

## **Applying a risk based approach for pastoral land management in Western Australia**

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### **Abstract**

The Department of Primary Industries and Regional Development (DPIRD) is reforming the way it assesses pastoral land condition and the risk of condition decline in Western Australia (WA) with the aim of improving land condition. Central to this reform is the development of the Framework for Sustainable Pastoral Management; land condition version (the Framework) (Fletcher 2022). The Framework lays out a contemporary, risk-based approach for natural resource management using internationally accepted best practice principles which includes having clear standards for assessing management outcomes.

**Keywords:** Risk based management, pastoral land condition, regulation

### **Introduction**

The pastoral industry in WA is based on land leased from the Crown, with 433 pastoral stations covering 34% of the state. DPIRD is reforming the way it assesses pastoral land condition and the risk of condition decline with the aim of improving land condition to support strong pastoral businesses, community wellbeing and biodiversity conservation.

Pastoral land condition has been of concern, and the subject of government scrutiny, since at least 1940 when a Royal Commission reported declines in stock feed and sheep numbers in some areas. In 2017, 14% of the northern rangelands and 25% of the southern rangelands were reported as being in poor condition (DAFWA 2017), and the Auditor General (OAG) found the ecological sustainability of pastoral lands was not adequately protected by the state's system of land monitoring and administration (OAG, 2017). Among the OAG's recommendations was the need to implement a rigorous compliance program based on regular land condition monitoring including risk-based and systematic inspections.

Consequently, the WA Government announced a renewed focus on pastoral lands reform to facilitate improved land management practices and increase opportunities for ecologically sustainable development in WA's pastoral estate. Central to this reform has been the development of the Framework, which lays out a contemporary, risk-based approach for natural resource management using internationally accepted best practice principles. These include having clear standards for assessing management outcomes.



## Discussion

The Framework is based on ISO 31000, ISO 31010 (ISO 2018 and 2019) and Ecologically Sustainable Development principles. The Framework was developed by DPIRD with input from an interagency steering committee and an industry reference group and noted by State Cabinet in November 2019.

While the Framework recognises the wide suite of legislative, regulatory and other requirements that the pastoral industry needs to meet to satisfy the WA and broader international community’s environmental, social and governance expectations, the focus of the Framework is detailing the risk-based systems and management processes used to address pastoral land condition issues.

The Framework clearly sets out how DPIRD will complete land condition assessments and achieve more consistent and objective lease and station level assessments. The Framework sets out conceptual standards for pasture condition and land management impact and how they are used to determine degradation risk (Table 1) and the level of management and regulatory response required of the lessee, Pastoral Lands Board or the Commissioner of Soil and Land Conservation (Table 2).

**Table 1** Land degradation risk based on Pasture condition and Land management impact.

Pasture condition	Land management impact		
	Minimal	Moderate	High
Acceptable	Medium	Low	Very low
Suboptimal	High	Medium	Low
Unacceptable	Extreme	High	Medium

The Standards allow objective and consistent assessment of where pasture condition is of concern and provide clear goals for management and regulators.

Under the Framework, DPIRD has resumed pastoral lease inspections prioritised by desk-top assessment of degradation risk and instigated an improved lease inspection methodology. This methodology includes identifying and focusing monitoring effort on the most pastorally productive (Key) pastures, developing quantified measures of condition to facilitate objective and consistent land condition assessment and making greater use of remote sensed measures of cover.

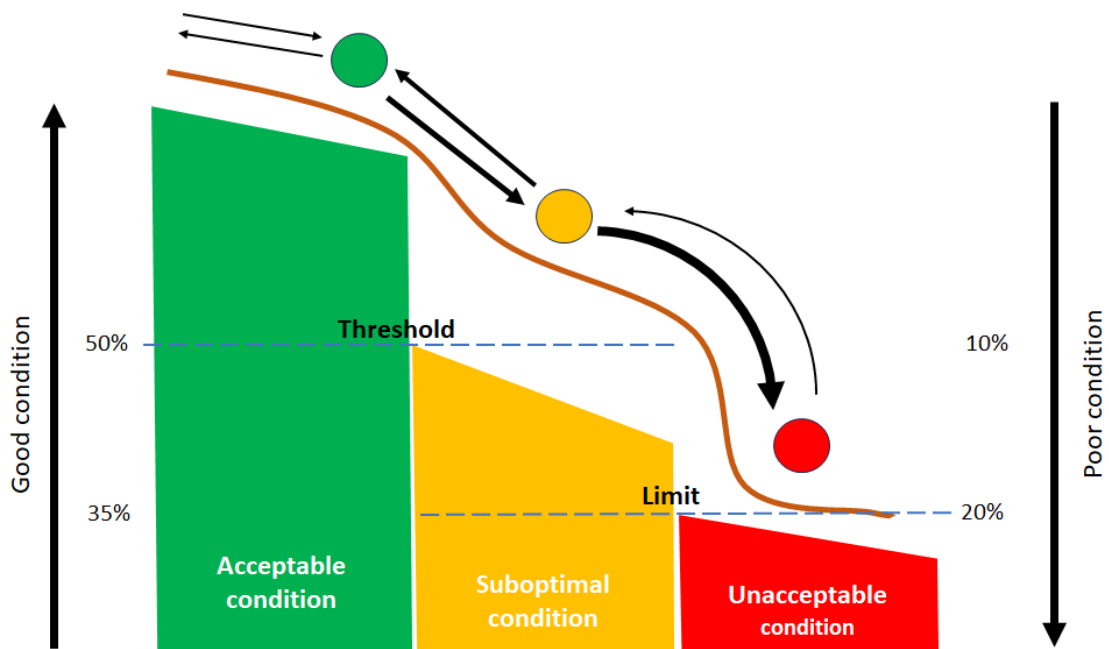
### *Setting regional standards*

Pasture condition standards are developed using accepted ecological principles (Figure 1); as pasture condition declines it is increasingly difficult to return to an acceptable condition, pastures may transition to a new steady state once they have been degraded past a Limit, and the Threshold and Limit standards are set above where transitions are likely to occur.

**Table 2** Land degradation risk level from Table 1 and associated risk mitigation responses by decision maker.

Land degradation risk	Lessee	Commissioner	Pastoral Lands Board
Very low	Continue current management - stocking to pasture and seasonal conditions	None required	
Low			
Medium	Work with PLB to improve land condition or continue an approved recovery program	Commissioner provides advice to PLB on management options or monitors approved recovery program	PLB may engage with lessee to develop and ensure implementation of management improvements
High	Improve land condition and meet any outcomes specified by the PLB or Commissioner	Commissioner provides recommendations to lessee and PLB regarding land management options and may engage with the lessee directly	PLB may require development and implementation of a management plan to improve land condition
Extreme	Improve land condition and meet any outcomes specified by the Commissioner or PLB	Commissioner engages directly with lessee to address condition concerns and may issue a SCN if concerns not adequately addressed	In conjunction with the Commissioner, the PLB may issue a notice to the lessee or recommend prosecution or forfeiture of lease

Pasture condition standards acknowledge that some level of condition decline (or change) is inevitable when undertaking pastoral activities. Consequently, the threshold between Acceptable and Suboptimal condition allows a relatively greater decline in good condition compared to an increase in poor condition because recovery of pasture condition from fair to good is easier than recovery from poor to fair. Similarly, the limit between Suboptimal and Unacceptable condition reflects the trajectory for poor condition pastures is much more serious than for pastures in fair condition and includes soil loss, long timeframes for recovery and much reduced productivity.



**Figure 1** Conceptual model for standards showing the threshold between Acceptable and Suboptimal condition and the limit between Suboptimal and Unacceptable condition for Kimberley tussock grasses.

*Current progress and future activities*

The Framework is being applied across the WA pastoral estate following extensive Stakeholder consultation.

The West Kimberley is the first region to have specific quantitative pastoral land condition standards developed (Fletcher et al. 2022). Currently, condition standards, pasture mapping and tools for determining pasture condition based on quantitative assessment of pasture species are being validated for the entire Kimberley region and are expected to be operationalised in 2024 after consultation with industry and pastoralists.

Land condition standards, pasture mapping and quantified measures of condition for the remaining WA pastoral areas are under development and will be progressively extended across the WA pastoral estate.

### **Conflicts of Interest**

The authors have no conflicts of interest regarding this work.

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