



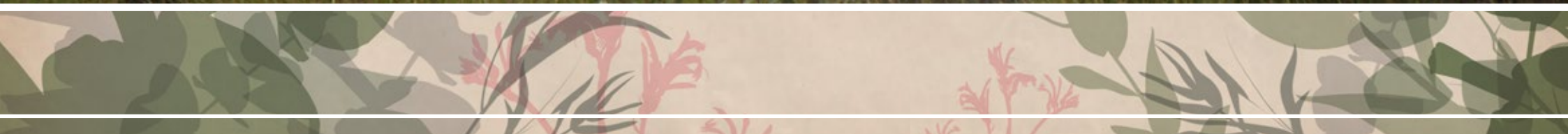
Government of **Western Australia**
Department of **Water and Environmental Regulation**

*We're working for
Western Australia.*

Native Vegetation in Western Australia

Issues paper for public consultation

November 2019



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Photo: Tourism WA



Minister's foreword



The McGowan Government values Western Australia's unique ecology and extraordinary biodiversity, both of which are intrinsically linked to our State's native vegetation. Our native vegetation also supports important sectors of the State's economy, has cultural importance for Aboriginal people and gives character to the iconic landscapes all Western Australians are proud of. With this paper, we wish to start a dialogue with the Western Australian community on how this important asset should be managed now and for the future.

The Government acknowledges the challenge in striking the right balance between protecting the environment and delivering a strong economic outlook for the State. With the right strategies we can do both. We aim to ensure that decisions affecting native vegetation are made as part of a strategic, transparent approach that delivers benefits for all Western Australians.

The Government has already begun its journey to improve the protection of, and address the decline in our native vegetation and to make regulation more effective and efficient for all. During extensive consultation on an improved cost-recovery model for clearing permit application fees at the end of 2018, various stakeholders asked us for improved transparency and consistency in how native vegetation is considered across government processes. We are responding with plans for four initiatives:

1. A State native vegetation policy.
2. Investing in better information including mapping and monitoring.
3. Improving our regulatory processes.
4. Exploring a bioregional approach to managing native vegetation.

These four initiatives form the first steps in our staged approach to reform. They aim to improve clarity and certainty for industry and the community, and build our understanding of native vegetation status and trends across the State. They will build the foundation to plan and deliver the best possible environmental, community and economic outcomes from managing native vegetation.

In the longer-term, opportunities are emerging to manage native vegetation in a way that delivers on multiple State priorities. The McGowan Government has committed to expanding the conservation estate by 5 million hectares by 2023–24. Incentives, pricing and markets could further fund and reward good stewardship. These all have potential to support regional economic diversification and jobs that foster Aboriginal wellbeing and connection to country.

I encourage you to have your say on the future of our State's native vegetation management by sharing your insights on the four initiatives and what else might be needed to get the best for our environment, community and economy.

A handwritten signature in black ink, appearing to read 'Stephen Dawson'.

Hon Stephen Dawson MLC
Minister for Environment





Have your say

Purpose of this issues paper

This issues paper is to prompt stakeholder advice and feedback on four initiatives the Government of Western Australia is planning. These aim to improve consistency and transparency in how native vegetation is managed across all government processes and include:

1. A State native vegetation policy.
2. Investing in better information including mapping and monitoring.
3. Improving our regulatory processes.
4. Exploring a bioregional approach (see Box 4 on page 9) to managing native vegetation.

Your insights will help build a picture of stakeholder perspectives on the initiatives and the implications for various sectors. They will form an important part of the range of information sources we will use to design the four initiatives.

Native vegetation reform will be a long-term journey. Shaping and implementing all four initiatives will take time, and other initiatives will be needed to ensure the State's native vegetation is maintained for future generations. This issues paper also opens a conversation on what else might be needed from native vegetation management to get the best outcomes for the environment, community and economy.



Consultation timeline

This issues paper supports the first of several opportunities to engage in the development and delivery of the four initiatives. The public consultation period for the issues paper opens for 12 weeks from November 2019. We expect to release a draft policy in April 2020 for four weeks' public consultation. We aim to deliver a policy for the Government's consideration by mid-2020. We will also be consulting stakeholders on specific elements of the four initiatives; for example, on updates to operational policies or planning a bioregional approach to native vegetation management (Figure 1).

For information on how to make a submission, please refer to the back page of this document.

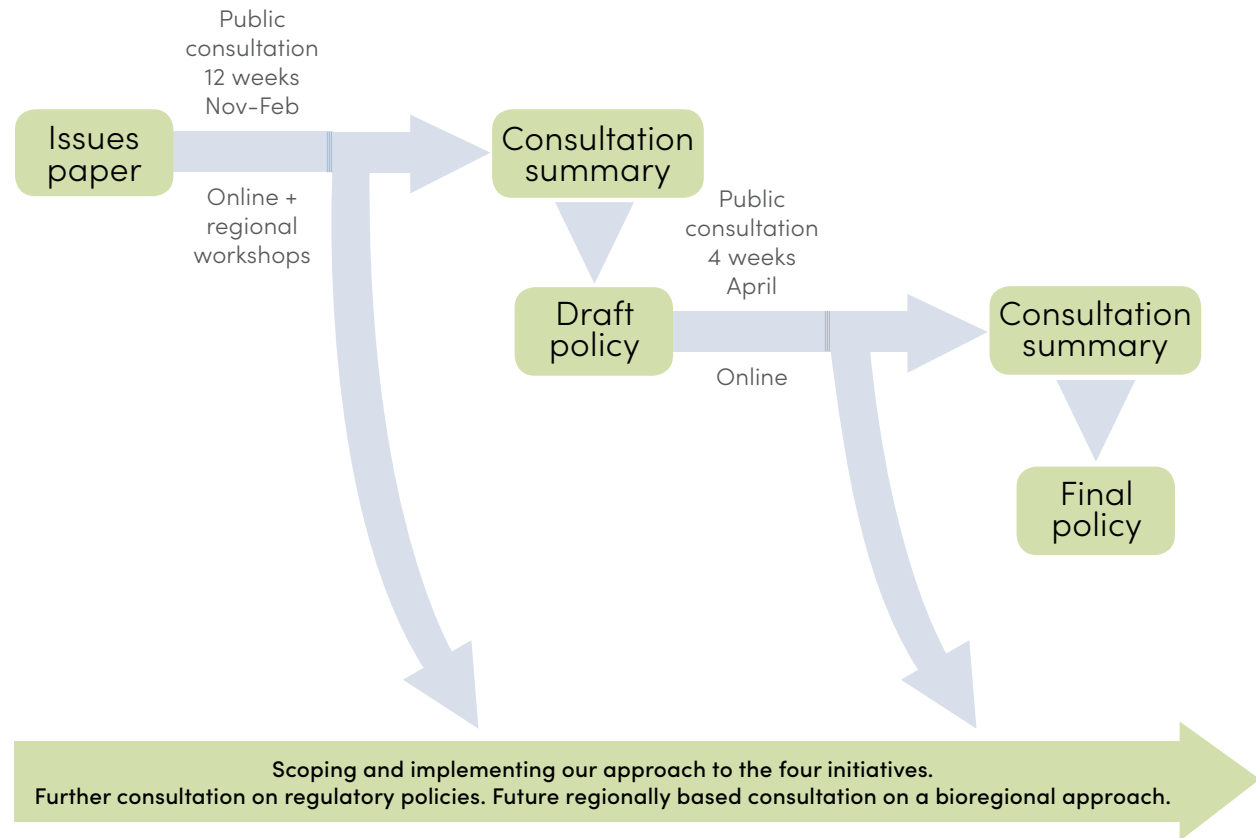


Figure 1 Opportunities to engage in shaping the four initiatives

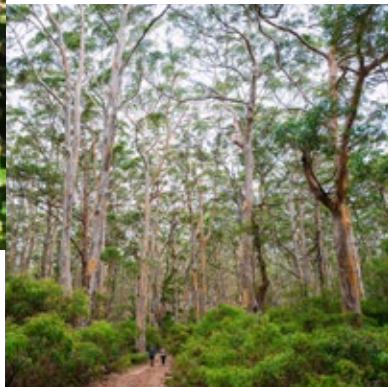
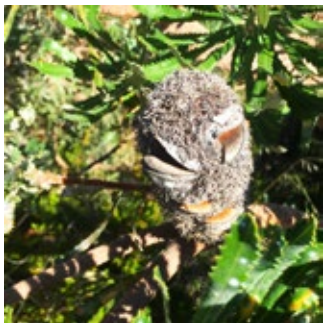
Introduction

Our valuable vegetation

Western Australia's native vegetation is internationally renowned for its biodiversity. We have eight of the nation's 15 and one of the world's 36 biodiversity hotspots. Our State boasts extraordinary floral diversity including more than 11,000 native plant species (Western Australian Herbarium 2019). The botanical south-west province alone hosts more than 8,000 plant species, of which about half are found nowhere else (Gioia & Hopper 2017).

Western Australia's native vegetation is culturally and spiritually significant to Aboriginal people. Our landscapes define our State's identity. Our native vegetation provides habitat for our native animals and is also the ecological infrastructure which binds soil, cleans water, controls salinity and regulates climate – services that have already proven to be costly to replace.

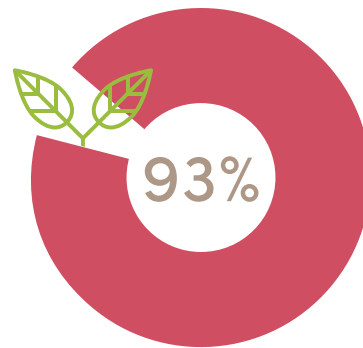
Our native vegetation also supports the productive capacity of many important sectors of the State's economy including agriculture, pastoralism, forestry, wildflower and seed harvesting, beekeeping and nature-based tourism (see Box 1 on page 3).



The challenge

Our national and international biodiversity hotspots have been recognised not only for their remarkably high number of unique species, but also for the risk to biodiversity from current and future pressures. The list of Western Australian threatened species continues to grow – between 2009 and 2017 our State’s threatened species list jumped by 12 per cent to 672 (Auditor General 2017a). Of the 1,878 species classified as nationally threatened, 551 are found in Western Australia (DoEE 2019a).

Of the 18 million hectares of Western Australia’s native vegetation already cleared, most is in the State’s south-west (Figure 2) – coinciding with our most biodiverse ecosystems (Yeats et al. 2014). In some local government areas, more than 93 per cent of the original vegetation is lost (DBCA 2018), including clearing of up to 97 per cent of some woodland areas (Bradshaw 2012). This situation has led to the State’s Environmental Protection Authority identifying clearing and degradation of native vegetation as a key threat to Western Australia’s biodiversity (e.g. EPA 2017).



Of the original vegetation in some local government areas has been cleared.

Direct clearing is not the only activity affecting our State’s native vegetation. It also faces ongoing degradation through fragmentation and loss of connectivity, over-grazing, weed invasion, altered hydrology, salinity, dieback diseases, feral animals, altered fire regimes and climate change. Native vegetation is often subject to more than one pressure, leading to critical declines in ecosystem integrity. For example, overgrazing can cause weed invasion, leading to more intense and extensive fires, exacerbated by climate change. The cumulative impacts of multiple pressures means that much of our remaining native vegetation is also at risk.

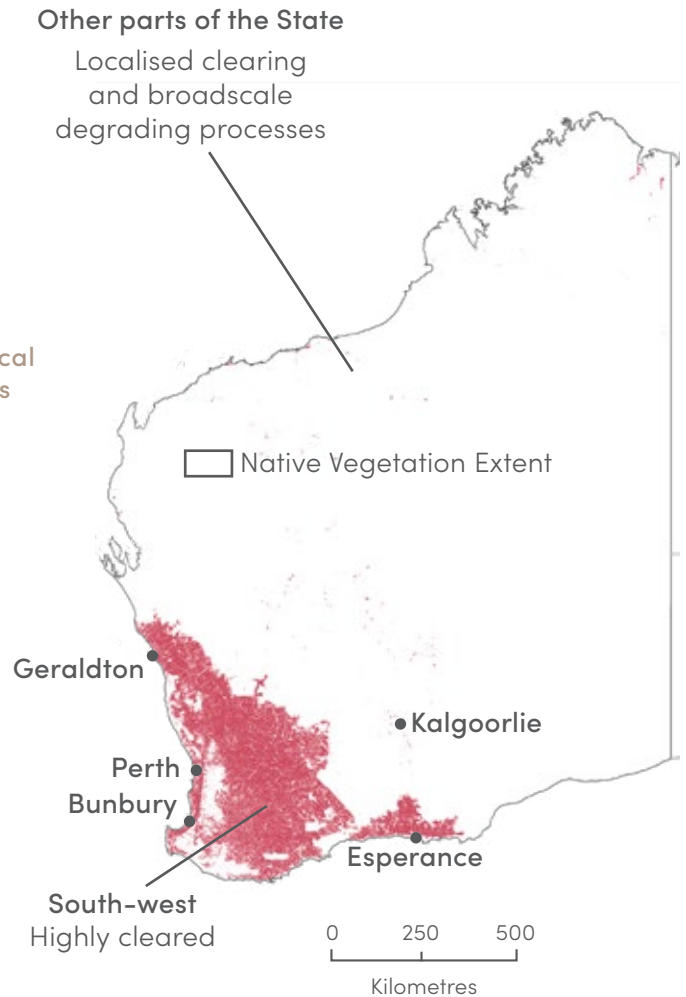


Figure 2 Extent of native vegetation in Western Australia

Box 1: Ecosystem services and costs incurred when they are lost

Ecosystem services are the benefits people derive from ecosystems (DEWHA 2010). They include:

- ▶ provisioning services including food, fibre and timber
- ▶ regulating services including erosion control, water filtration, climate regulation, pest regulation, pollination, seed dispersal and storing carbon
- ▶ supporting services including soil and biodiversity conservation and environmental water flows
- ▶ cultural services including supporting a sense of place for indigenous and non-indigenous people and nature-based or cultural tourism.

Together, clearing and degradation of native vegetation have caused significant and costly loss of ecosystem services – resulting in salinised land and water resources, erosion and related losses to agricultural productivity and impacts to infrastructure.

Salinity from large-scale clearing in the south-west agricultural regions affects between 1 and 2 million hectares. Annually, the cost of lost production from saline agricultural land is estimated at \$519 million, while the cost to maintain salt-damaged rail and roads is about \$175 million (Auditor General 2018). Between 2002 and 2009 in Western Australia, the State and Australian governments invested \$724 million in ecosystem restoration to manage salinity and other agricultural land degradation (State NRM Office 2010).

Erosion costs agricultural production about \$10 million a year (Herbert 2009). Land purchase and compensation to prevent clearing and the further salinisation of priority water catchments amounted to \$138 million in 2010. In 2018, the State and Australian governments committed \$396 million to one individual project to reduce salinity in Wellington Dam (GHD 2019).

Addressing the impacts of clearing on remaining native vegetation in highly cleared landscapes adds further costs. Protecting and restoring vegetation also incurs maintenance costs by whomever is the landholder – private or public. In 2015–16 the Western Australian Government allocated \$66 million for the broad task of conserving habitat, species and ecological communities (Auditor General 2017a). Both State and Australian governments have funded Landcare activities to about \$33 million for the past five years (WA Landcare Network 2017).



Box 2: Timeline of native vegetation reform

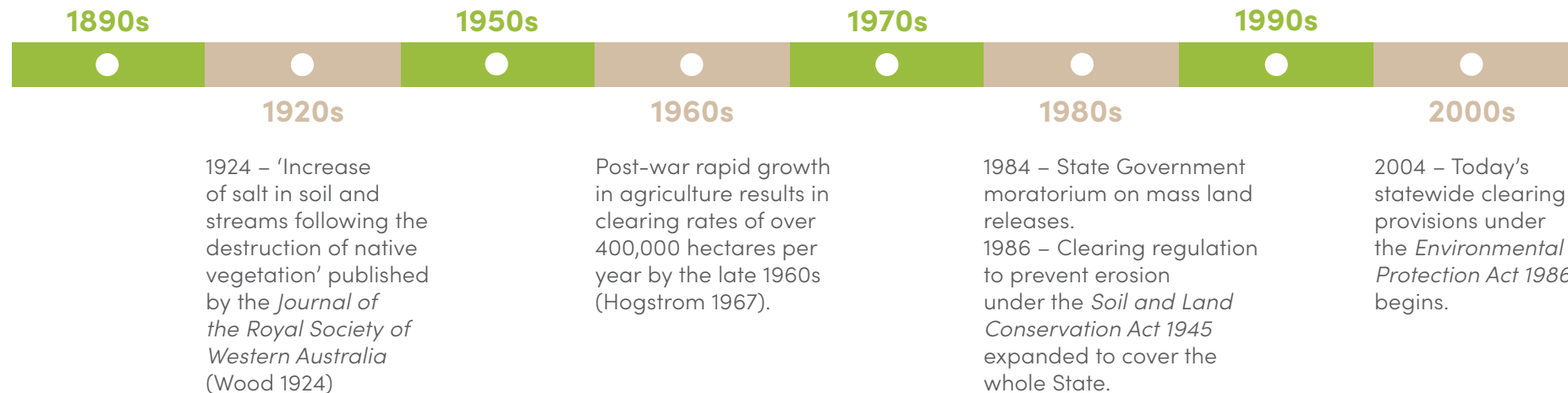
Relationship between clearing and water source salinity noticed.

1950 – Clearing regulation to prevent erosion begins for parts of the south-west under the *Soil and Land Conservation Act 1945*.

1951 – Public Works Department suggests clearing should be banned in water supply catchments to avoid salination.

Late 1970s – Clearing regulation introduced to prevent salination of four critically important water supply catchments under the *Country Areas Water Supply Act 1945*.

Coordinated action and investment in salinity mitigation is an increasing focus for investment, through to the late 2000s.



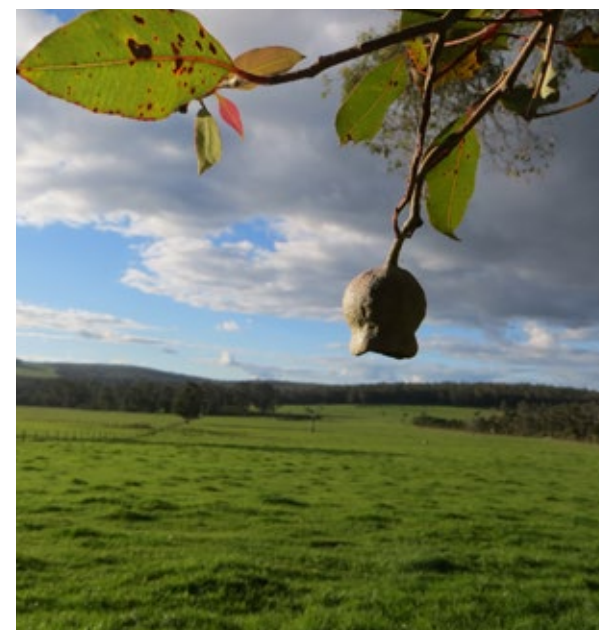
Striking the right balance

For tens of thousands of years, Aboriginal people have relied on and sustainably used foods, medicines and materials derived from native vegetation as components of economies and culture. After European settlement, clearing of native vegetation for agriculture was seen as a cornerstone of regional and community development in the south-west. In the Kimberley, Pilbara and southern Rangelands, the pastoral industry has been integral to regional economies and has relied on livestock being able to graze on native vegetation.

Current activities that provide employment, food, land to build homes on, safer roads, social and community infrastructure, reduced risk of bushfires, timber products and water supplies, can affect native vegetation. Economic activity associated with land development has enabled and driven population expansion and has contributed to forming our contemporary society.

Mining, agriculture and urban development all result in a degree of clearing and vegetation degradation, and each is important to our State's economy and job markets. Each year, mining brings in some \$79 billion in gross State product, while construction brings in \$21 billion and agriculture, forestry and fishing \$6 billion (2016–18 figures). These industries provide significant numbers of regional and urban jobs for Western Australians – 105,000 in mining (8 per cent), 129,000 in construction (10 per cent) and 36,000 in agriculture, forestry and fishing (3 per cent) (2017–19 figures) (DJTSI 2019). Tourism, for which Western Australia's iconic natural environment is a strong drawcard, brought in \$6 billion and contributed some 5 per cent of State employment in 2016–17 (Tourism WA 2018).

Clearly, there is a lot at stake for the Western Australian community in striking the right balance between protecting native vegetation and a strong community and economic outlook. The Western Australian Government is committed to doing both, through finding solutions to protect our important natural assets strategically and transparently, while supporting sustainable solutions for development in our regions, towns and cities.



Box 3: Frameworks for managing vegetation

Native vegetation influences many aspects of Western Australian society, which means it is managed through the mechanisms of many different government departments, local authorities and community groups, each with a different approach and purpose. Some mechanisms are legislative controls, others regulate sustainable use, and still others establish systems that promote native vegetation improvement.

More than 10 government departments and authorities play a role in managing activities that affect native vegetation, applying 16 Acts which have widely varying primary goals (see Table 1 on page 18). Western Australia is a signatory to Australia's Native Vegetation Framework (COAG 2012); however, as Western Australia does not have a single framework for native vegetation, the national goals have not been integrated into a single policy or approach.

The *Environmental Protection Act 1986* is the primary legislation that specifically regulates approvals to clear and otherwise impact native vegetation. The *Biodiversity Conservation Act 2016* provides protection for biodiversity, particularly threatened species, threatened ecological communities, threatening processes and critical habitats. The *Conservation and Land Management Act 1984* provides for the management of land for native vegetation conservation purposes. The *Soil and Land Conservation Act 1945* and the *Country Areas Water Supply Act 1946* specifically provide for the management of native vegetation to conserve land and water resources. Other legislative frameworks are aimed at the sustainable use of native vegetation such as grazing and forestry. Native vegetation is also managed for public safety through application of the *Bushfires Act 1954*.

Nationally, the *Environment Protection and Biodiversity Conservation Act 1999* provides for protection of the environment on matters of national environmental significance – and therefore plays a substantial role in protecting vegetation that is nationally important, or provides habitat for nationally important species. This legislation supports Australia's commitments to international agreements, including the Convention on Biological Diversity and the Ramsar Convention on Wetlands of International Importance.

Also on a national and international scale, maintaining and restoring vegetation is a key strategy for a low-carbon future. Australia ratified the United Nations Framework Convention on Climate Change Paris Agreement in 2016 and the Western Australian Government is now developing a State climate policy (public consultation is being undertaken through a climate change issues paper).

State and national natural resource management frameworks engage willing participants to protect and restore native vegetation. The Western Australian Natural Resource Management Framework (DPIRD 2018) sets State priorities for restoration investment. Funding streams include the National Landcare Program (Australian Government 2019) and the State Natural Resource Management Program (Government of Western Australia 2019a), both geared to conserving and restoring water, soils, plants, animals and ecosystems.



Responding to the challenge

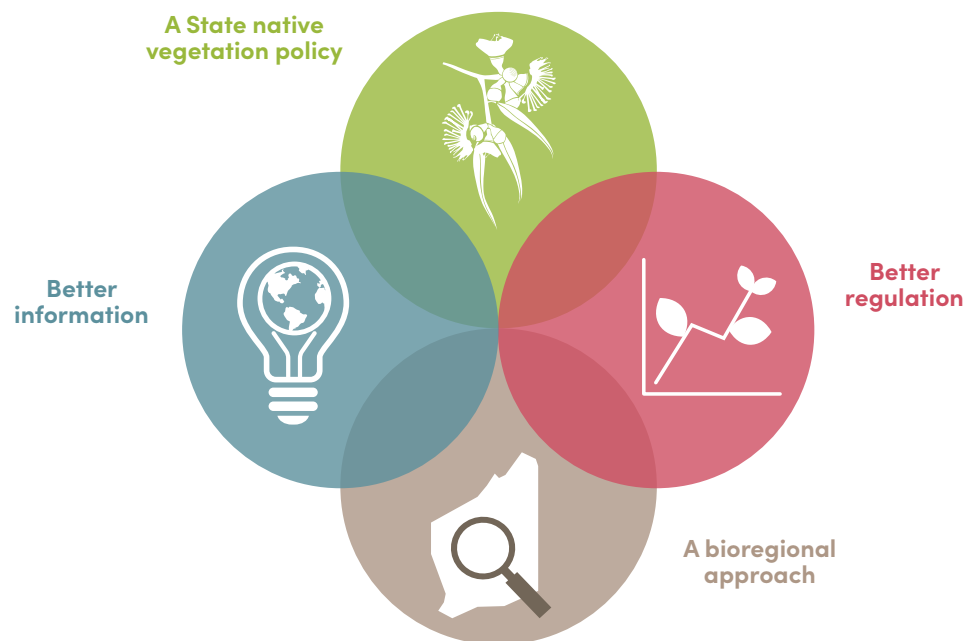
Striking the right balance for native vegetation is a complex task that involves addressing competing objectives. The Western Australian Government acknowledges this challenge and is responding.

We have listened to the concerns expressed by various sectors involved in native vegetation about the consistency, transparency and evidence-base of government decisions affecting native vegetation. These were raised during our extensive consultation on clearing permit assessment cost recovery at the end of 2018 and by way of direct representations to Government. We are responding with plans for four initiatives (outlined in this issues paper), which are:

1. A State native vegetation policy
2. Investing in better information including mapping and monitoring
3. Improving our regulatory processes
4. Exploring a bioregional approach (see Box 4 on page 9) to managing native vegetation

These four initiatives are designed to improve consistency, transparency and fairness in government decision-making. They will contribute to the robust evidence base we need for planning longer-term initiatives and reforms into the future. This issues paper is to prompt feedback from across the community and all related sectors to inform the State Government's design of the four initiatives.

The four initiatives will not by themselves halt the current trend of decline, so we need to look ahead to how we might build on them. Medium- to long-term solutions are also needed to strategically engage a broader range of people, organisations and activities to improve native vegetation outcomes. This issues paper invites you to share your insights into the priorities and potential solutions, and to provide ideas for future initiatives.



Four initiatives for improving vegetation management

1.



A State native vegetation policy will promote consistency and transparency in the objectives that apply to native vegetation and clearing across all government processes. The policy will set the scene for bioregional tailoring (see Box 4) of native vegetation management, enabling unique or at-risk environmental values to be dealt with strategically, in the context of other regional priorities. The intent is to optimise outcomes for the environment, the community and the economy.

2.



We are exploring how to improve our statewide monitoring of the extent and condition of native vegetation. We need a better system to understand status and trends, and to track which areas are subject to regulatory approvals for clearing or other impacts. We are focused on making best use of the data, systems and processes we already have and leveraging new remote sensing technologies to get accurate and up-to-date data at minimum cost.

3.



Continuous improvement in clearing regulation is underway, focusing first on improving operational systems, processes and policy for clearing approved through clearing permits (*Environmental Protection Act 1986*). With a new policy in place, common principles will be available to guide future improvements to other statutory processes which authorise impacts to the extent or condition of native vegetation. Greater capacity to compare actual clearing with approved clearing envelopes (better information) will enable improved compliance and enforcement.

4.



Experience and feedback shows that a 'one size fits all' approach to setting objectives or standards for native vegetation does not enable certainty, consistency or transparency across our vast and diverse State. We are exploring approaches to enable regional tailoring of native vegetation management to match bioregional variations (see Box 4), using water allocation planning as a model (DWER 2019c). This has the potential to produce clear, strategic objectives for native vegetation management, to inform decision-making across a range of government processes.



Box 4: What is a 'bioregion', what is a 'region'?

The Interim Biogeographic Regionalisation for Australia (IBRA) was developed in 1993–94 as a tool for identifying land for conservation (DoEE 2019b). IBRA classifies Australia into 89 geographically distinct landscapes, of which 26 are in Western Australia.

The 'bioregions' are characterised by their distinct geology, landform patterns, climate, ecological features and plant and animal communities. They were primarily developed to guide national development of a Comprehensive, Adequate and Representative reserve system for Australia but can also be used to support strategic environmental planning more broadly.

There are many ways of and purposes for dividing Western Australia into 'regions'. For the purposes of this issues paper, the term 'region' and 'regional' is not a defined term relating to a known area with a boundary. It is used generally to describe areas outside of the Perth metropolitan area.

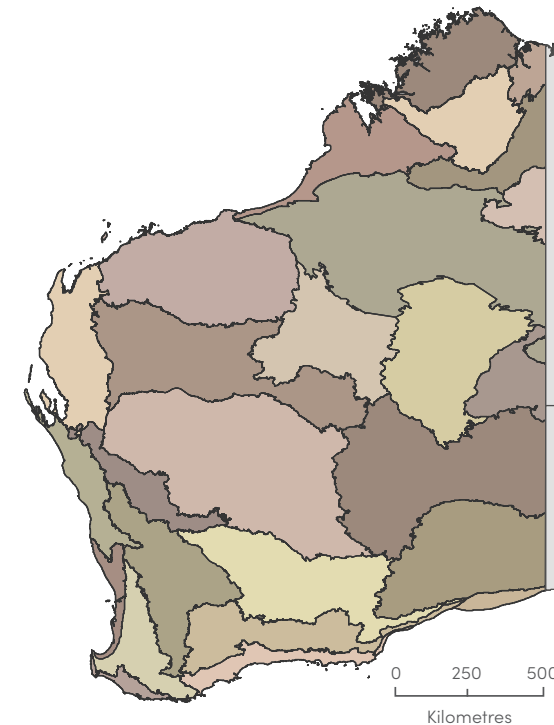
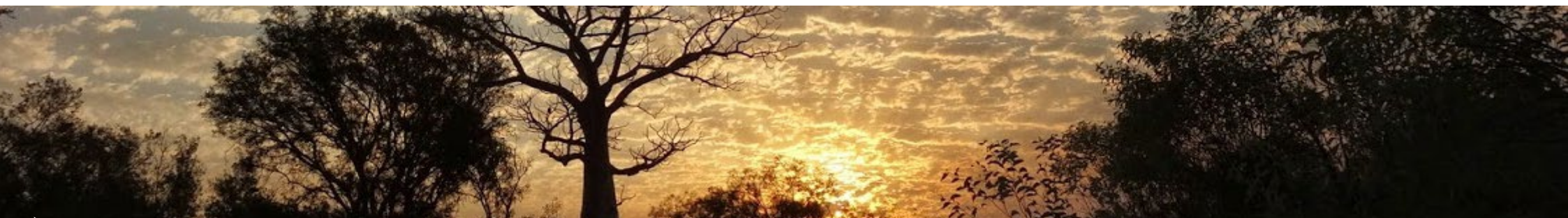


Figure 3 Western Australia's bioregions (Interim Biogeographic Regionalisation for Australia)



Box 5: Tracking the extent and location of clearing

We need to improve Western Australia's data systems to enable tracking of the extent or location of statutory approvals to clear or degrade native vegetation, and to monitor the actual clearing taking place.

We have kept consolidated spatial records of the clearing authorised under clearing permits since 2004, but this covers some 600,000 hectares or only 3 per cent of all historical clearing to date. The spatial data systems we have do not incorporate clearing approved under Part IV of the *Environmental Protection Act 1986* or other pathways, such as subdivision approvals under the *Planning and Development Act 2005*. Exempt clearing, currently authorised under more than 40 provisions of the *Environmental Protection Act 1986*, is not systematically tracked in any way.

Our existing map of native vegetation extent across the State (Western Australian Land Information Authority 2019) is widely used as a basis for government decisions but it is not systematically updated. There are no statewide datasets of native vegetation condition.

Did you know...

Since 2018, the Western Australian Government has been publishing statistics on clearing permits under Part V of the *Environmental Protection Act 1986*, dating back to 2004 (DWER 2018a).





1. A State native vegetation policy

Issues

There are multiple regulatory processes that authorise clearing or impacts to native vegetation (see Box 6 on page 12). The Government also makes other non-regulatory decisions that influence the status of native vegetation. How native vegetation is considered across all of these processes varies and a lack of transparency has been of concern to the Government, the community and industry. Experience and feedback shows that providing the desired consistency and transparency can't be achieved through statewide rules, because of the great diversity in the native vegetation itself, and its history and setting.

Desired outcome

Set an enabling framework for consistent, transparent objectives for consideration of native vegetation across all government processes.

Expected benefits

- ▶ Trust in consistent, fair and transparent government decisions.
- ▶ Getting the best-possible environmental, social and economic outcomes.
- ▶ Certainty for business and the community.

Possible approaches

- ▶ Set direction to clarify the Government's intentions and priorities to apply across the State.
- ▶ Promote a bioregional approach to setting objectives for native vegetation protection – enabling consideration of regional areas with unique or at-risk environmental values.
- ▶ Apply the same objectives consistently across all of the Government's decision-making that affects native vegetation.



Box 6: Proposed policy objectives

We are consulting on three proposed policy objectives. These objectives will not necessarily be in the policy, but your responses to them will help us to understand stakeholder perspectives across sectors as we draft the policy.

- a. The management of native vegetation is consistent, transparent and strategic and strikes a balance between environmental, economic, social and cultural outcomes to Western Australians.
- b. Western Australia's native vegetation is strategically conserved and restored to maintain and improve ecological function and biodiversity at a landscape scale.
- c. Higher priority and strategic protection for unique and at-risk native vegetation, tailored to the regional setting.

Your thoughts?...

Referring to the proposed policy objective statements (see Box 6), how well do you support each one in guiding our development of a policy?

What opportunities are presented by the development of a State native vegetation policy focused on how the Government manages vegetation?



Box 7: Diverse legislation to assess and approve clearing and other impacts

The range of State and federal legislation used to assess and approve native vegetation impacts (see Table 1) reflects the broad range of purposes for which native vegetation is managed. These varying purposes are important and are to be retained, but opportunities also exist to improve consistency and transparency in how native vegetation is considered in decision-making across government.

Table 1: Legislation that may affect native vegetation outcomes

Legislation	Primary purpose	Responsible agencies
<i>Environmental Protection Act 1986</i> and subsidiary legislation (clearing provisions)	Protecting native vegetation for a range of purposes including biodiversity, soil conservation and water quality	Department of Water and Environmental Regulation Department of Mines, Industry Regulation and Safety
<i>Environmental Protection Act 1986</i> Part IV assessments	Protecting the environment – significant proposals	Environmental Protection Authority Department of Water and Environmental Regulation
<i>Planning and Development Act 2005</i>	Strategic planning, zoning, subdivision and development decisions	Western Australian Planning Commission Department of Planning, Lands and Heritage Local government
<i>Mining Act 1978</i>	Outlines the law as it relates to mining	Department of Mines, Industry Regulation and Safety
<i>Petroleum and Geothermal Energy Resources Act 1967</i> and subsidiary legislation (environment regulation)	Exploration for, and the exploitation of, petroleum and geothermal energy resources	Department of Mines, Industry Regulation and Safety
<i>Petroleum Pipelines Act 1969</i> and subsidiary legislation (environment regulation)	Construction, operation and maintenance of pipelines for the conveying of petroleum	Department of Mines, Industry Regulation and Safety



Legislation	Primary purpose	Responsible agencies
<i>Petroleum (Submerged Lands) Act 1982</i> and subsidiary legislation (environment regulation)	Exploration for, and exploitation of, the petroleum resources of submerged lands	Department of Mines, Industry Regulation and Safety
<i>Land Administration Act 1997</i>	Ecologically sustainable livestock grazing on native vegetation on pastoral leases	Department of Planning, Lands and Heritage
<i>Country Areas Water Supply Act 1947</i>	Protects drinking water catchments from salinisation caused by clearing	Department of Water and Environmental Regulation
<i>Rights in Water and Irrigation Act 1914</i>	Providing for the take, use and sustainable development of water resources	Department of Water and Environmental Regulation
<i>Soil and Land Conservation Act 1945</i>	Managing soil and land resources and impacts on these resources	Department of Primary Industries and Regional Development
<i>Biosecurity and Agriculture Management Act 2007</i>	Preventing and controlling weeds, feral animals and exotic diseases	Department of Primary Industries and Regional Development
<i>Bush Fires Act 1954</i>	Managing fire regimes and prescribed burning approaches	Department of Fire and Emergency Services Local government
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Protecting matters of national environmental significance including biodiversity and heritage	Commonwealth Department of Environment and Energy
<i>Biodiversity Conservation Act 2016</i>	Conserving and protecting the State's biodiversity	Department of Biodiversity, Conservation and Attractions





2. Better information

Issues

With the datasets and systems we have, we cannot comprehensively track where native vegetation has been authorised for clearing, or how much is actually cleared each year – either through approved, exempt or unlawful clearing. Monitoring the status of native vegetation is important to support evidence-based decisions and policy settings, for example on cumulative impacts, thresholds and conservation priorities. Across the public and private sectors we have invested millions of dollars in obtaining data on native vegetation. Significant savings could be made if the data was collated and more accessible.

Desired outcome

Government decisions are evidence-based, underpinned by a common platform of reliable data.

Expected benefits

- ▶ Decisions are deliberate and well-informed – whether the decision is to protect, to restore, or to accept impacts.
- ▶ A consistent, robust, up-to-date single source of data for decisions.
- ▶ Reduced costs to business, through avoiding the collection of new data that might already exist.
- ▶ Regulatory compliance and enforcement made more effective through the availability of current and reliable information.
- ▶ Improved transparency.
- ▶ Greater understanding and knowledge of native vegetation status and cumulative impacts from clearing.

Possible approaches

- ▶ Bring regulatory information together into one place.
- ▶ Invest in regularly updated vegetation extent mapping and condition monitoring, leveraging new remote sensing techniques and technologies with appropriate ground-truthing.
- ▶ Build an online, publicly available mapping system for regulatory and observational data (see Box 8) to enable government, industry and community to access the same information.
- ▶ Progress initiatives like the Index of Biodiversity Surveys for Assessments (see Box 9), to make best use of the data we have.



Box 8: Towards statewide, regularly updated native vegetation information

Native vegetation information falls into two broad categories:

- ▶ What is actually there – its extent, condition and type.
- ▶ How it is managed – for example, assigning conservation significance or capturing areas approved for clearing or other impacts.

Information under both of these categories changes daily, with every on-ground action, regulatory decision, policy listing or other declining process, such as salinity. At the moment, our data systems and processes don't provide statewide, regularly updated information for either of these categories. This makes it impossible to track or report accurately on the status of native vegetation.

The Government is already exploring options for building on and scaling up existing platforms, products and partnerships to improve datasets and access to them. This includes options for acquiring, updating and interpreting on-ground data, as well as systems and processes for compiling and accessing regulatory datasets. There is much to build on, including existing initiatives from collaborations such as LandMonitor (see LandMonitor 2019) and the Western Australian Biodiversity Science Institute (see WABSI 2019), as well as national land cover change tracking related to Australia's National Carbon Accounting System.

Your thoughts?...

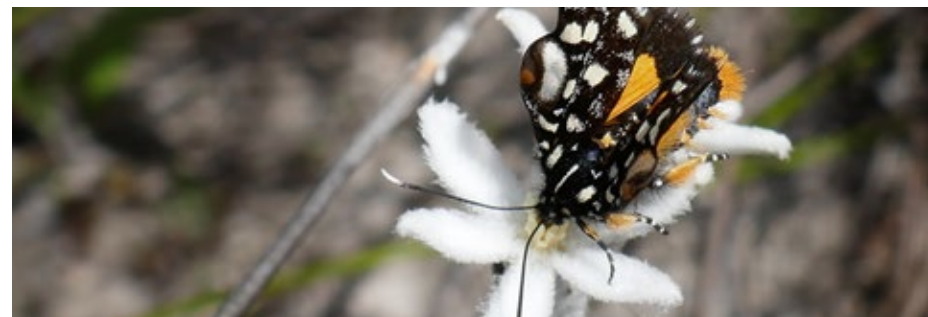
How do you use native vegetation data within your sector?

- ▶ To plan for conservation
- ▶ To plan for restoration
- ▶ To scope offset opportunities
- ▶ To inform applications to clear or impact vegetation
- ▶ For baseline information for monitoring
- ▶ Other

Which of the following elements of better information provision would be most relevant to your sector?

- ▶ Cost saving
- ▶ Timeliness of assessments
- ▶ Evidence-base for decisions
- ▶ Other

What other opportunities are presented by improved information and access?



Box 9: Index of Biodiversity Surveys for Assessments

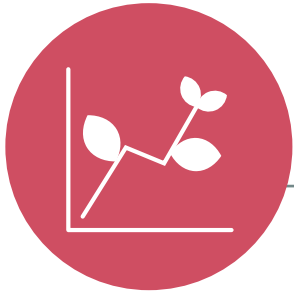
Implemented in 2018, the Index of Biodiversity Surveys for Assessments (IBSA – DWER 2018b) captures data from land-based biodiversity field surveys conducted to support assessments and compliance by the Department of Water and Environmental Regulation, Environmental Protection Authority and Department of Mines, Industry Regulation and Safety under the *Environmental Protection Act 1986*. IBSA consolidates this data and provides a platform to make it publicly available online.

About \$38 million is spent each year collecting biodiversity data to support environmental assessments, yet before IBSA the information was not centralised or easily discoverable. IBSA delivers better environmental outcomes and improves the efficiency of assessments by:

- ▶ improving the availability of information for proponents
- ▶ allowing government, industry and the community to get maximum value from existing data
- ▶ reducing costs and delays associated with poor availability of biodiversity data
- ▶ supporting ongoing strategic planning, decision-making and management.







3. Better regulation

Issues

Regulation is an important tool for managing native vegetation values. However, unclear objectives, inconsistency in the environmental standards within and across regulatory pathways, and uncertain wait times for assessments can all hinder well-informed business decisions, make compliance and enforcement difficult and undermine effective conservation. Efficient and effective regulation across government is essential to ensure fairness, transparency and the good environmental outcomes intended from regulation.

Desired outcome

Clear objectives and consistent standards applied across all regulatory processes affecting native vegetation condition and extent.

Expected benefits

- ▶ Improved confidence in the regulatory system for all stakeholders.
- ▶ Improved environmental outcomes in decision-making.
- ▶ Clear and transparent standards, delivering certainty for business decisions.
- ▶ Clear regulatory expectations supporting compliance and enforcement.
- ▶ Streamlined regulation for low-risk development and clearer requirements for supporting information such as vegetation surveys.
- ▶ Equitable treatment of all proponents, regardless of approval pathway.

Possible approaches

- ▶ Continuous improvement of operational systems, policy and processes for clearing permits, making best use of new resourcing from clearing fees and applying a risk-based approach.
- ▶ Applying the principles of a statewide policy to decisions across government, including progress towards a bioregional approach to setting objectives (see *a bioregional approach*).
- ▶ Innovative exploration of how offsets could drive a net improvement to native vegetation extent or condition where vegetation must be impacted to enable essential development.
- ▶ Capitalising on new technology for monitoring of native vegetation extent and condition to improve environmental outcomes and to bolster compliance and enforcement.



Box 10: Our work so far to streamline regulation

Vegetation clearing regulatory reform is a business priority of the Government. The Department of Water and Environmental Regulation is working to make improvements to operational systems, processes and policy to deliver better protection for native vegetation. New resources to improve approval processes and assessment timeliness have been funded by clearing permit application fee increases, introduced 1 July 2019.

Consultation has started on the Government's plans to update the State's environmental legislation, as outlined in the discussion paper, *Modernising the Environmental Protection Act* and exposure draft Bill. The changes are informed by stakeholder feedback and a number of reviews since 2006. They include plans to provide greater flexibility and improve environmental outcomes when dealing with clearing permit applications. They also propose a referral system for clearing, to ensure regulation is targeted and native vegetation with important environmental values is protected.

A review of the state's environmental offsets framework is nearly complete. It has assessed the framework's effectiveness in delivering its objectives, and will highlight potential improvements. The department has also recently sought public comment on a draft compliance and enforcement policy (DWER 2019a). The policy is being finalised at present.

Your thoughts?...

Which of the following elements of *better regulation* would be most important to your sector?

- ▶ Improved protection for native vegetation
- ▶ Ensuring development is sustainable
- ▶ Streamlined regulation for cost saving
- ▶ Clearer requirements for business certainty
- ▶ Improved assessment timeframes
- ▶ Transparent, evidence-based decisions
- ▶ Improved compliance and enforcement of unauthorised clearing
- ▶ Equitable treatment of all proponents
- ▶ Confidence in the regulatory system for all stakeholders
- ▶ Other

What other opportunities are presented by *better regulation*?



Box 11: Threatened species and communities

In recent years, banksia, tuart and Wheatbelt woodlands have all been listed as nationally threatened and protected ecological communities (DoEE 2019c). Large, healthy stands of these formerly widespread communities are now relatively rare, having been extensively cleared because they grew where development pressure was high. The Government is considering a bioregional approach, to prevent other widespread ecological communities becoming threatened in future by planning sensible, evidence-based protection for areas with unique or at-risk values – considering the specific regional, social and economic context of these protections (see a bioregional approach on page 23).



Box 12: Key findings of the 2004 Productivity Commission

In 2004, the national Productivity Commission consulted broadly and reported on the impacts of native vegetation and biodiversity regulation on landholders and regional communities (Productivity Commission 2004). Although the review was done 15 years ago, many of the themes from the review are still reflected in feedback by stakeholders to the Western Australian Government today.

Among the recommendations were:

- ▶ improving the quality of the data and science underpinning environmental policies, including ground-truthing satellite-based vegetation mapping (recommendation 10.3)
- ▶ improving regulation through clear objectives, minimising duplication and inconsistency, improving coordination between agencies and statutory timeframes for assessments (recommendation 10.4)
- ▶ making regulatory regimes more flexible through tailoring requirements to regions and making use of the extensive knowledge of local communities (recommendation 10.5)
- ▶ providing incentives and support, and removing impediments to private provision of ecosystem services – for example through addressing lease conditions that discourage conservation and extension to demonstrate the private benefits of sustainable practices (recommendation 10.6).



Box 13: Managing unlawful clearing

More than 40 exemptions allow native vegetation to be cleared without assessment under the clearing provisions of the *Environmental Protection Act 1986*. These exemptions avoid regulatory duplication for clearing authorised under other statutory processes, or enable routine low-impact land management practices to proceed without assessment and approval. This adds complexity and challenges in identifying and regulating unlawful clearing.

Better information will help identify changes in native vegetation, whether those changes were lawful, and any actions necessary to restore values lost through activities that were not authorised. Better regulation could see a focus on activities to support more effective identification, investigation and prosecution of clearing that may be unlawful.





4. A bioregional approach

Issues

Western Australia has a diversity of bioregions (see Box 4) that differ in their ecosystem types, historic clearing and threatening processes, economic drivers and social and cultural priorities. Because of this diversity, it is difficult to set statewide rules to effectively protect native vegetation; streamline regulation; plan effectively for conservation, habitat linkages and development; or prioritise restoration. The current approach to assessments on a case-by-case basis makes it difficult to adequately address cumulative impacts even where clear strategic goals exist, such as for protecting threatened ecological species and communities. Investment in *better information* to understand regional clearing patterns and drivers will provide a solid foundation for a bioregional approach.

Desired outcome

Regionally tailored objectives balance benefits to the environment, community and economy.

Expected benefits

- ▶ Unique and at-risk vegetation is well protected as part of an evidence-based plan which takes into account cumulative impacts and other regional priorities.
- ▶ Regionally appropriate rules and thresholds (e.g. area thresholds for exemptions) enable both effective and efficient regulation.
- ▶ Flexibility in how objectives are to be met – by government and across all sectors.

Possible approaches

- ▶ Engage local stakeholders and leverage their knowledge to identify issues and propose solutions.
- ▶ Set and apply regionally tailored objectives for native vegetation to apply across a range of government processes, making every decision count towards something greater.
- ▶ Coordinate multiple approaches (e.g. strategic restoration, regulatory rules, offsets) to achieve a net improvement for native vegetation.



Box 14: What could the Government hope to achieve through a bioregional approach?

Strategic bioregional planning could present solutions for a range of challenges that affect industry, the community and government, for example by:

- ▶ devising transparent outcomes and objectives, tailored to regional ecosystem and risk types, to drive coordination toward common goals across a range of regulatory tools
- ▶ leveraging local knowledge, including Aboriginal knowledge, to get the best economic, social, cultural and environmental outcomes from how native vegetation is managed
- ▶ dealing strategically and innovatively with difficult trade-offs which pit public safety against biodiversity outcomes, such as roadside clearing in extensively cleared landscapes
- ▶ providing clear targets and thresholds that will help industry and investors to understand the likelihood and requirements of gaining environmental approvals
- ▶ establishing a planned approach to dealing with cumulative impacts, the co-occurrence of high-value native vegetation with high-value development (e.g. mineral resources or infrastructure corridors) or environmental offsets
- ▶ underpinning an effective monitoring and evaluation framework to understand and improve the effectiveness of regulation and conservation efforts
- ▶ enabling and supporting landscape-scale initiatives for conservation driven by partnerships between the public and private sector.

Your thoughts?...

In Box 14 – which of these are the most important to you/your sector?

What other opportunities are presented by a bioregional approach?

What concerns are presented by a bioregional approach, for your sector?

A *bioregional approach* to setting objectives for native vegetation will take time, strong local consultation and prioritisation of regions.

A cross-government working group is exploring the mechanisms available to support a *bioregional approach* – acknowledging that the right model may differ from region to region. Some planning pathways would provide a policy or guidance level of protection for unique or at-risk native vegetation. Other options could provide more prescriptive direction on land use and native vegetation protections. In other States, planning frameworks and statutory environmental protection policies play a key role in planning to protect high-value vegetation. These States have integrated environmental and planning legislation, which is not Western Australia's model.



Box 15: Strategic use of offsets:
the Pilbara Environmental Offsets Fund

Environmental offsets are actions that provide environmental benefits which counterbalance the significant residual environmental impacts or risks of a project or activity.

The Western Australian environmental offsets framework comprises the environmental offsets policy, guidelines and register (Government of Western Australia 2011; 2014; 2013). In Western Australia, environmental offsets are applied to projects subject to environmental impact assessment of significant proposals (Part IV) and as a condition of permits for clearing of native vegetation (Part V) under the *Environmental Protection Act 1986*. Approval conditions under Part IV of the *Environmental Protection Act 1986* include contributions to the Pilbara Environmental Offsets Fund.

The Pilbara Environmental Offsets Fund (DWER 2019b) is an ongoing program that invests in strategic conservation projects in the Pilbara bioregion to improve native vegetation and species habitat impacted by development. It receives payments from proponents to offset their development impacts. It was created to help manage the cumulative impacts of mining development on biodiversity in the Pilbara.

In the past, mining companies have found it difficult to access land to implement their on-ground offsets because of tenure issues and overlapping mining, pastoral and native title rights and

interests to land. As a result, past offset projects have tended to be implemented in isolation and not where they are needed most. The fund was set up to overcome these challenges by enabling the Government to work with the mining industry, pastoralists, and traditional owners to broker land access and deliver enduring positive outcomes across the landscape.

An implementation plan for the Pilbara Environmental Offsets Fund will be released this year. This will describe how the fund will be delivered over the next five years.







Other initiatives

The four initiatives discussed here will not by themselves stop the current decline in condition and extent of native vegetation. Diverse activities affect the condition and extent of native vegetation. These are instigated by many people and organisations, some regulated and others unregulated. To deliver improvements to the status of our State's native vegetation, we will need to harness the capabilities of various sectors and enable innovative, coordinated action beyond the bounds of regulation. This section discusses some existing approaches which may be worth exploring or expanding further.

Aboriginal land management

The deep relationship of Aboriginal people with country manifests as intergenerational care for country – a defining characteristic of Aboriginal stewardship of Western Australia's land, water, vegetation and biodiversity. Today, indigenous land management in Australia is growing under various models such as ranger programs, protected area management and land use agreements (Hill et al. 2013). These initiatives are increasingly providing regional employment opportunities that enable greater connection to country. There are also opportunities to grow cultural and nature-based tourism and for Aboriginal knowledge to complement current and future land management planning.

Box 16: Aboriginal Ranger Program

The Western Australian Government's Aboriginal Ranger Program (DBCA 2019a) is helping Aboriginal organisations manage country and protect the environment across the State in partnership with the public and private sectors. Since its launch in 2018, the program has already seen more than 100 Aboriginal people gain employment, 60 per cent of whom are women. At least 70 people are undertaking some form of training, from developing land management skills to Aboriginal site work and tourism guiding. The projects announced in 2019 for funding under round two will create further pathways for Aboriginal people to develop careers in land and sea management, while also providing long-term cultural and conservation outcomes.



Incentives, pricing and markets for good native vegetation management

Improved valuation, pricing and market-based drivers for good native vegetation management could be explored further. A variety of strategically designed, complementary schemes could together incentivise conserving, managing or re-establishing native vegetation on privately managed land. These schemes could include carbon farming (DPIRD 2019), salinity mitigation funding and offsets funding.

In other States, biodiversity banking schemes provide a funding stream for some landholders who choose to conserve native vegetation on their land. For the Western Australian setting, more work is needed to determine the scope and viability of a voluntary mechanism to facilitate landowner participation in offsets.

Further exploring economic approaches to drive good native vegetation management could also provide benefits in diversifying regional economies.

Photo: Tourism WA



Box 17: The value of nature-based tourism for regional economies

In 2015–16, Western Australian tourism, driven significantly by our State’s natural assets, accounted for \$6.1 billion of gross State product, 5 per cent of total employment across the State and 15 per cent of regional employment – or some 40,000 people (Tourism WA 2018).

Box 18: Environmental offsets to fund restoration grants?

In South Australia, offsets funding is reinvested through grants to protect and restore vegetation. Money is paid into the Native Vegetation Fund by people who have cleared native vegetation. This money is made available through Significant Environmental Benefits Grants (DER 2019) to restore, revegetate or protect native vegetation.

In Western Australia, some clearing permits require the applicant to contribute to an environmental offsets fund. To date, this fund has primarily been used to acquire more land for conservation; however, it can also be used for revegetation and other on-ground activities, leading to more strategic environmental outcomes.



Extension and behaviour change

All people and organisations who manage land have a role to play in looking after native vegetation resources. Many of the activities that result in clearing or impacts to native vegetation are either exempt from clearing permits or are otherwise unregulated. As such, education, extension, voluntary behaviour change and other complementary mechanisms are important for addressing the decline in native vegetation. Western Australia's catchment groups have a long and successful history of promoting native vegetation conservation and revegetation within catchments, including on farms. These groups are becoming more active in identifying the economic values of 'natural capital' to farm productivity (Greening Australia 2019).



Box 19: The power of private land managers in managing native vegetation

Private landholders play an important role as stewards of native vegetation, with nearly half of Western Australia's land area managed privately (39 per cent in pastoral leases and about 8 per cent freehold). By maintaining native vegetation, private landholders contribute to the public good, yet may incur an opportunity cost from lost production, as well as maintenance costs (such as for fencing or weed control). Yet they often make choices, efforts and investments to conserve vegetation – participating in natural resource management programs (e.g. State NRM, Land for Wildlife, Urban Nature) and putting in place their own approaches to sustainable land management. Maintaining the productive capacity of the land is in the interests of many producers – yet many still report that they manage sustainably simply because it is the 'right thing to do' (Productivity Commission 2004).

Increasingly, private philanthropic organisations like the Australian Wildlife Conservancy and Bush Heritage Australia are buying and managing land for conservation and creating regional jobs in conservation, science and tourism in the process.

Government manages the other half of our land area. Conservation reserves cover about 11 per cent of Western Australia's land area, another 38 per cent is unallocated crown land, and the remainder is managed by government for other purposes.



Box 20: Plan for Our Parks

The Western Australian Government has committed to increase the conservation reserve system by 5 million hectares or 20 per cent by 2023–24, supporting regional economic diversification and jobs (Government of Western Australia 2019b).

The Plan for Our Parks (DCBA 2019b) will see new and expanded parks from the Kimberley in the north, across the Rangelands, through population centres in Perth and Bunbury, to our south-west forests and along our southern coastline. This will create more opportunities for nature-based and cultural tourism, provide enhanced biodiversity conservation and build on Aboriginal joint management throughout Western Australia. The plan will deliver on several existing strategic priorities and commitments, and create new, visionary opportunities for parks and reserves.

Your thoughts?...

What initiatives do you think would work best to improve native vegetation outcomes in your region?

- ▶ Pricing, incentives and markets (e.g. biodiversity banking, offsets, carbon farming etc.)
- ▶ Aboriginal land management
- ▶ Pastoral diversification
- ▶ Nature-based or cultural tourism
- ▶ Private land management
- ▶ Other

What else could be done to improve the management of native vegetation to arrest the decline of native vegetation extent and condition?

Box 21: Economic diversification to support Rangelands condition

Western Australia's Rangelands cover 87 per cent of the State's land area, with 39 per cent (87 million hectares) under pastoral lease. These leases give leaseholders the right to have livestock graze on native vegetation. In a 2017 review, the Auditor General identified ongoing threats to the ecological sustainability of pastoral leases, with overgrazing a key issue (Auditor General 2017b).

Pastoral lands reform is underway (DPIRD 2017), with a focus on diversifying economic opportunities, streamlining approval processes and boosting security of tenure. Carbon farming (DPIRD 2019) and tourism are being explored as diversification opportunities to complement sustainable grazing. Government is also investing in improved land condition monitoring systems and processes for the rangelands, including taking advantage of emerging remote sensing technologies and analyses.



References

Australian Government 2019, *National Landcare program*. Viewed on 21 October 2019, <http://www.nrm.gov.au/>

Bradshaw CJA 2012, *Little left to lose: deforestation and forest degradation in Australia since European colonization*. Viewed on 21 October 2019, <https://academic.oup.com/jpe/article/5/1/109/1294916>.

COAG Standing Council on Environment and Water (COAG) 2012, *Australia's Native Vegetation Framework*, Australian Government, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Viewed on 21 October 2019, <http://www.environment.gov.au/system/files/resources/76f709dc-ccb3-4645-a18b-063fbbf0a899/files/native-vegetation-framework.pdf>

Department of Biodiversity, Conservation and Attractions (DBCA) 2019a, *Aboriginal Ranger Program developed to create jobs and training*. Viewed on 21 October 2019, <https://www.dbca.wa.gov.au/parks-and-wildlife-service/aboriginal-ranger-program>

Department of Biodiversity, Conservation and Attractions (DBCA) 2019b, *Plan for our Parks, securing 5 million hectares over 5 years*. Viewed on 21 October 2019, <https://www.dpaw.wa.gov.au/parks/190-plan-for-our-parks>

Department of Biodiversity, Conservation and Attractions (DCBA) 2018, *DCBA statewide vegetation statistics*. Viewed on 21 October 2019, <https://catalogue.data.gov.au/dataset/dbca-statewide-vegetation-statistics>

Department of Environment and Water (DER 2019), *Significant Environmental Benefits Grants*, Government of South Australia. Viewed on 21 October 2019, <https://www.environment.sa.gov.au/get-involved/grants-and-funding/native-vegetation-incentives-programs/significant-environmental-benefit-grants>

Department of the Environment, Water, Heritage and the Arts (DEWHA) 2010, *Ecosystem services: key concepts and applications*. Occasional Paper Series No.1, Department of the Environment, Water, Heritage and the Arts, Canberra. Viewed on 21 October 2019, <https://www.environment.gov.au/system/files/resources/b53e6002-4ea7-4108-acc8-40fff488bab7/files/ecosystem-services.pdf>

Department of Jobs, Tourism, Science and Innovation (DJTSI) 2019, *Western Australia economic profile*, Government of Western Australia, August 2019. Viewed on 21 October 2019, https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/wa-economic-profile-0819.pdf?sfvrsn=fed0701c_4

Department of Environment and Energy (DoEE) 2019a, *Species profile and threats database*. Viewed on 21 October 2019, <http://environment.gov.au/cgi-bin/sprat/public/publicreports.pl?proc=species>

Department of the Environment and Energy (DoEE) 2019b, *Interim Biogeographic Regionalisation for Australia, Australian Government*. Viewed on 21 October 2019, <https://www.environment.gov.au/land/nrs/science/ibra>



Department of the Environment and Energy (DoEE) 2019c, *Nationally threatened ecological communities*, Australian Government. Viewed on 21 October 2019, <https://www.environment.gov.au/biodiversity/threatened/communities>

Department of Primary Industries and Regional Development (DPIRD) 2019, *Human-induced regeneration carbon farming and the resources sector*, Government of Western Australia. Viewed on 21 October 2019, <https://www.agric.wa.gov.au/sites/gateway/files/Human-Induced%20Regeneration%20Carbon%20Farming%20and%20the%20Resources%20Sector%202019.pdf>

Department of Primary Industries and Regional Development (DPIRD) 2018, *Western Australian Natural Resource Management Framework 2018*. Viewed on 21 October 2019, http://www.nrm.wa.gov.au/media/290152/final_-_western_australian_natural_resource_management_framework_2018__2_.pdf

Department of Primary Industries and Regional Development (DPIRD) 2017, *Pastoral land reform to drive economic opportunities and income streams across Western Australia's pastoral estate*, Government of Western Australia 2017. Viewed on 21 October 2019, <http://www.drd.wa.gov.au/projects/Agriculture/Pages/PASTORAL-LANDS-REFORM.aspx>

Department of Water and Environmental Regulation (DWER) 2019a, *Draft compliance and enforcement policy*, September 2019. Viewed on 21 October 2019, <https://www.der.wa.gov.au/our-work/consultation/open-consultation/536-open-consultation-draft-compliance-and-enforcement-policy>

Department of Water and Environmental Regulation (DWER) 2019b, *Pilbara Environmental Offsets Fund*. Viewed on 21 October 2019, <https://dwer.wa.gov.au/Pilbara-Environmental-Offsets-Fund>

Department of Water and Environmental Regulation (DWER) 2019c, *How we develop water allocation plans*. Viewed on 21 October 2019, <http://www.water.wa.gov.au/planning-for-the-future/allocation-plans/developing-water-allocation-plans>

Department of Water and Environmental Regulation (DWER) 2018a, *Clearing statistics: Approvals under Part V, Division 2 of the Environmental Protection Act 1986*. Viewed on 21 October 2019, <https://dwer.wa.gov.au/clearingstatistics>.

Department of Water and Environmental Regulation (DWER) 2018b, *Index of Biodiversity Surveys for Assessment 2018 to current*. Viewed on 21 October 2019, <https://www.dwer.wa.gov.au/ibsa>

Environmental Protection Authority (EPA) 2017, *Environmental Protection Authority 2016–17 annual report*. Viewed on 21 October 2019, https://www.epa.wa.gov.au/sites/default/files/Annual_reports/EPA%20Annual%20Report%202016-2017.pdf

Government of Western Australia 2019a, *Natural Resource Management Program*. Viewed on 21 October 2019, <http://www.nrm.wa.gov.au/grants/state-nrm-program.aspx>

Government of Western Australia 2019b, *Our priorities, A liveable environment*. Viewed on 21 October 2019, <https://www.wa.gov.au/government/our-priorities-sharing-prosperity/liveable-environment>



Government of Western Australia 2014, *WA Environmental Offsets Guidelines*. Viewed on 21 October 2019, http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/WA%20Environmental%20Offsets%20Guideline%20August%202014.pdf

Government of Western Australia 2013, *Government of Western Australia Environmental Offsets Register*. Viewed on 21 October 2019, <https://www.offsetsregister.wa.gov.au/public/home/>

Government of Western Australia 2011, *WA Environmental Offsets Policy*. Viewed on 21 October 2019, http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/WAEnvOffsetsPolicy-270911.pdf

GHD 2019, *A new direction for salinity management in Western Australia: a consultative review*, March 2019, Department of Primary Industries and Regional Development. Viewed on 21 October 2019, https://www.agric.wa.gov.au/sites/gateway/files/A%20New%20Direction%20for%20Salinity%20Management%20in%20Western%20Australia%20-%20A%20Consultative%20Review_1.pdf

Gioia P & Hopper SD 2017, 'A new phytogeographic map for the Southwest Australian Floristic Region after an exceptional decade of collection and discovery', *Botanical Journal of the Linnean Society*, 2017, 184, 1–15.

Greening Australia 2019, *Valuing 'natural capital' on farms*. Viewed on 21 October 2019, <https://www.greeningaustralia.org.au/projects/valuing-natural-capital-on-farms/>

Herbert A 2009, 'Opportunity costs of land degradation hazards in South-West Agriculture Region', *Resource management technical report 349*, Department of Agriculture and Food, Western Australia. Viewed on 21 October 2019, <https://researchlibrary.agric.wa.gov.au/rmtr/331/>

Hill R, Pert PL, Davies J, Robinson CJ, Walsh F & Falcon-Mammone 2013, *Indigenous land management in Australia. Extent, scope, diversity, barriers and success factors*, May 2013. Viewed on 21 October 2019, <http://www.agriculture.gov.au/SiteCollectionDocuments/natural-resources/landcare/submissions/ilm-report.pdf>

Hogstrom AW 1967, 'Agriculture in Western Australia: past, present and future', Volume 8, Number 9 Article 2, *Journal of the Department of Agriculture*, Western Australia Series 4, Department of Agriculture and Food Western Australia. Viewed on 21 October 2019, https://researchlibrary.agric.wa.gov.au/cgi/viewcontent.cgi?article=4059&context=journal_agriculture4

LandMonitor 2019, *Land Monitor*. Viewed on 21 October 2019, <https://landmonitor.landgate.wa.gov.au/home.php>

Office of the Auditor General Western Australia (Auditor General) 2018, *Western Australian Auditor General's report, Management of salinity*, Report 8: May 2018. Viewed on 21 October 2019, [https://www.parliament.wa.gov.au/publications/tables/papers.nsf/displaypaper/4011342a6e426cf28793cecc4825828f0016390c/\\$file/1342.pdf](https://www.parliament.wa.gov.au/publications/tables/papers.nsf/displaypaper/4011342a6e426cf28793cecc4825828f0016390c/$file/1342.pdf)



Office of the Auditor General Western Australia (Auditor General) 2017a, *Western Australian Auditor General's report, Rich and rare: conservation of threatened species follow-up audit*, Report 16: September 2017. Viewed on 21 October 2019, [https://www.parliament.wa.gov.au/publications/tailedpapers.nsf/displaypaper/4010575ad25ba3ac227829f3482581930016fefa/\\$file/575.pdf](https://www.parliament.wa.gov.au/publications/tailedpapers.nsf/displaypaper/4010575ad25ba3ac227829f3482581930016fefa/$file/575.pdf).

Office of the Auditor General Western Australia (Auditor General) 2017b, *Western Australian Auditor General's report, Management of pastoral lands in Western Australia*, Report 17: October 2017. Viewed on 21 October 2019, [http://www.parliament.wa.gov.au/publications/tailedpapers.nsf/displaypaper/4010833a47ac7e4cc25e5b46482581b600166282/\\$file/833.pdf](http://www.parliament.wa.gov.au/publications/tailedpapers.nsf/displaypaper/4010833a47ac7e4cc25e5b46482581b600166282/$file/833.pdf).

Productivity Commission 2004, *Public inquiry: impact of native vegetation and biodiversity regulations*, Australian Government. Viewed on 21 October 2019, <https://www.pc.gov.au/inquiries/completed/native-vegetation>.

State Natural Resource Management Office (State NRM Office) 2010, *National action plan for salinity and water quality and Natural Heritage Trust program 2003–2009 Final Report* March 2010, Western Australian State Government. Viewed on 21 October 2019, http://www.nrm.wa.gov.au/media/10253/nap_and_nht2_programs_2003-09_final_report_march_10_2010.pdf.

Tourism Western Australia 2018, *Economic contribution of tourism to Western Australia's tourism regions 2016–2017*, June 2018. Viewed on 21 October 2019, [https://www.tourism.wa.gov.au/Publications%20Library/Research%20and%20reports/Economic%20Contribution%20of%20Tourism%20to%20WA%20s%20Tourism%20Regions%202016-17%20\(RTSA%202016-17\).pdf](https://www.tourism.wa.gov.au/Publications%20Library/Research%20and%20reports/Economic%20Contribution%20of%20Tourism%20to%20WA%20s%20Tourism%20Regions%202016-17%20(RTSA%202016-17).pdf).

WA Landcare Network 2017, *The state of Landcare in WA 2017 interim report*. Viewed on 21 October 2019, <http://landcarewa.org.au/wp-content/uploads/2017/03/State-of-Landcare-SUMMARY-7-March-FINAL.pdf>.

Western Australian Biodiversity Science Institute (WABSI) 2019, *Measuring native vegetation extent and condition using remote sensing technologies. A review and identification of opportunities*, August 2019. Viewed on 21 October 2019, <https://wabsi.org.au/wp-content/uploads/2019/08/Remote-Sensing-Technologies-Project-Report.pdf>.

Western Australian Herbarium 2019, *FloraBase – The Western Australian flora statistics*, Department of Biodiversity, Conservation and Attractions. Viewed on 21 October 2019 <https://florabase.dpaw.wa.gov.au/statistics/>.

Western Australian Land Information Authority 2019, *Native vegetation extent (DPIRD-005). Vegetation extent mapping polygons of remnant vegetation in Western Australia*, Government of Western Australia. Viewed on 21 October 2019, <https://catalogue.data.wa.gov.au/dataset/native-vegetation-extent>.

Wood WE 1924, 'Increase of salt in soil and streams following the destruction of the native vegetation', *Journal of the Royal Society of Western Australia* 10, 35–47.

Yeats DK, Metcalfe DJ, Westcott DA & Butler A 2014, *Australia's biodiversity: status and trends*, CSIRO. Viewed on 21 October 2019, http://www.publish.csiro.au/ebook/chapter/9781486302062_Chapter_3.



Notes

Two columns of horizontal dashed lines for writing notes.





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If you need more information or to discuss other submission options, please contact the Department of Environmental Regulation.

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✉ Native Vegetation Strategy

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