

Pilbara Environmental Offsets Fund

Vegetation Investment Plan





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We acknowledge the Traditional Owners and custodians of Country throughout Western Australia and acknowledge their continuing connection to land, waters and community, and we pay our respects to their Elders past and present. We recognise the practice of intergenerational care for Country and its relevance to our work in bringing it to life.

Country is a term used by Aboriginal people to describe the lands, waterways and seas to which they are intrinsically linked. The wellbeing, law, place, custom, language, spiritual belief, cultural practice, material sustenance, family and identity are all interwoven as one. Working with the community, we move forward with a shared commitment to protect and conserve Country for our future generations.

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Purpose of this document

This document summarises concepts that the Department of Water and Environmental Regulation (DWER) will invest about \$8.5 million in over the next five to 10 years to improve vegetation through the Pilbara Environmental Offsets Fund (the Fund).

The focus of this plan is to improve vegetation in the priority areas identified in the Fund's implementation plan (DWER, 2019) (Figure 1 – priority areas 1, 2 and 3).

This budget is based on anticipated revenue from mining impacts, existing funding commitments and approved expenditure from WA Treasury.

The actual spend will depend on the timing of revenue and how long it takes to navigate land access and security for offset outcomes to develop projects with regional land managers and Traditional Owners.

Over time, and as Commonwealth payments are made, the investment plan will be expanded to incorporate fauna, including Matters of National Environmental Significance under the *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act).

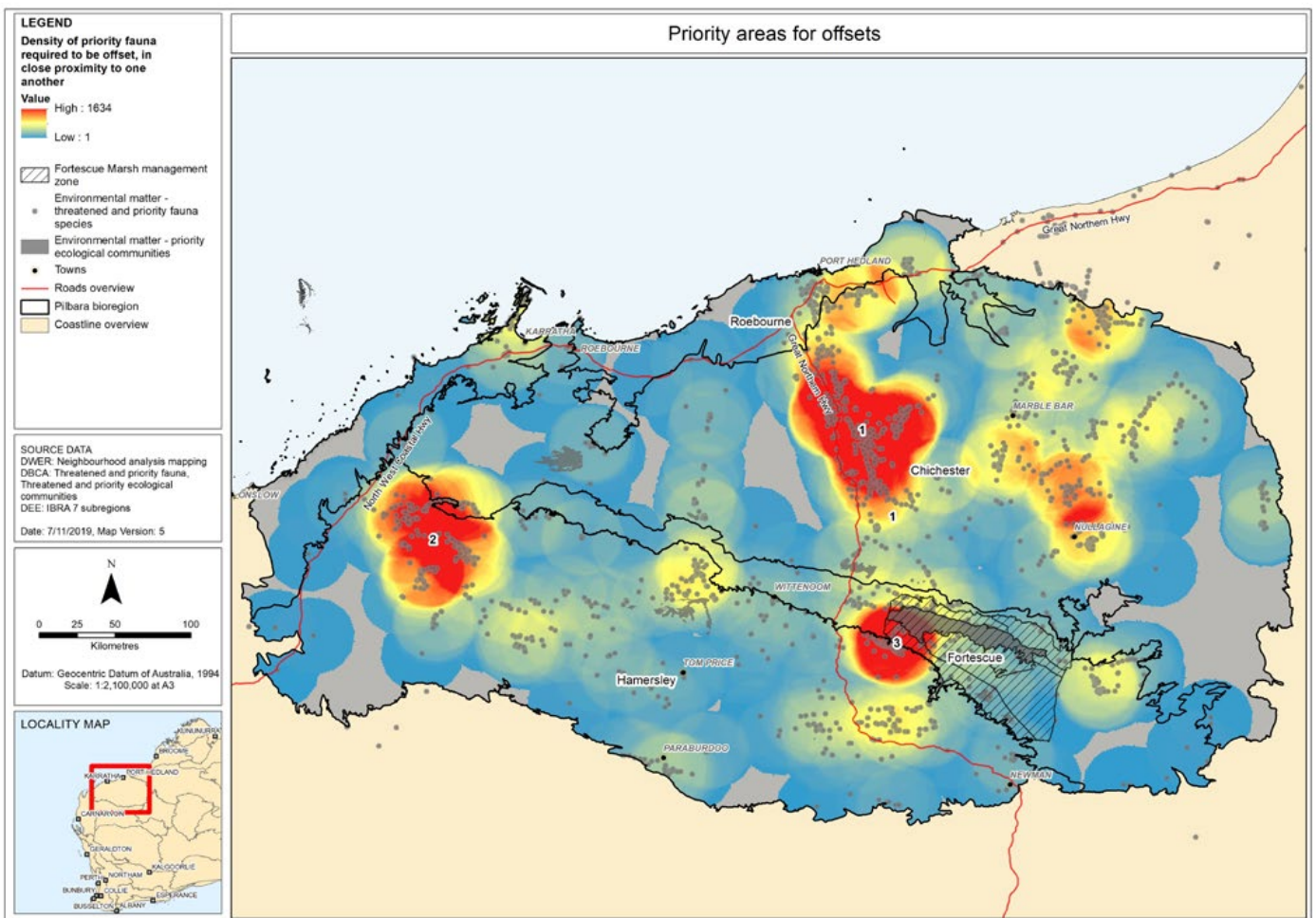


Figure 1: Priority areas for focus of Pilbara Environmental Offsets Fund projects¹

- ¹ The priority areas were identified based on the highest density of Priority Ecological Communities and fauna required to be offset under both the EP Act and EPBC Act. The three priority areas were developed to maximise benefit for environmental matters from offset investment, and to foster collaboration between people in different areas to deliver connected projects. They are a starting point and will be refined and expanded over time with new information.

How we developed this plan

DWER developed the concepts in this plan with Traditional Owners and other stakeholders, including the Department of Biodiversity, Conservation and Attractions (DBCA), WA Biodiversity Science Institute (WABSI), Curtin University (Stephen van Leeuwen), Peter Kendrick, Greening Australia, Pilbara Mesquite Management Committee, Kimberley Pilbara Cattlemen's Association, the Department of Primary Industry and Regional Development (DPIRD), Association of Mining and Exploration Companies, Department of Planning, Lands and Heritage, Chamber of Minerals and Energy and the Pilbara Regional Biosecurity Group.

First, we worked with DBCA to interrogate vegetation cover change trends using satellite imagery. This exercise highlighted fire as a dominant process driving vegetation cover in the landscape, particularly in priority area 1 (Figure 2).

We then engaged with stakeholders to identify "problems" for vegetation that could be improved through the Fund and sought to understand the

aspirations and role of different organisations in managing vegetation in the Pilbara. We engaged with Traditional Owners to understand how delivery of the Fund overlapped with their own cultural land management aspirations.

Our engagement highlighted that rivers were a priority for most stakeholders based on concerns about degradation occurring at a faster rate than in other land systems in the Pilbara, and rivers being so important from an ecological and cultural perspective. Our engagement highlighted that rivers were a priority for most as they are highly valued from both cultural and ecological perspectives, and because they appear to be degrading much faster than other land systems in the Pilbara.

All stakeholders flagged that more information was needed to guide the planning, delivery and monitoring and evaluation of projects. Traditional Owners were particularly interested in vegetation surveys and monitoring as an opportunity to access and learn more about Country.

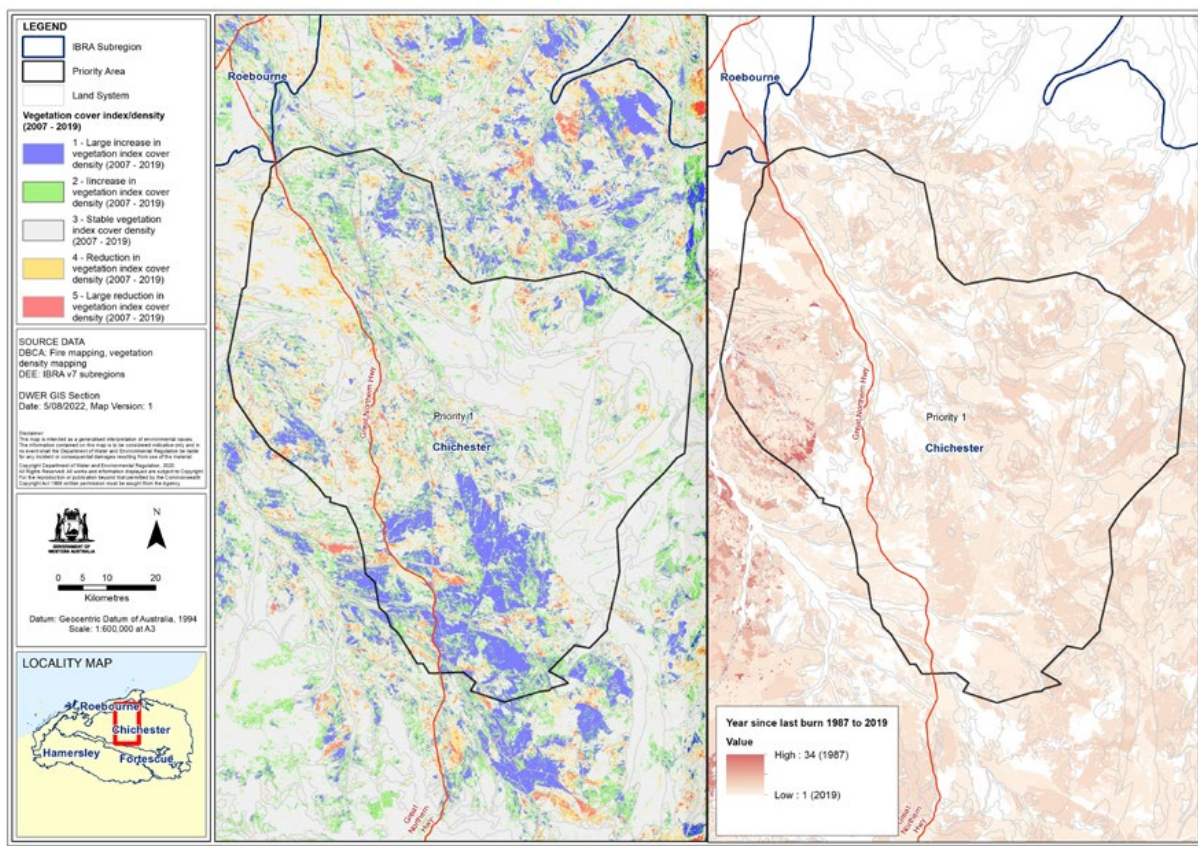


Figure 2: Remote sensing analysis of changes to vegetation cover, and fire frequency mapping. This information is being used to highlight where vegetation cover is changing and to analyse drivers of that change. It also highlights the high fire frequency in priority area 1.

We anticipate that the approach to improving vegetation in the Pilbara bioregion through the Fund will be multi-scaled. Programs of work will be developed across tenure and involve the management of multiple threats (e.g. weeds, fire, feral animals) at a scale appropriate to achieve the best outcome for vegetation and habitat.

The ability to implement multi-scale and integrated projects to optimise ecological outcomes is one of the key benefits we anticipate from the Fund. To do this effectively, DWER has adopted a co-design approach (as outlined in the Fund's engagement plan) to integrate the wisdom of Traditional Owners, researchers and practitioners in the design, monitoring, and evaluation of projects.

DWER will develop projects that build on the concepts in this plan with Traditional Owners, regional land managers, pastoralists, mining companies and government and research agencies. Projects will need to meet eligibility criteria (as defined in the Fund's implementation plan) to be funded.



PROJECT CONCEPT

1: Integrated riparian management

Develop an initial program for ~\$2.5 million/5 years in priority areas that can be expanded over time

Most of the Pilbara is in good condition, but there are some areas (e.g. dune systems, riparian vegetation along rivers) that are in poorer condition and vulnerable to further degradation (personal communication – Alicia Whittington, Peter Kendrick and Stephen van Leeuwen).

Riparian vegetation in the Pilbara is vulnerable to degradation because rivers are a water source for feral animals and cattle, which graze and trample vegetation and spread weeds. Rivers also act as a conduit for the spread of weeds during flood events. This dispersal can transform the vegetation along riparian areas in relatively short timeframes.

The impact of weeds, cattle and feral animals is reducing the cover and diversity of native vegetation along rivers and changing its structure. This is impacting the vegetation itself as well as habitat for fauna which use riparian areas to forage, shelter and breed.

If we design and deliver integrated riparian management programs, we can use multiple methods to manage threats to riparian vegetation. We can adapt our management over time depending on how the system responds, and on what we learn through monitoring and evaluation.

Year 1 of the program would focus on design and the first stages of implementation (e.g. removing weeds) in rivers in priority areas 1 and 2. Years 2 and 3 would see a similar model rolled out in other parts of the Pilbara.

Improving riparian vegetation relates directly to environmental matters which must be offset via the Fund, including good to excellent vegetation, good to excellent vegetation that is also habitat for conservation significant fauna, and groundwater dependant vegetation, including Coolibah and riparian vegetation (refer page 11 of [Pilbara Environmental Offsets Fund Implementation Plan](#)).

While the Fund is not required to specifically offset 'cultural values' we will design projects with Traditional Owners that include cultural values and aspirations for rivers and wetlands and will comply with cultural protocols when accessing and working on Country.



Plan

- Co-design integrated river management program with Traditional Owners, land managers, and researchers using multiple threat management methods (e.g. weed, fire, cattle, feral animals) to be delivered over a 5–10-year timeframe.
- Identify 'pilot' rivers (e.g. Yule, Shaw and Robe rivers in priority areas 1 and 2) and other rivers (e.g. De Grey, Nullagine, Coongan) where we could expand.
- Identify opportunities to protect biodiversity outcomes along rivers using legislation, covenants and agreements with Traditional Owners, pastoralists and DPLH.



Implement

- Deliver integrated river management programs across tenure starting on pilot rivers in priority areas and expanding across Pilbara.
- Activities in the first year likely to include survey and Indigenous ecological knowledge capture, weed removal, and fire, feral animal and grazing management.
- Adaptively manage riparian vegetation based on ecological response and learning through monitoring and observation (e.g. we removed the woody weeds but buffel grass has moved into the system from cattle so what do we need to do next?)



Evaluate and learn

- Monitor and evaluate the change in presence/absence of weeds, native vegetation cover, diversity and structure in first stages.
- Use the development of on-ground monitoring tools as an opportunity to get Traditional Owners employed on Country.
- Expand monitoring to include conservation-significant fauna in later stages.
- Define key 'questions' that need to be answered to inform riparian management.
- Use local forums to share monitoring information and on-ground knowledge to improve projects.



Plan

- Identify 'hubs' for fire management (e.g. priority area 1, buffer areas around priority area 3, Marble Bar and Nullagine).
- Co-design coordinated fire program(s) for each hub in partnership with Traditional Owners and with consideration of existing programs run by DBCA, industry and pastoralists.
- Use land system or vegetation type and cultural drivers and knowledge to guide the fire management approach.
- Identify opportunities to protect biodiversity from problem fires through legislation, covenants and agreements (e.g. opportunities on unallocated Crown land, exclusive native title land, on Aboriginal land and areas protected by the *Aboriginal Heritage Act 1972*).



Implement

- Deliver coordinated fire management programs focused in 'hubs'.
- Adaptively manage fire in partnership with Traditional Owners, DBCA, pastoralists and mining companies.



Evaluate and Learn

- Monitor and evaluate native vegetation cover using remote sensing and validate with on-ground methods. Use indicators of Country health from Indigenous ecological knowledge, including presence/absence of fauna species.
- Use local forums to share monitoring information and on-ground knowledge to improve programs.
- Identify fire management questions to inform future management [e.g. what is the best burning regime for Northern Quoll (*Dasyurus hallucatus*)].

PROJECT CONCEPT 2: Coordinated fire management program

Develop an initial program for ~ \$2.5 million/5 years that can be expanded over time

Fires that burn too hot, are too frequent and cover large areas can kill old growth vegetation, reduce the cover of native vegetation and lead to an increase in weeds. They can also increase fauna mortality, as fires over large areas reduce the food and shelter available for animals and make them more vulnerable to predators.

Unmanaged fire in parts of the Pilbara (e.g. priority area 1) has reduced native vegetation cover and increased weeds. In other parts of the Pilbara (e.g. east of priority area 1 towards Meentheena and around priority area 3) unmanaged fire has the potential to result in wildfires that reduce vegetation cover, diversity, habitat value and degrade vegetation condition.

If we identify 'hubs' – where fire management is needed and where Traditional Owners, pastoralists, mining companies and DBCA are receptive to working together – we can build a coordinated approach to managing fire across the landscape and get better outcomes for native vegetation across tenure. Through this approach, we can build on fire management already undertaken by DBCA, industry and pastoralists, and support stronger integration with cultural drivers and burning practices.

Managing fire relates to all vegetation and habitat offsets conditioned through the fund so far.

PROJECT CONCEPT 3:

Initiatives to inform the design, delivery, monitoring and evaluation of projects

Develop an initial program for ~ \$2.6 million/5 years that can be expanded over time

1. Collection of baseline information – mapping the vegetation of the Pilbara

The extent and distribution of different vegetation types in the Pilbara has not been mapped. Some localised mapping and surveys have been undertaken (e.g. Mulga has been mapped in the east Hamersley sub-bioregion) but there is no product that covers the whole bioregion.

If we had a map of the distribution of native vegetation across the Pilbara, we can design projects that target specific vegetation types (e.g. vegetation that we know is more vulnerable to threats as well as vegetation that must be offset, including Mulga, riparian and groundwater-dependant vegetation).

We could also use the information to better interpret remote sensing data to understand how vegetation may be changing in response to our interventions. A vegetation map of the Pilbara would also inform environmental impact assessments and broader conservation management across the Pilbara.

The project would pull together existing data from DBCA and mining company surveys and build on this information with additional desktop analysis and field surveys. The on-ground surveys could be undertaken with Traditional Owners to enable the exchange of traditional and scientific knowledge about landscape and vegetation.

The project could support and complement other Traditional Owner priorities (e.g. capturing and inter-generational transfer of Indigenous ecological knowledge). This project is likely to take 3–5 years to complete.

2. Monitor and evaluate vegetation condition

DWER is developing a monitoring and evaluation framework for the Fund to be able to consistently and simply measure changes to vegetation condition and, where possible, to attribute those changes to interventions through the Fund.

Our approach to design, monitor and evaluate projects will incorporate desktop methods like remote sensing, expert knowledge and the collection of on-ground data.

So far, the preferred method to collect on-ground information is through Ausplots, managed by [Australia's Terrestrial Ecosystem Research Network](#), as it links to remote sensing and 44 Ausplot sites have already been established in the Pilbara as part of a national ecosystem surveillance program. There is also a consistent process to collect, store and interpret the data for sites across Australia.

We will develop the monitoring system for the Fund and test its application with the early projects being developed. This will culminate in the development of a monitoring and evaluation plan.

► 2a Developing an on-ground vegetation monitoring method with Traditional Owners.

Co-designing monitoring protocols with Traditional Owners would provide an opportunity for two-way science that integrates Indigenous ecological knowledge in a meaningful way and provides training for Indigenous rangers in monitoring methods.

This knowledge could be used beyond the Fund in terms of monitoring the success of projects, changes to Country and as an enterprise opportunity for rangers to monitor other Ausplots or similar surveillance systems, throughout the region.

This could include support for engaging a cultural mapping specialist (through the Pilbara Development Commission) to support Traditional Owners in developing capacity to use advanced technology to activate and integrate contemporary, historic and cultural knowledge to inform monitoring and adaptive management.

► **2b Develop research questions to inform management strategies**

To ensure that projects are well designed to deliver the best possible on-ground outcomes, research will be required to fill knowledge gaps, test assumptions about management methods and develop new management methods if needed.

Research may be specific to a species (e.g. distribution of the Pilbara olive python), threat abatement techniques (e.g. feral animal baiting methods) and/or testing and improving integrated management strategies.

3. Better understand the distribution, values, and threats of Priority Ecological Communities required to be offset through the Fund.

There are several Priority Ecological Communities that the Minister has approved to be impacted through mining and offset, including:

1. Sand dunes of the Hamersley Range/Fortescue (6 ha)
2. Brockman cracking clays (11 ha)
3. Four plant assemblages of the Wona Land System (163ha).

Where a specific environmental matter, such as a Priority Ecological Community, is defined in the condition of approval, DWER has an obligation to directly improve that matter through the Fund.

The two occurrences of Brockman cracking clays occur on Hamersley Station and the West Angelas mining lease. DWER will need to define the value and threat to this Priority Ecological Community and potential management interventions directly with industry and the pastoral leasee.

Little is known about Priority Ecological Communities' part of the Wona land system. We do not know their distribution, floristic values or threatening processes.

If we better understand the distribution, value, and threats to Priority Ecological Communities, we can decide what management interventions could maintain and or improve them over the longer term.



References

DWER 2019, *Pilbara Environmental Offsets Fund Implementation Plan*, The Department of Water and Environmental Regulation, Government of Western Australia, Joondalup, Perth. Available from: <https://www.wa.gov.au/system/files/2020-07/DWER-PEOF-Implementation-plan.pdf>

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