both remote sensing technology and ground monitoring
 - b. develop, publish and circulate policies to prevent the degradation of rangelands and to rehabilitate degraded or eroded rangelands to restore their pastoral potential, as prescribed under the LA Act
 - c. provide guidance on good practice soil, vegetation, stocking and feral animal management techniques, and rehabilitation techniques, to protect and improve the environmental condition of pastoral lands
 - d. develop an inter-agency permit approvals process with timelines for each agency, transparency for proponents, and options to streamline and fast track standard applications.

Board and agency responses

Pastoral Lands Board

In general terms, the Board supports the broad directions of the report however would like to make the following comments:

- The Board recognises the significant task it has to ensure pastoral leases are managed responsibly and in a way that does not compromise the important natural asset that is Western Australia's pastoral estate. This is a complex task involving multiple government and non-government agencies, major private businesses, Indigenous organisations and many individual lessees. In this context, the most successful approach to management of the pastoral estate requires an appropriately resourced and somewhat independent board that can effectively pull the disparate parts of the pastoral industry together;
- The Board believes that it is essential that "ecological sustainability" as used in the scope of the Performance Audit must be examined within a pastoral context. Pastoral lessees are statutorily required to manage their leases by applying methods of best pastoral and environmental management practice, and the Board has a role in ensuring that this occurs. Any industry reliant on the presence of native vegetation, such as pastoralism, has a vested interest in ensuring sustainable use of natural resources; a key challenge in the context of a lease that allows for the grazing of non-native animals in an environment which is not well adapted to them along with wild dogs, goats, horses and camels. Subsequently, pastoral lessees have an incentive to work within a 'triple bottom line' management framework; and
- The Board agrees that additional rangeland condition monitoring, both in the form of satellite monitoring and on ground inspections, would assist it to ensure that pastoral leases are managed on an ecologically sustainable basis. The need for more effective monitoring is broadly supported noting the breadth and scale of the task, contextualised against resourcing and geographical constraints, will necessitate innovative approaches to achieving this objective. The Board and the Department of Planning, Lands and Heritage, in collaboration with the Department of Primary Industries and Regional Development, will explore opportunities to increase the level and effectiveness of monitoring along with recording and dissemination of outcomes. This may include better utilisation of technology coupled with partnering with stakeholder or local groups (for example Aboriginal Ranger programs) to improve the effectiveness of the monitoring regime.

Department of Planning, Lands and Heritage

The Department of Planning, Lands and Heritage (DPLH) in general terms supports the key findings of the report, subject to a number of minor comments against some of the individual findings.

DPLH accepts all of the recommendations made in the report, noting that implementing a number of the recommendations by the suggested timeframes will ultimately be a function of available resources. DPLH and the Pastoral Lands Board (PLB) have already commenced implementing several recommendations, including:

- Finalising a Memorandum of Understanding in relation to service provision to the PLB from both DPLH and the Department of Primary Industries and Regional Development (DPIRD);
- Supporting the PLB to define an Action Plan to implement its Strategic Plan;

- Assisting the PLB to draft a policy on the interpretation of ecological sustainability in the context of pastoral land, with supporting guidance for pastoral managers on good practice land management; and
- Engaging at senior level with DPIRD, the Department of Water and Environmental Regulation (DWER) and the Department of Biodiversity, Conservation and Attractions (DBCA) in relation to interagency approvals processes for diversified economic activities on pastoral land.

DPLH notes that the report explicitly acknowledges the impacts of non-pastoral land uses on rangeland condition, and consequently the need for collaboration between the different parts of Government, pastoralists, third party land users, and Aboriginal people to deliver improved rangeland condition outcomes.

Department of Primary Industries and Regional Development

The Department of Primary Industries and Regional Development (DPIRD) acknowledges the findings of the Performance Audit: Management of Pastoral Lands and appreciates the recognition of past performance in this area and recognition of current improvements. DPIRD is committed to processes of continuous improvement in performance and cost-effective management of pastoral lands.

The primary responsibility for DPIRD in the management of pastoral lands, is in the administration of the Soil and Land Conservation Act and in providing advice to the agency responsible for administering the Land Administration Act.

With respect to the recommendation regarding pastoral lease level monitoring (Recommendation 3a), this will require development of new approaches incorporating remote sensing and ground monitoring. This needs a significant research and development component, including the establishment of ground monitoring sites for calibration and validation of any operational system.

This is new work that will require significant additional resources as the existing monitoring system will need to be maintained while new systems are developed and made operational.

The preparation of policies and guidelines on degradation prevention and good practice management techniques (Recommendation 3b and c) is a shared responsibility. Not-for-profit groups such as Rangelands NRM, Territory NRM and other private entities provide information to assist pastoralists to better manage the rangeland.

With respect to an inter-agency approval process (Recommendation 3d) this government has responded and a more effective cross-government approach has now commenced to facilitate a more streamlined process for permits.

Audit focus and scope

The audit objective was to assess whether there is a coordinated and effective approach to protect the ecological sustainability of pastoral lands. The specific lines of inquiry were:

1. Does the State have sufficient and effective strategies in place to understand the environmental condition of pastoral lands?
2. Are State compliance programs reasonable to prevent degradation and rehabilitate pastoral lands?
3. Will the 2015 renewal of pastoral leases assist the State to protect the ecological sustainability of pastoral lands?

In undertaking the audit, we:

- focused on the activities of the PLB, and the support given by DPLH and DPIRD
- looked at strategies to understand land condition and how agencies incorporated the concept of ecological sustainability in their monitoring and oversight
- examined how lessees diversified their operations from traditional livestock production
- reviewed plans, policies, strategies, guidelines, and other documents from the PLB, DPLH and DPIRD
- reviewed and analysed DPLH's compliance records from January 2012 to April 2017, diversification permit application data from January 1998 to June 2017 and livestock numbers at 30 June each year from January 2009 to June 2015
- reviewed a sample of DPIRD's and DPLH's records of pastoral lease monitoring, information of the condition and trends in the rangelands soil and vegetation resource, and inspection reports from January 1995 to June 2017
- interviewed PLB members and current and former staff from DPLH and DPIRD
- interviewed metropolitan and regional stakeholders with pastoral, mining, and conservation interests, and community members
- interviewed staff from other key agencies with a role in rangelands management, such as Department of Biodiversity, Conservation and Attractions (DBCA), Department of Mines, Industry Regulation and Safety (DMIRS), and Western Australian Land Information Authority (Landgate)
- reviewed published national and international literature on the administration and management of land for pastoral purposes
- attended the Kimberley Pilbara Cattlemen's Association (KPCA) Annual Conference and Field Day in Onslow on 23-24 March 2017
- visited and held interviews at 18 pastoral stations in the Kimberley region, Pilbara region and Southern Rangelands in March and May 2017
- interviewed lessees from an additional 13 pastoral stations and reviewed submissions from 4 pastoral stations in the Kimberley region, Pilbara region and Southern Rangelands
- reviewed audit submissions from pastoral lessees and industry stakeholders.

We did not look in detail at the effect of the *Native Title Act 1993*, the federal carbon farming initiative, the economic viability of pastoral leases, or actions by local government or regional development commissions.

This was a narrow scope performance audit, conducted under section 18 of the *Auditor General Act 2006* and in accordance with Australian Auditing and Assurance Standards. Performance audits primarily focus on the effective management and operation of agency programs and activities. The approximate cost of tabling this report is \$339,000.

Audit findings

The State does not have good knowledge of lease level land condition

The State's knowledge of land condition at the lease level has declined since 2009. Reductions in lease inspections, limited use of remote sensing technology, agency preference to replace compliance activities with a cooperative approach to work with lessees to fulfil requirements of the LA Act, and inadequate records of the work conducted, have all contributed. The extent of land condition issues across the sparsely populated and vast pastoral estate is therefore not always obvious.

Lease monitoring has declined

Since 2009 comprehensive information on the land condition of individual leases has not been available because of successive reductions in on-ground inspections. The number and scale of lease monitoring declined from 15% of all leases inspected each year between 2006 and 2008 to less than 3% from 2009 to 2016. Monitoring is needed to inform decisions about land management, inform compliance and enforcement activities, and to ensure leases are managed on an ecologically sustainable basis. It is also an important component of the State assessing if diversification projects are capable of improving land condition.

DPIRD undertake monitoring on behalf of the PLB. Between 2009 and 2016, DPIRD conducted 104 lease inspections. This equates to an annual rate of 3% of all leases. At the current inspection rate of 20 leases per year, it will take more than 20 years to inspect each lease once. In contrast, the pre-2009 inspection rate would have seen each lease inspected every 7 years. Between 2006 and 2008, DPIRD inspected an average of 64 leases per year. This declined to an average of 19 inspections per year in 2014 to 2016.

In 2017, DPLH and DPIRD selected 20 leases deemed 'at risk' for inspection based on a number of factors, including previous condition rating, time since last inspection, livestock grazing pressure, greenness index, seasonal quality, and other qualitative information. There is also recognition that most leases contain land that ranges from poor to good condition and some areas suffer from historic land degradation.

Agencies focus on ensuring fair to good condition land is maintained, rather than targeting degraded areas. However, the most recent 2002-09 Rangeland Condition Assessment (RCA) data ranked 16% of the Kimberley region, 12% of the Pilbara region, 29% of the Upper Southern Rangelands, and 22% of the Lower Southern Rangelands in poor condition. This represents a sizeable proportion of the pastoral estate that requires management to restore pastoral productivity.

Since 2009, the scale of lease monitoring has declined due to a shift away from full RCAs across a lease, to partial inspection of each lease (Table 3 and Appendix 4). Information on the potential impact of livestock, and native and feral animals on land condition has therefore reduced. As a result, the State is unaware of the extent of environmental problems within the pastoral estate, and lacks the necessary information to inform land management decisions.

Monitoring system	Responsible agency	Time period	Monitoring level
Rangeland inventory surveys	DPIRD (initial support from CSIRO)	1951 – ongoing	Regional
WA Rangelands Monitoring System (WARMS)	DPIRD	1993 – ongoing	Regional
Rangeland Condition Assessment (RCA)	DPIRD	1997 – 2009	Lease
Rangeland Condition Monitoring (RCM)	Lessees (voluntary)	2012 – ongoing	Lease
Lease inspections	DPIRD	2009 – ongoing	Lease
Lease inspections	DPLH	2012 – ongoing	Lease

Source: DPLH, DPIRD

Table 3: Summary of current and historic pastoral land ground-based monitoring

Monitoring was reduced in 2009 in readiness for the introduction of a voluntary Rangeland Condition Monitoring (RCM) program by lessees. DPIRD estimated over \$1.2 million was spent on developing RCM and providing training to pastoralists from 2010 to 2012. However, the PLB could not mandate its use by all lessees, which was necessary to give a complete view of the pastoral estate. Its accompanying data storage system was also inadequate. The more comprehensive RCA inspection regime was not reinstated when RCM failed to be fully implemented.

During our audit, 1 pastoralist described RCM as:

‘akin to a landlord asking their tenant to do the house inspection and give them a report’.

Government has been monitoring the condition of the rangelands since 1951 (Table 3 and Appendix 4). The monitoring commenced some 10 years after the 1940 Royal Commission into the status of the pastoral industry. However, the decline in the extent of monitoring at an individual lease level means that land condition information is not available at that level, and this impedes compliance activities. Much of the current monitoring and its interpretation, focuses on regional scale land condition. For example:

- WARMS (Appendix 4)
- Commissioner’s annual Report on the Condition Trend of the Western Australian Pastoral Resource Base given to the PLB – includes interpretation of WARMS and remotely sensed data. The Commissioner is based within DPIRD
- Commissioner’s contribution to DPIRD’s Annual Report – has consistently raised concerns about the decline in resource condition in the Southern Rangelands
- rangeland inventory surveys – widely used by State agencies, pastoralists, mining companies and other stakeholders (Table 3 and Appendix 4)
- DPIRD’s Report Card on Sustainable Natural Resource Use in the Rangelands (Rangeland Report Card), developed for the first time in 2017 but as yet unpublished – intended to provide a regional overview of the status and trend of the pastoral rangelands.

Monitoring does not include some key factors that affect land condition

The current monitoring system does not include a range of factors that impact on land condition throughout the year despite a requirement in the LA Act for the PLB to monitor

these factors. For example, the abundance and impact of foxes, wild dogs and dingos, particularly in the Southern Rangelands, is not measured. Total grazing pressure from livestock and native and introduced herbivores such as kangaroos, feral goats and donkeys is also not considered by the PLB. Assessing these factors is important to understand how land condition changes and what can be done to improve it. Comprehensive monitoring is possible but is resource-intensive.

There has been a significant shift in livestock in the Southern Rangelands and Pilbara region since 1990. In 1985, there were over 2 million sheep. By 2008, numbers had declined by 75% to 500,000 sheep and cattle had increased by over 300% from 65,000 to 200,000. The impact of these changes on soil and vegetation condition and the benefits and problems potentially caused by each species is unknown.

The PLB's Stocking of a Pastoral Lease Policy states 'Stock numbers should be determined with a view to reflecting the sustainable carrying capacity of the pastoral lease whilst ensuring that the lease is managed to its best advantage as a pastoral property'. However, it is difficult to accurately measure livestock numbers in such vast landscapes, and the need for pastoralists to earn an income does not always support sustainability. As one lessee stated, 'when things get tough, I push my property harder...I push the boundaries'.

Degradation of leases can also be caused by other land users. Lessees are required to respond to land management problems such as:

- erosion, introduction of weeds, and impeded access to station infrastructure from mining, exploration and prospecting (Figure 1)
- illegal dumping of waste, damage to unsealed roads, and livestock losses from unmanaged tourism
- erosion and vegetation loss from the flow of water across the landscape caused by poor road design and construction (Figure 1)
- broad scale fires, which can cross lease boundaries and result in loss of livestock, infrastructure and biodiversity.



Figure 1: Erosion at a rehabilitated mine site (left) and the head of an erosion gully caused by altered water flows across the landscape (right)

Despite the State's limited monitoring of pastoral leases, many pastoralists conduct their own monitoring. Techniques include subjective photo points, measuring grass available for fodder in smaller paddocks, and following the voluntary RCM methodology. Lessees use the information to inform land management priorities such as adjusting stocking rates, adding water points and choosing areas for rehabilitation. The information is not generally required to be sent to the PLB.

Compliance activities are not well documented and not representative of the extent of land condition issues

Reduced lease level monitoring, combined with the current cooperative approach to compliance, using pastoral liaison to help lessees comply with the LA Act, provides limited visibility of the extent of land condition issues across the pastoral estate. Following the 2015 lease renewal process the PLB had a renewed basis on which to conduct its compliance activities. A substantial amount of this work occurs through informal engagement with lessees. However, land condition issues are not being well documented, leading to a considerable risk that land degradation acknowledged repeatedly since 1940, will continue.

The PLB and DPLH undertake a range of compliance activities with the aim of ensuring lessee compliance with the LA Act. These include:

- monitoring the progress of formal compliance directives, that require a lessee to remedy declines in rangeland condition, submit evidence of improvement within a time period and/or a development plan to outline the improvements
- inspecting leases with known land condition issues, which may be informed by DPIRD's lease monitoring program
- other pastoral liaison work such as discussing potential land management solutions or erosion control techniques to encourage land rehabilitation.

Around 20 leases deemed 'at risk' each year are scheduled for land condition monitoring to inform compliance activities. Since 2015 the inspections have been a scaled down version of the former RCA monitoring. DPIRD advised that at the end of August 2017, they had conducted 8 of the 20 inspections for the year. The reports contain information on stocking rates, soil and vegetation condition, and a comparison to previous RCA data, providing an overview of lease condition beside established roads and tracks. However, the inspections can miss significant areas of degraded or rehabilitated land that are not adjacent to roads. The PLB receives these reports.

In July 2015, following the 2015 lease renewal process, there were 34 compliance directives. This had increased to 58 by April 2017. DPLH records and tracks directives. However, our review showed 10 directives had exceeded their compliance date by between 4 and 28 months. Of these, 8 had no record in the spreadsheet of any follow-up or follow-up had not been recorded since January 2017. Responsive follow-up of compliance issues is essential to ensure outcomes are achieved and lessees are treated consistently and fairly.

Directives are followed up using a variety of approaches that include lease inspections and informal pastoral liaison. Both include staff working with lessees to encourage land rehabilitation solutions. These interactions yield important information for the State's knowledge of land condition. But, the subjective nature of this work carries risks if the actual extent of land degradation is not recorded. A rigorous monitoring and compliance program is essential to ensure rehabilitation of degraded land, and prevent further degradation.

Directives formalise the State's approach to compliance issues and provide a basis for further action if land condition issues continue. Directives include set timeframes for lessees to address land condition issues, and expected outcomes.

Of the 57 current directives, 33 (58%) are in the Southern Rangelands. The remaining 253 leases in the region do not have land condition directives issued against them, but given the results of regional scale monitoring, it is likely that many would have land degradation issues on some areas of their lease. The Commissioner stated that 61% of the Lower Southern Rangelands and 68% of the Upper Southern Rangelands were in 'poor' to 'fair' condition.

The Commissioner's report noted:

'since monitoring commenced in 1994, a steady down ward trend in the density of desirable palatable perennial shrubs has been measured'² in the Upper Southern Rangelands.

The number of compliance directives is unlikely to be indicative of the extent of historic and ongoing degradation throughout the pastoral estate (Appendix 2). This means that agencies and the PLB are less likely to be aware of the scale of the problem.

Poor land management on some leases, such as overgrazing at times of pasture shortage, insufficient infrastructure, and activities on adjacent lands, continues to degrade some pastoral land. In the Southern Rangelands degradation is often obvious, while in the Kimberley region degradation may be less obvious if seasonal conditions have been good, and grasses regenerate quickly. Extreme weather events, such as flooding, can exacerbate problems.

The PLB developed its Rangeland Monitoring and Compliance Policy and Procedures in 2015. It contains guidance to administer pastoral leases, and a framework for dealing with lessees who do not comply with their lease conditions. At the time of our audit, this work was done on behalf of the PLB by:

- DPLH's Pastoral Lands Unit – 9 metropolitan staff and 1 regional pastoral liaison officer
- DPIRD – 3 field-based staff assist the PLB by conducting lease inspections in addition to their DPIRD priorities. The arrangement is outlined in a draft MoU. The previous MoU expired in 2015.

The Commissioner was involved in assessing compliance of pastoral land until 1997. This was done through the issue of Soil Conservation Notices for non-compliance with the *Soil Conservation Act 1945*. To avoid duplicating efforts of the PLB, the Commissioner's work in this area essentially ceased when the LA Act came into effect in 1997. However, the Commissioner issued 2 Soil Conservation Notices in 2013 and continues to raise concern about rangeland degradation. For example, recommendations in 2016 included that the PLB:

- identify and inspect areas within leases where rangeland is at risk of decline and provide management advice to the lessees
- schedule follow-up compliance inspections of those areas at risk.

DPIRD's plan to inspect 20 leases each year may, if fully implemented, partly address the Commissioner's recommendations.

An audit of compliance directives provided a new basis for the PLB to manage pastoral lands

In December 1997, the then Minister for Lands gave written notice to lessees offering to renew leases in 2015 as long as they met a number of conditions, including compliance with the LA Act. In the 3 years leading up to the July 2015 lease renewals, the State conducted an audit that involved working cooperatively with lessees to ensure compliance with the conditions.

There were 542 compliance directives outstanding in 2013. Of these, 364 (67%) related to rangeland condition. The remaining 178 related to issues like unpaid rent, and failure to maintain infrastructure or provide a development plan. Of the 185 directives issued since 2008, and investigated by DPLH in detail, only 63 required follow-up to see if the lessees had

² DAFWA (2016). *Report on the Condition Trend of the Western Australian Pastoral Resource Base*.

addressed rangeland condition decline. Forty-eight had already been complied with, and 74 were not enforceable, often due to poor wording or inability of the PLB to enforce.

The audit provided a basis to ensure follow-up on PLB directives. However, we heard criticism of the process used. Specifically, about the 34 directives that were 'carried over' despite conditions for renewal not being fully met. The PLB resolved that the lessees had taken reasonable action to address the outstanding issues. Twenty-five of the 34 related to rangeland condition. In April 2017, 16 of the 25 directives were being complied with and 9 were behind schedule, or had made unsatisfactory progress.

Better use could be made of remote sensing technology to monitor land condition and inform management decisions

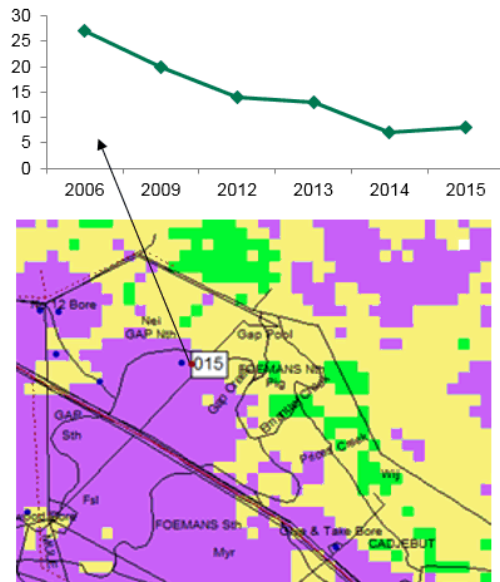
The State's use of remote sensing technology to monitor and understand changes in lease level land condition and across land tenures is limited. As discussed earlier, on-ground lease level monitoring has significantly declined since 2009, leaving the PLB to administer lessee compliance with diminishing knowledge of land condition. A combination of remote sensing technology and ground monitoring might assist to fill this gap.

The PLB's Pastoral Rangeland Monitoring Policy recognises the need for integration of remote sensing imagery and on-ground evidence. Remotely sensed imagery includes aerial photography and data collected by satellites. Both are important tools to track land condition, and to manage pastoral production and broader environmental values of pastoral leases.

A number of State agencies have collaborated on small-scale projects using remote sensing technology for over 10 years. However, agencies have independently worked to trial broader scale land condition monitoring systems.

DPIRD evaluated satellite imagery when it became available in the 1970s, continued to work with CSIRO in the 1990s, prepared a Pastoral Lease Assessment Using Geospatial Analysis report in 2012, and have continued work with CSIRO. DPIRD and the Commissioner combine on-ground WARMS data and remote sensing tools to report annually to the PLB (Figure 2), and to highlight areas at risk of land condition decline.

Trend in cover (satellite)



Supporting your success

Representative photos

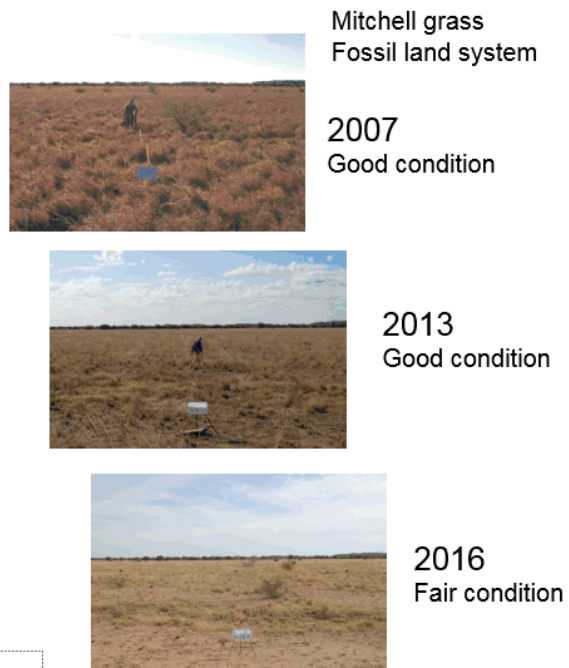


Figure 2: An example of DPIRD's application of remote sensing data³. In the bottom left satellite image purple indicates areas where cover has declined, yellow is stable, and green represents increased cover

In 2014, DPLH and Landgate produced a business case to develop a tool to guide the monitoring and management of WA's Crown land estate, which has an estimated asset value of \$73 billion. The agencies aim to use 30 years of Landsat imagery to develop baseline land condition trend information. No further progress has occurred.

Remote sensing does not replace the need for 'ground truthing', or direct observation of soil and vegetation condition, which remains an essential part of monitoring to understand what plant species are present. A remotely sensed 'greenness index' may not provide a true representation of land condition. For example, 'good' shrub cover can mask bare ground in 'poor' condition (Figure 3).

³ Unpublished presentation by the Commissioner of Soil and Land Conservation to the PLB (February 2017) prepared to satisfy obligations under s 137(2) of the LA Act.

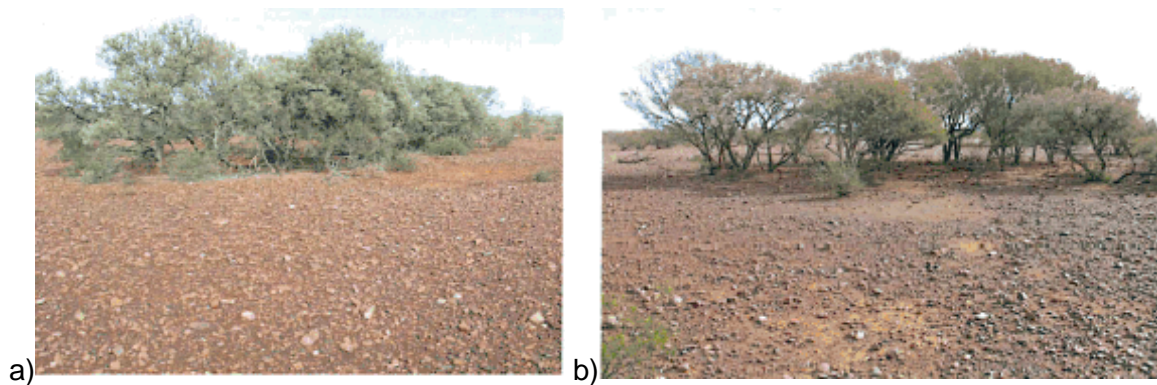


Figure 3: DPIRD monitoring sites with a similar MODIS NDVI Greenness Index⁴ but a) is an intact mulga grove and b) is a poor condition mulga grove

What remote sensing can provide, is an automated product to provide evidence of change and highlight possible 'hotspots' for closer examination. The shared long-term data can be accessible by agencies, pastoralists and stakeholders. Combining remote sensing and ground-based data is not new. The approach is already used by:

- Northern Territory Pastoral Lands Board and the Department of Environment and Natural Resources (NT) to report annually on the condition of pastoral leases (Figure 4)
- DBCA to monitor vegetation after de-stocking on former pastoral lease Dirk Hartog Island, using Landsat image data
- Department of Primary Industries (Queensland) as part of its regional rangeland cover and condition monitoring program⁵.

However, difficulties interpreting remotely sensed data have in part delayed adoption of the technology.

⁴ MODIS Normalised Difference Vegetation Index (NDVI) Greenness Index is a vegetative response to rainfall and provides a measure of seasonal quality.

⁵ Karfs, R. et. al. (2000). Regional Land Condition and Trend Assessment in Tropical Savannas: The Audit Rangeland Implementation Project Final Report. National Land and Water Resources Audit, Canberra.

Case Study – Northern Territory Pastoral Lands Board Monitoring

The NT Pastoral Lands Board's integrated monitoring program combines remotely sensed (satellite) and field data, with lease inspections to assess land condition at property, landscape and regional scales (Figure 4). The program requires on-ground knowledge and understanding to explain changes and gain a further understanding of landscape dynamics.

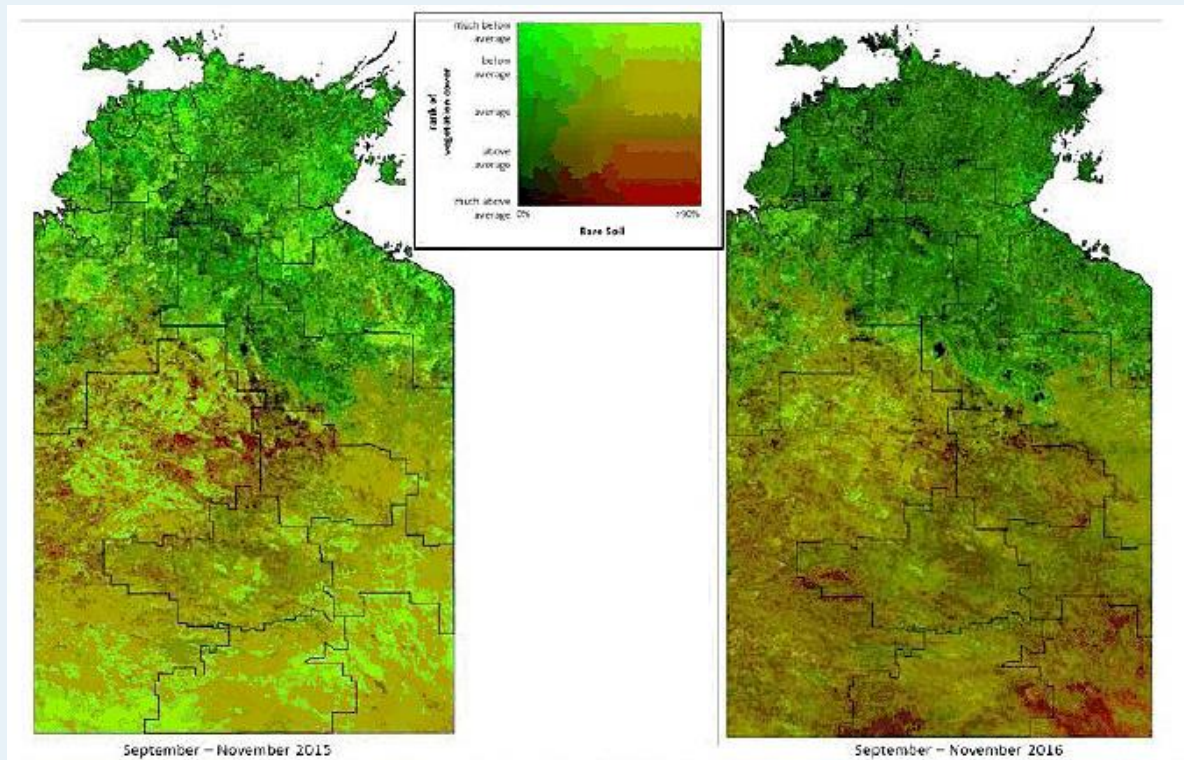


Figure 4: Change in the amount of bare soil and rank in vegetation cover in 0.09 ha Landsat pixels between late 2015 (left) and 2016 (right). The amount of bare soil is shown in shades of red and vegetation cover in green

Lessees receive limited support to manage the land for long-term productivity

Agencies do little to promote land management techniques and knowledge exchange

Agencies do little to encourage the use of proven land management techniques. For example, to manage soil, vegetation, stocking rates, grazing pressure, or introduced plants and animals. We saw many examples driven by lessees but little to show that agencies help to develop and share this knowledge. Established techniques to prevent and manage land degradation are slow to circulate amongst lessees.

State and Commonwealth governments conducted extensive research up to the 1990s. A 1995 publication, *Reading the Rangeland*, provided land managers with advice on how healthy landscapes function, land system characteristics, vegetation communities, and indicators of land condition. While the information is still relevant today, the publication is not readily available.

Since 2014, the State's research efforts have focused on cattle production, marketing and developing supply chains, rather than ecologically sustainable grazing practices and land rehabilitation options. Pastoralists we spoke with repeatedly said they wanted a sustainable pastoral lease, but need to balance economic, environmental and social pressures. The need to earn an income was more often than not, a priority. Simple land management solutions are often possible, but lessees may lack the time and machinery to implement them.

The decline in DPIRD's pastoral liaison, advisory, research and compliance functions over the last decade has contributed to a reduction in opportunities for knowledge exchange with pastoralists. Lessee feedback during the audit consistently included requests for guidance on good practice land management, and information on pastoral industry development opportunities.

Private and not-for-profit entities provide extension services to pastoralists in regional areas, offering applied scientific research and knowledge via learning opportunities. However, depending on financial capacity and location, not all pastoralists will be able to access them. Examples include:

- Ecosystem Management Understanding (EMU) – Rangeland Rehydration Field Guide and Manual, published in 2013, to identify and manage local issues
- Rangelands NRM – funded by Commonwealth and State Governments to provide Ecologically Sustainable Rangeland Management (ESRM) planning, which offers grazing and environmental management advice based on the EMU model. Figure 5 shows an example of EMU and ESRM used by land managers in the absence of agency guidance.
- private industry provides some courses for lessees to better manage pastoral production, ecosystem function and business strategies.

Case Study – regenerating a degraded landscape

Three Rivers Station lies north of Meekatharra at the headwaters of the Gascoyne River. It has been a pastoral lease since 1884. Long-term grazing by livestock and plagues of kangaroos led to severe erosion events, and loss of productive topsoil and original vegetation.

Through active removal of livestock and techniques to slow the flow of water in the last 14 years, areas of land have slowly rehabilitated (Figure 5). The land managers have significantly reduced livestock and trialled innovative ground works, as they work to 'recreate productive and sustainable landscapes, not pristine conditions'.

Clockwise from top left:

- piles of logs slow the flow of water across extensive eroded floodplains
- steel rods slow creek flows by trapping sticks
- regeneration structure to prevent further erosion of a flood plain
- regeneration of a native grass that is a preferred feed for cattle.



Figure 5: Land rehabilitation techniques and outcomes at Three Rivers Station

WA does not have a stewardship program in the rangelands to attain sustainable land management and protect the environment for future generations. A 2009 DPIRD internal review into Australian and overseas programs recommended in favour of a scheme. The report also recommended DPIRD as a matter of urgency, assist pastoralists with ESRM planning, by defining best management practices for stock grazing. However, stewardship programs require sound policy and technical support, which is not currently available.

A potential stewardship scheme often mentioned by lessees during the audit, involves using rental payments to fund rehabilitation activities, or offering discounted rental payments for lessees already conducting rehabilitation works. In 2015-16, DPLH received \$2.6 million in pastoral lease rental payments. Lessees pay between \$1,700 and \$61,600 per year in rent depending on a number of factors, including the size of the lease. A range of incentive schemes have been used for natural resource management outcomes in Australia and overseas⁶. One example of a scheme involves a discount on land rates if lessees undertake appropriate land management activities.

Opportunities for knowledge transfer from agency staff to lessees has diminished, leaving interested lessees to source their own information. To a lesser degree, this now occurs through a range of formal and informal channels:

- regional staff – provide ad hoc education services to the pastoral industry but this is restricted by low staff numbers
- DPIRD's Indigenous Landholder Service – works with indigenous landholders, who face unique challenges like complex ownership of leases, a low skills base and difficulties in accessing finance

⁶ Comerford, E., Clouston, B. and Greiner, R. (2006). Designing stewardship payments for ecosystem services. Department of Natural Resources, Mines and Water, Brisbane.

- PLB annual regional stakeholder forum – provides an opportunity for the pastoral industry to engage directly with the PLB
- DPIRD's Northern Beef Futures, in collaboration with northern Australia's Future Beef program – provides a knowledge centre to support the sharing and collaborative development of information, knowledge and resources
- non-government organisations – such as Rangelands NRM and industry associations (Figure 6) offer information resources, field days and workshops
- lessees – communicate informally with each other.



Figure 6: A KPCA field day in March 2017 provided an opportunity for pastoralists, government and stakeholders to exchange knowledge

DPIRD's Indigenous Landholder Service is an example where agency input has achieved positive land management outcomes. The reported benefits of the service include improvements in infrastructure, animal welfare and employment. Between 1996 and 2015 the number of cattle sent to market increased from 1,500 a year to over 17,000⁷.

Complex inter-agency approvals impede industry development

The process to apply for a diversification permit to conduct activities on a pastoral lease is not transparent and can be lengthy. Proponents face a range of approval processes under different legislation and from multiple agencies. Pastoralists we spoke with consistently expressed frustration in the process. In particular, delays to get multiple-agency approvals and significant up-front investment with no guarantee of the outcome. Lengthy approval processes impede industry development that may halt or reverse land degradation.

⁷ DAF (2017). Aboriginal Business Development Working with Regional Aboriginal Landholders in WA.

Under the LA Act the PLB can grant 'diversification' permits to lessees to:

- clear land
- sow non-indigenous pastures
- conduct non-pastoral agricultural activities, including horticulture
- conduct pastoral-based tourist activities
- keep prohibited stock.

For many lessees these activities would be part of their normal land management practices.

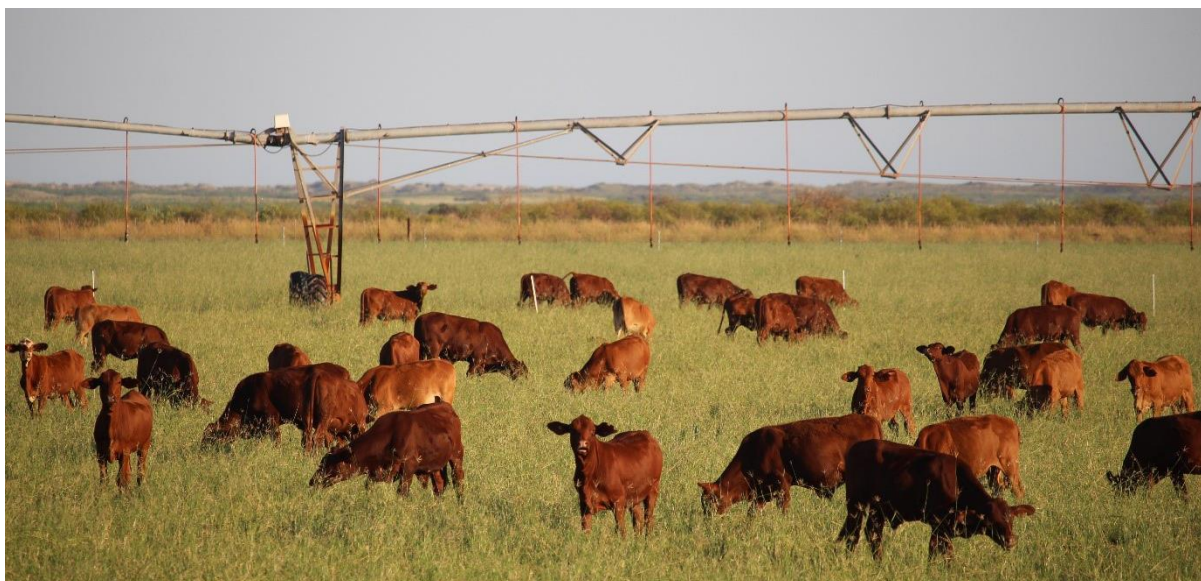


Figure 7: Cattle grazing on an irrigated pasture under a centre pivot

At 1 June 2017, DPLH were managing 115 diversification permits. Between January 2015 and June 2017, the PLB received 54 diversification permit applications. During this same time period, 71% of the 28 permits issued by the PLB fell within DPLH's suggested 6-month timeframe. However, the time to issue the rest ranged from 6 to 14 months. Five applications were still waiting for a permit more than 12 months after initial application (Table 4).

Status (at 7 June 2017)	2015	2016	2017	Number of applications
Approved – permit granted	14	14	2	30
Approved in principle – pending inter-agency permit approvals	1	1	6	8
In process – awaiting agency and PLB approvals	–	–	7	7
On hold – awaiting decision on an appeal against a permit	–	2	–	2
Did not progress	4	3	–	7
Total	19	20	15	54

Source: DPLH

Table 4: Diversification permit applications received by the PLB from January 2015 to June 2017

DPLH coordinates applications, on behalf of the PLB, by referral to other agencies. Appendix 3 lists some of these agencies and the approvals they provide. However, lessees are responsible for acquiring all agency approvals. The PLB cannot grant a diversification permit under the LA Act until all environmental conservation requirements are satisfied.

The numbers above do not reflect those lessees who had considered applying for a permit but decided not to because of concerns with the process. Many lessees we spoke with expressed their frustration. Significant time delays for project approvals, and the amount of up-front investment required prior to approval were common concerns.

Diversification is considered by pastoralists as a way to improve land condition, and a mechanism to improve economic and social outcomes. Lengthy approval processes impede this progress. Two examples illustrate lessee concerns:

- One application received in December 2014 had PLB 'in principle approval' but was still awaiting a clearing permit at the time of our audit.
- Another application with PLB 'in principle approval' illustrates industry concerns with the inter-agency approvals process. The application was, at the time of our audit, still awaiting a decision almost 2 years after the initial application. The lessee advised they had already spent over \$2 million in infrastructure, biological surveys and consultant fees. The application was to construct a small-scale irrigated agriculture project on 600 ha of a 200,000 ha lease (0.3%). It is typical of the types of diversification permits sought by the industry to grow cattle fodder, which usually represent less than 5% of the pastoral lease.

In 2009, DPIRD internally reported in favour of industry development and diversified land use, such as through irrigated agriculture, as a way to sustainably manage pastoral lands. Further support was provided in 2012⁸ reports that found only 33% of leases were viable if run solely as pastoral businesses. The remaining 67% were not viable or only potentially viable following land rehabilitation.

The State invested over \$2 million in the Rangeland Reform Program and Land Administration Amendment Bill 2016, to update land tenure arrangements, many of which have been in place since the *Land Act 1933*. DPLH received over 3,000 public submissions on the draft Bill⁹. The reforms were not introduced to Parliament.

The Rangeland Reform Program sought a combination of land tenure reform, new investment opportunities and land uses, and measures to restore productive capacity and ecological values¹⁰. Diversification of pastoral activities provide lessees with opportunities to increase financial security, and the funds to rehabilitate historic and ongoing degraded land (Figure 8). The PLB recently prioritised a review of what constitutes acceptable pastoral activities under its Pastoral Purposes Framework. This allows lessees to diversify without the need for legislative change, but does not remove the need for a permit.

⁸ DAFWA (2012). A Report on the Viability of Pastoral Leases in the Northern Rangelands Region Based on Biophysical Assessment and A Report on the Viability of Pastoral Leases in the Southern Rangelands Region Based on Biophysical Assessment.

⁹ Department of Lands (2016). Annual Report.

¹⁰ Sustainable Land Use and Economic Development Opportunities in the Western Australian Rangelands. Section 1.2, p. 2.



Figure 8: An example of exposed bedrock along an erosion gully in the Murchison region, caused in part by insufficient water points for livestock and overgrazing

The State has documented its Land Tenure Pathway for Irrigated Agriculture. Its aim is to stimulate economic development and investment in intensive irrigated agriculture through consistent and transparent decision-making. The framework includes estimated timeframes for each stage of the pathway. The pathway has only been used for larger-scale industry development to date, due to the significant costs involved in completing requirements under legislation such as the *Mining Act 1975* and *Environmental Protection Act 1986* but helps make the process transparent for agencies and proponents.

Policies and agency information management offer little to support a sustainable pastoral industry

Key strategic and operational policy to administer pastoral lands is lacking

The PLB has not developed policies and procedures to meet its legislated responsibilities. Namely, to ensure leases are managed on an ecologically sustainable basis, prevent degraded rangelands, and rehabilitate degraded rangelands to their pastoral potential. The PLB was established under the LA Act in 1997. Its functions have remained the same over the last 20 years. But, Government and industry still lack guidance on what is required to manage pastoral lands for good environmental, economic and social outcomes.

Section 95 of the LA Act requires the PLB ensure leases are managed on an ecologically sustainable basis. However, there is no widely accepted definition of 'ecological sustainability', and no policies to guide rehabilitation of degraded or eroded rangelands. The pastoral industry relies on native vegetation. The sustainable use of natural resources (soil, vegetation, fauna) and healthy functioning ecosystems are important to both the State, as the land owner, and the pastoral industry, as the land user.

Agencies have different views on what is essential to ensure ecological sustainability on pastoral lands. For example:

- The PLB's 2015 Rangeland Monitoring and Compliance Policy and Procedures define ecologically sustainable management as:

'The use of best pastoral and environmental management practice, ... appropriate to the area ..., for the management of stock and ..., conservation and regeneration of pasture for grazing; the maintenance of indigenous pasture and other vegetation ..., for present and future use, and in the interest of the State of Western Australia.'
- DPIRD focus on the presence of native perennial pasture species
- the Commissioner has a responsibility to prevent or mitigate land degradation
- DBCA conserve and protect biodiversity.

The following case study on introduced buffel grass illustrates the differing, and sometimes competing, views that can exist in the industry and the need for clear policy guidance.

Case Study – cattle feed or weed?

There are more than 2,600 introduced species of pasture grass in Australia¹¹.

One introduced species, buffel grass (*Cenchrus ciliaris*; Figure 9), occurs across Australia. For decades, pastoralists were encouraged to plant it and DPIRD consider it a 'nutritious' and 'desirable' feed for cattle. It is also used for dust and erosion control, and to stabilise areas disturbed by overgrazing, mining and infrastructure development¹².

However, the Australian Government now regards it as invasive and an environmental weed, and considers it one of the greatest threats to biodiversity conservation. It grows rapidly, has deep roots, and can dominate the ground layer, reducing native plant diversity and increasing fire risk.

Buffel grass was declared a weed in South Australia in 2015, but no other State has followed suit. The Commonwealth Department of Environment issued a threat abatement advice in 2014 to identify key actions to decrease ecosystem degradation, habitat loss and species decline from invasion of buffel grass¹³. There is no State or national policy to guide the industry's use and approach to buffel grass.



Figure 9: Buffel grass is widespread in central and northern Australia

The PLB's 2015 Rangeland Management Compliance Policy and Procedures and 2014-19 Strategic Plan represent recent efforts to focus on strategic priorities. However, there are no action or implementation plans to support the Strategic Plan.

¹¹ PEW Charitable Trusts (2014). The Modern Outback. p. 154.

¹² CRC for Australian Weed Management (2008). Weed Management Guide Buffel Grass (*Cenchrus ciliaris*).

¹³ Australian Government Department of the Environment (2015). Threat Abatement Advice for Ecosystem Degradation, Habitat Loss and Species Decline in Arid and Semi-arid Australia due to the Invasion of Buffel Grass.

The PLB's vision is for 'pastoral rangelands with healthy ecological systems sustaining a financially viable industry enabled by a resourced and effective Pastoral Lands Board'. However, the PLB is still to detail how it will achieve the stated outcomes. For example, in 1-5 years:

- 'improved ecological health'
- 'The Minister for Lands, industry and the community has confidence that the Board is fulfilling its functions'.

The only means of assessing progress is via internal PLB meeting minutes.

In 2015, the Public Sector Commission (PSC) recommended DPLH work through the PSC's 'Good Governance Checklist' with the Board. A new, independent Chair, appointed in January 2017, provides further opportunity to refocus PLB priorities.

Information management and succession planning is poor

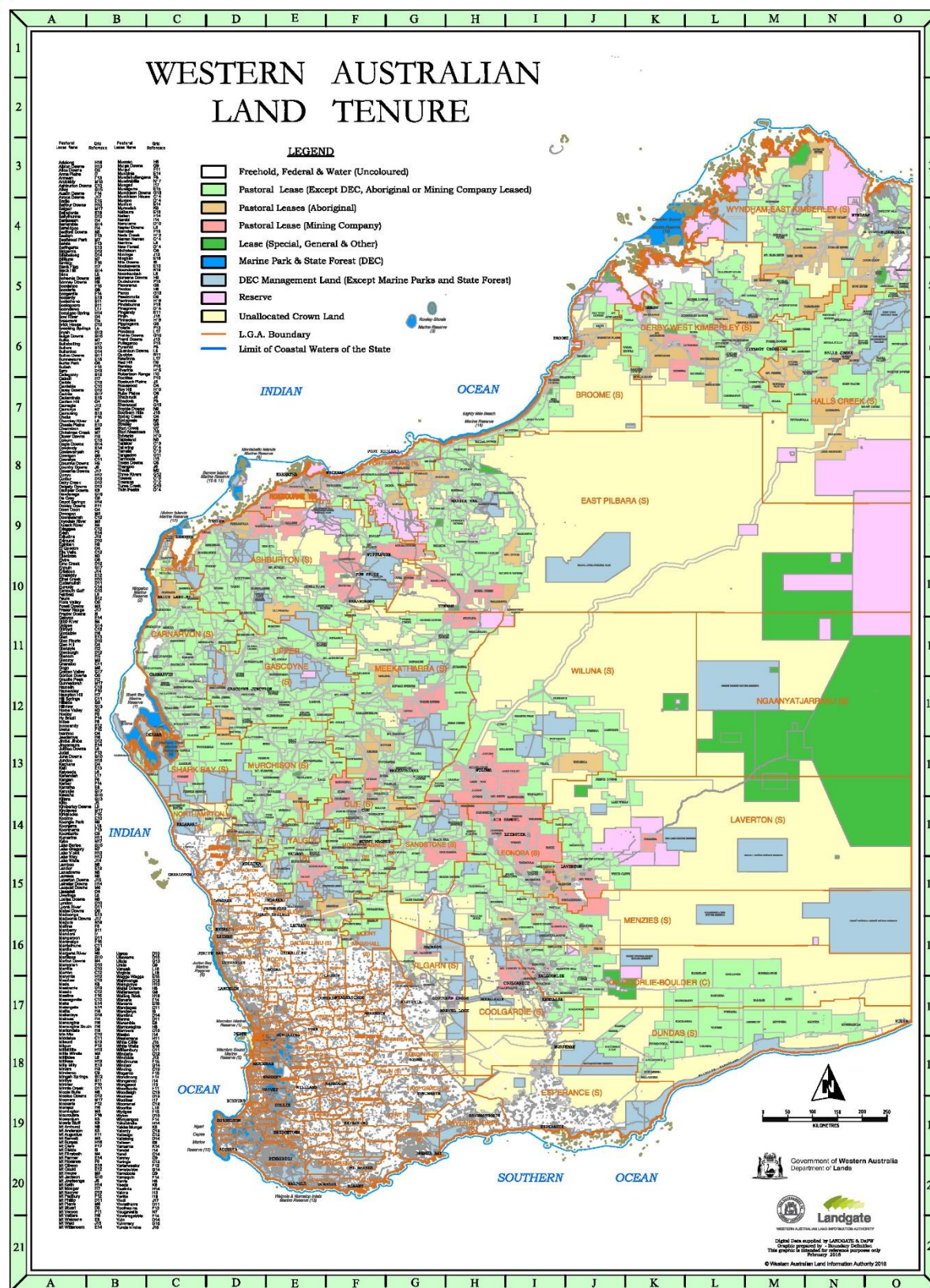
There is inadequate data and knowledge management within DPIRD and DPLH. Important DPIRD research on land condition is not available to the pastoral industry and lease information is poorly managed. The State does not have a comprehensive and accessible record of land condition and pastoral management information.

Agencies are aware of the challenges they face. Information is siloed with a few key individuals that are nearing retirement and agencies are yet to engage with the increasing need to transition to a digital environment. The many and varied challenges include:

- shifting agency priorities has decreased DPIRD's ability to provide the services sought by the PLB, DPLH and lessees. This has resulted in reduced monitoring and compliance activities, as described earlier in the report. DPIRD staff numbers have been in decline since 1997. Concurrent with the demise of RCA monitoring, DPIRD staff numbers reduced by 39% from 2007 to 2016
- an ageing workforce with corporate, technical and practical knowledge that has not been well captured digitally, nor transferred to other agency staff, lessees and stakeholders
- rangeland management requires an understanding of the complex ecological processes involved in grazing, and practical, field-based knowledge is essential to successful engagement with industry. Pastoralists we spoke with routinely expressed concern that there was a lack of understanding of their industry by remaining agency staff who administer the pastoral estate, and often, the surrounding land
- lessee annual returns with key information on lease infrastructure, diversification, stock numbers, and feral animal control is submitted in hard copy by lessees and manually transferred to a spreadsheet by DPLH staff. DPLH is developing a portal to allow electronic lodgement and anticipates it to be operational later in 2017
- there is no single source of pastoral lease information. Currently agency data on annual lessee returns, rental payments and diversification permits is stored in multiple unlinked spreadsheets and reports. During the audit we found instances where spreadsheet information did not match, recording different lease numbers and names.

Agencies are yet to fully engage with the increasing need to transition to a digital environment to improve the efficiency and effectiveness of their operations. Comprehensive and reliable pastoral lease information is essential when making administrative decisions on diversification permits and land tenure changes, or undertaking pastoral liaison activities to inform and improve land management outcomes.

Appendix 1: Land tenure in WA



Source: Reproduced by permission of the Western Australian Land Information Authority (Landgate) 2017

Appendix 2: Summary of selected pastoral land inquiries and reports in WA

Note: only includes content in support of findings and recommendations in this report.

Year	Document	Key messages and recommendations
2014	Standing Committee on Public Administration Inquiry into Pastoral Leases in Western Australia	<ul style="list-style-type: none"> • There should be continuous communication between DAFWA and pastoralists on assessments as they are being compiled • It is appropriate for government to take a proactive and cooperative role in controlling feral animals • Department of Lands should investigate whether diversification permits can be attached to a lease, or transferred to the next purchaser, so permits become an asset
2013	URS Australia (Prepared for Department of Agriculture and Food WA) Sustainable Land Use and Economic Development Opportunities in the Western Australian Rangelands	<ul style="list-style-type: none"> • The need for landscape rehabilitation across an estimated 19% of the State's land area (poor or fair range condition) is not being achieved under current governance arrangements • Key recommendations for the State: <ul style="list-style-type: none"> ○ Develop policy for rangeland management and agency responsibility to act where lease conditions are not being met ○ Develop a vision for the future use of the rangeland areas ○ Implement a program of range condition recovery ○ Provide advice and support services to proponents for diversification permits, special leases and new tenure options ○ PLB to present an annual report to Parliament on conditions in the rangelands, activities undertaken by Government, number of non-compliant lessees and PLB's response ○ Investigate the cost effectiveness of using stewardship to deliver priority environmental outcomes
2009	Southern Rangelands Pastoral Advisory Group A Review of the Economic and Ecological Sustainability of Pastoralism in the Southern Rangelands of Western Australia	<ul style="list-style-type: none"> • Government formulate and communicate a clear statement outlining vision for rangelands • Facilitate opportunities for innovation and diversification • Regain control of wild dogs and other biosecurity issues through integrated, collective and coordinated investment, engaging all land managers • Encourage and support opportunities for industry and market development • Promote the recovery and ensure preservation of the rangeland resource • Review agency monitoring and reporting programs
1991	WA Legislative Assembly Select Committee into Land Conservation Discussion Paper No. 3. Pastoral Region of Western Australia	<ul style="list-style-type: none"> • There are essentially 3 factors contributing to range deterioration: <ul style="list-style-type: none"> ○ Inadequate and inappropriate pastoral management practices

		<ul style="list-style-type: none"> ○ Social and economic pressures together with early legal requirements to maintain high stocking levels ○ Inadequate supervision and intervention by successive State Governments to halt the deteriorating condition of pastoral land resources • These management problems reflect a lack of awareness of the problems and a lack of understanding of the pastoral ecosystems • The widespread range deterioration...has had, and continues to have, significant impacts on the pastoral industry...the implications...are potentially significant reduction in pastoral income and an inability to generate sufficient funds to invest in range rehabilitation or regeneration and capital improvements • The ineffectiveness of pastoral lease administration is indicated by: <ul style="list-style-type: none"> ○ Inadequate supervision and monitoring of pastoral leases ○ Conditions on leases are not sufficiently specific and have not been effectively enforced ○ Loss of field inspectorial staff has reduced the Board's ability to obtain direct, independent advice
1979	Jennings, B.G. The Present and Future Pastoral Industry of Western Australia	<ul style="list-style-type: none"> • Consideration to the establishment of a working party which would investigate the feasibility of a stock reduction scheme which would foster pasture regeneration in pastoral areas • Research and extension programme within the pastoral industry should be maintained
1975-77	Standing Committee on Soil Conservation Collaborative Soil Conservation Study	<ul style="list-style-type: none"> • Estimated 'vast majority of pastoral rangelands requires rehabilitation following range deterioration including vegetation decline, soil erosion and woody weed invasion'
1940	Report of the Royal Commission Appointed to Inquire into and Report upon the Financial and Economic Position of the Pastoral Industry in the Leasehold Areas of Western Australia	<ul style="list-style-type: none"> • The devastating effect of this drought...was the main cause of the present difficult position of the industry • The system should provide for at least occasional inspections to ascertain whether the improvement conditions have been complied with • In the past owing often to a run of good seasons much of the developed pastoral country has been overstocked, with the inevitable result that heavy damage and loss were suffered in those areas which were drought affected • The number of cases where soil erosion has occurred to a serious extent are fortunately comparatively few, but they provide striking evidence of the combined effect of overstocking and drought • Land Act be amended to give the Minister for Lands power to take action to cause reduction in the number of stock carried where it is clear that this is necessary in the interests of the State

Appendix 3: Roles and responsibilities of agencies involved in managing pastoral lands

Machinery of government changes from 1 July 2017 saw significant restructuring of agencies involved in the management of pastoral lands. At times, there has been a need to refer to agency predecessors within the report. Historic agencies mentioned are listed below.

Current agency	Former agencies	Legislation	Environmental requirements	Approvals and referrals
Department of Planning, Lands and Heritage (DPLH)	Department of Lands Department of Aboriginal Affairs	<i>Land Administration Act 1997</i> <i>Aboriginal Heritage Act 1972</i>	Ensure lessees meet conditions specified in the LA Act	Diversification permit, UCL access licence, special leases, land tenure change, general purpose and development leases over UCL Aboriginal heritage sites
Department of Primary Industries and Regional Development (DPIRD)	Department of Food and Agriculture WA (DAFWA)	<i>Biosecurity and Agriculture Management Act 2007</i> <i>Soil and Land Conservation Act 1945</i>	Ensure lessees meet legislative conditions	Weed risk assessment, permitted crops, soil suitability
Pastoral Lands Board (PLB)		<i>Land Administration Act 1997</i>	Ecologically sustainable industry Ensure lessees meet legislative conditions	Diversification permit
Department of Mines, Industry Regulation and Safety (DMIRS)	Department of Mines and Petroleum	<i>Mining Act 1978</i>	Ensure mining lessees meet environmental requirements	Miners Rights prospecting permit, clearing permit for exploration/mines
Department of Biodiversity, Conservation and Attractions (DBCA)	Department of Parks and Wildlife	<i>Environment Protection and Biodiversity Conservation Act 1986</i> <i>Conservation and Land Management Act 1984</i> <i>Biodiversity Conservation Act 2016</i>	Manage land for conservation purposes	Impacts on native fauna and flora, timber
Department of Water and Environment Regulation (DWER)	Department of Water Department of Environment Regulation	<i>Rights in Water and Irrigation Act 1914</i> <i>Environment Protection and Biodiversity Conservation Act 1986</i> <i>Environmental Protection Act 1986</i>	Planning for water resource management and use Environment protection through industry regulation	Water licence, licence to construct a bore, other clearing permit, contaminated sites

Appendix 4: Agency monitoring

Monitoring system	Responsibility*	Time period	Monitoring level	Scope
Rangeland Inventory	DPIRD (initial support from CSIRO)	1951 – ongoing	Regional	<ul style="list-style-type: none"> • baseline survey of soil and vegetation resource condition • 12 of 14 regions complete • information widely used by state agencies, pastoralists, mining companies and other stakeholders
WA Rangelands Monitoring System (WARMS)	DPIRD	1993 – ongoing grassland sites every 3 years, shrubland sites every 5 years	Regional (based on Land Conservation Districts ¹⁴)	<ul style="list-style-type: none"> • to identify trends in soil surface and vegetation condition of pastoral land • 625 grassland and 983 shrubland sites across the pastoral estate • average of 3.7 sites per lease • not designed to assess lease level land condition. • not all leases have WARMS monitoring sites and site locations were chosen to detect regional trends
Rangeland Condition Assessment (RCA)	DPIRD	1997 – 2009	Lease	<ul style="list-style-type: none"> • standardised full traverse methodology, to identify changes in land condition • 20-484 sites per lease
Rangeland Condition Monitoring (RCM)	Lessees (voluntary)	2012 – ongoing voluntary	Lease	<ul style="list-style-type: none"> • standardised methodology, to identify changes in land condition • 9-45 sites planned per lease
Lease inspections	DPIRD	2009 – ongoing	Lease	<ul style="list-style-type: none"> • standardised partial traverse methodology, to identify changes in land condition • 20 'lease at risk' inspections planned for 2017 • reports provided to PLB
Lease inspections	DPLH	2012 – ongoing	Lease	<ul style="list-style-type: none"> • informal internal report prepared after site visits

¹⁴ There are 27 Land Conservation Districts (LCD) within the rangelands. LCDs are established under section 22(1) of the *Soil and Land Conservation Act 1945* and are composed of pastoral leases, some conservation areas and other Crown land.

Auditor General's Reports

Report number	2017 reports	Date tabled
16	Rich and Rare: Conservation of Threatened Species Follow-up Audit	6 September 2017
15	Opinion on Ministerial Notification	6 September 2017
14	Non-Clinical Services at Fiona Stanley Hospital	16 August 2017
13	Audit of Journal Entries and Property, Plant and Equipment Using Data Analytic Procedures	19 July 2017
12	Information Systems Audit Report	29 June 2017
11	Opinion on Ministerial Notification	29 June 2017
10	Timely Payment of Suppliers	21 June 2017
9	Opinion on Ministerial Notification	8 June 2017
8	Management of Medical Equipment	25 May 2017
7	Audit Results Report – Annual 2016 Financial Audits – Universities and TAFEs – Other audits completed since 1 November 2016	11 May 2017
6	Opinions on Ministerial Notifications	13 April 2017
5	Accuracy of WA Health's Activity Based Funding Data	11 April 2017
4	Controls Over Purchasing Cards	11 April 2017
3	Tender Processes and Contract Extensions	11 April 2017
2	Opinion on Ministerial Notification	6 April 2017
1	Opinion on Ministerial Notification	30 March 2017

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