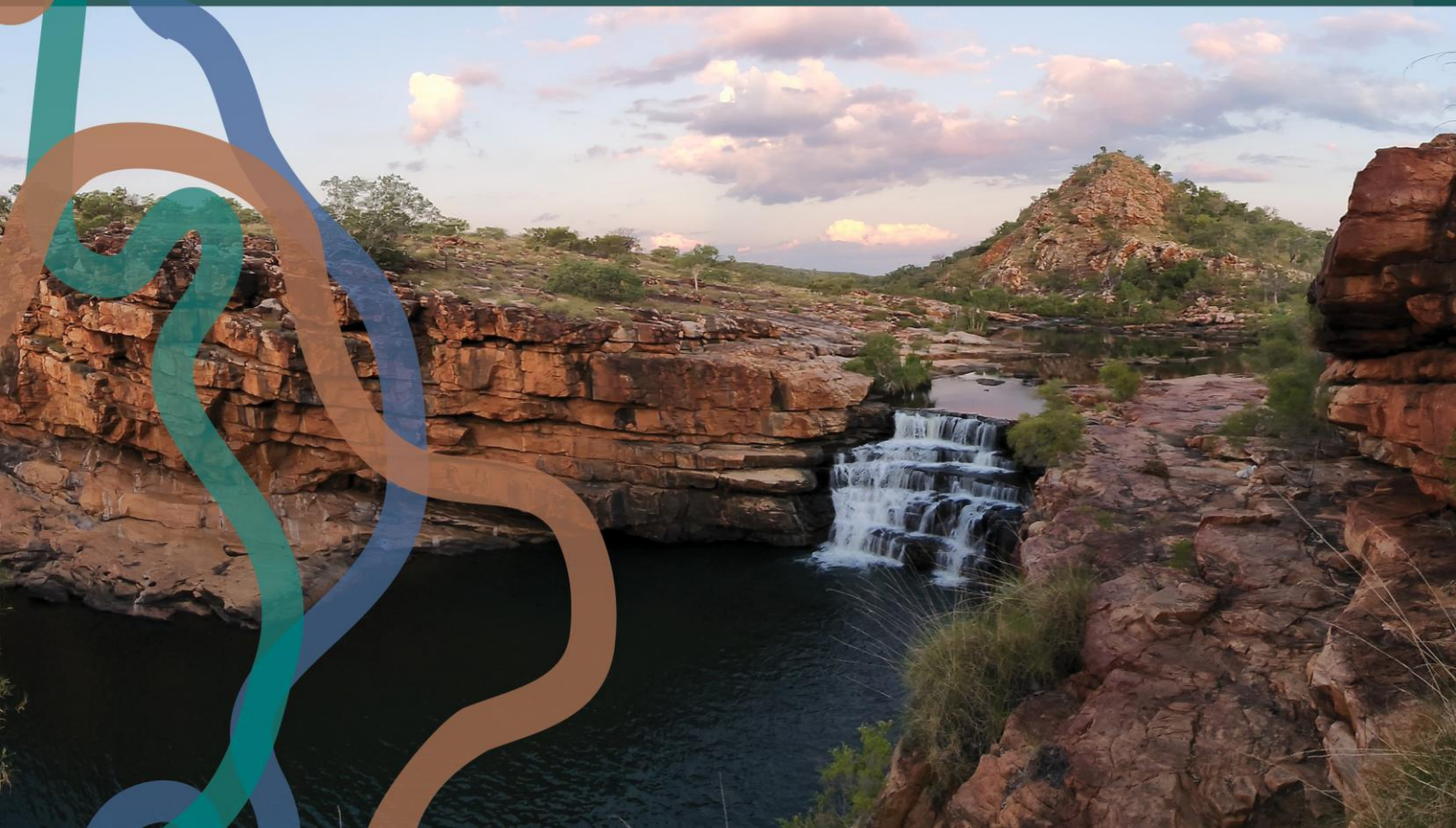
KIMBERLEY REGION
REGIONAL CONSERVATION PLAN

GOVERNMENT OF WESTERN AUSTRALIA

Department of **Biodiversity, Conservation and Attractions**



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Golden-backed tree-rat (*Mesembriomys macrurus*). *Photo – Ben Corey, DBCA*
Dalmanyi (Bell Gorge), Wunaamin Conservation Park. *Photo – Ben Corey, DBCA*

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1 Introduction

Each of the nine Parks and Wildlife Service regions identified and prioritised conservation actions through structured decision-support processes undertaken between 2021 and 2023. Information about how the plans were developed is outlined in the *Regional conservation planning approach,* which should be read in conjunction with this plan.

2 Regional context

The Kimberley is an iconic region in Australia, boasting spectacular, varied and largely intact landscapes home to unique and diverse assemblages of plants and animals. The Kimberley covers an area of more than 42 million hectares. It comprises seven Interim Biogeographic Regionalisation of Australia (IBRA) bioregions: North Kimberley, Central Kimberley, Dampierland, Victoria Bonaparte, Ord Victoria Plain, Great Sandy Desert and Tanami.

The Kimberley is one of the most ecologically important regions in Australia. Some 65 species of vertebrates and more than 300 species of plants are found nowhere else in the world. The region's remoteness means its ecosystems and species assemblages are relatively intact compared with the rest of Australia. The North Kimberley bioregion is the only place in mainland Australia with no known fauna extinctions since European colonisation.

The department has management responsibilities for more than two million hectares of terrestrial parks and reserves in the Kimberley and more than three million hectares of marine parks.

As of 1 December 2025, 13 joint management arrangements are in place with Balanggarra, Bardi and Jawi, Bunuba, Dambimangari, Gooniyandi, Karajarri, Mayala, Nyangumarta, Nyangumarta-Karajarri, Ngarla, Miriuwung Gajerrong (MG), Yawuru and Yurruyangem Taam Traditional Owners. These joint management arrangements cover 50 conservation reserves, or 70 per cent of all conservation reserves, in the Kimberley Region.

Joint management arrangements will continue to support integration of Traditional Owner participation and knowledge into reserve management.

While the Kimberley's is one of the few remaining intact landscapes in Australia, it faces significant and immediate threats to biodiversity. Threats include inappropriate fire regimes, the impacts of introduced domestic and large feral herbivores (cattle, donkeys, horses, pigs and camels) including straying stock on conservation-managed lands, predation by feral cats, impacts of weeds and cane toads, and altered hydrological regimes. Climate change is anticipated to result in changes in rainfall and temperatures, frequency and intensity of extreme weather events like cyclones, and more intense bushfires over the next few decades. Their extent and interactions with other processes are largely unknown.

Given the size and remoteness of the Kimberley Region, the nature of the threatening processes and the scale at which they operate, landscape-scale conservation management is a high priority. The department does this with joint management partners and the other conservation managers.

An overview of the Kimberley Region is provided in Table 1 and Figure 1.

Table 1 Overview of the conservation assets of the Kimberley Region (December 2025).

Region	Kimberley		
Interim Biogeographic Regionalisation of Australia (IBRA) regions	Central Kimberley sub-regions (CEK01, CEK02, CEK03), Dampier Land sub-regions (DAL01, DAL02), Great Sandy Desert sub-regions (GSD01, GSD02), Indian Tropical Islands sub region (ITI03), Northern Kimberley sub-regions (NOK01, NOK02), Ord Victoria Plain sub-regions (OVP01, OVP02), Tanami Desert sub-region (TAN01), Victoria Bonaparte sub-region (VIB01).		
Integrated Marine and Coastal Regionalisation of Australia (IMCRA) regions	Bonaparte Gulf, Cambridge-Bonaparte, Kimberley, King Sound, Canning, Eighty Mile Beach, Northwest Shelf.		
Landscape description	The Kimberley is a tropical savanna punctuated by gorges, flat topped mesas, swamps, rainforests and, to the south, desert sand dunes. The broad continental shelf off the Kimberley coast supports coral reefs, banks, shoals and near-shore islands.		
Department-managed land	**Tenure classification**	**No.**	**Area (ha)**
	Legislated lands and waters		
	National park	13	1,621,141
	Conservation park	12	620,992
	Nature reserve	19	175,148
	Section 5(1)(g) reserve	2	80,258
	Section 5(1)(h) reserve	32	746,857
	Marine park	11	3,729,839
	Marine reserve - *Land Administration Act 1997*	1	120
	Section 34A freehold	1	0.3
	Total	**91**	**6,974,355**
	Department interest in lands and waters		
	Crown reserve - department interest	1	0.2
	Unallocated Crown land - department interest	15	137,472
	Total	**16**	**137,473**
	Total area of all lands and waters encompassed by the region (and portion managed by the department)		**46,670,019 (15%)**
Remnant vegetation	Approximately 99.7% of the total area of land encompassed by the region includes remnant vegetation, with approximately 8.3% of this remnant vegetation occurring on department-managed land.		
Threatened[1] and Priority[2] fauna species	Extinct (10), critically endangered (31), endangered (22), vulnerable (27), conservation dependent (1), migratory (84), other specially protected (3), Priority 1 (23), Priority 2 (25), Priority 3 (10), Priority 4 (25)		
Threatened and Priority flora species	Extinct (0), critically endangered (0), endangered (2), vulnerable (1), Priority 1 (310), Priority 2 (126), Priority 3 (167), Priority 4 (13)		
Threatened and Priority ecological communities	Collapsed (0), critically endangered (6), endangered (1), vulnerable (4), Priority 1 (21), Priority 2 (1), Priority 3 (38), Priority 4 (1)		
Wetlands	Wetlands of International Importance under the Ramsar Convention (4), Wetlands of National Importance (23)		

[1] Threatened species and ecological communities listed under the *Biodiversity Conservation Act 2016* (BC Act).
[2] Priority species and ecological community lists are maintained by the department; Priority is not a listing category under the BC Act.

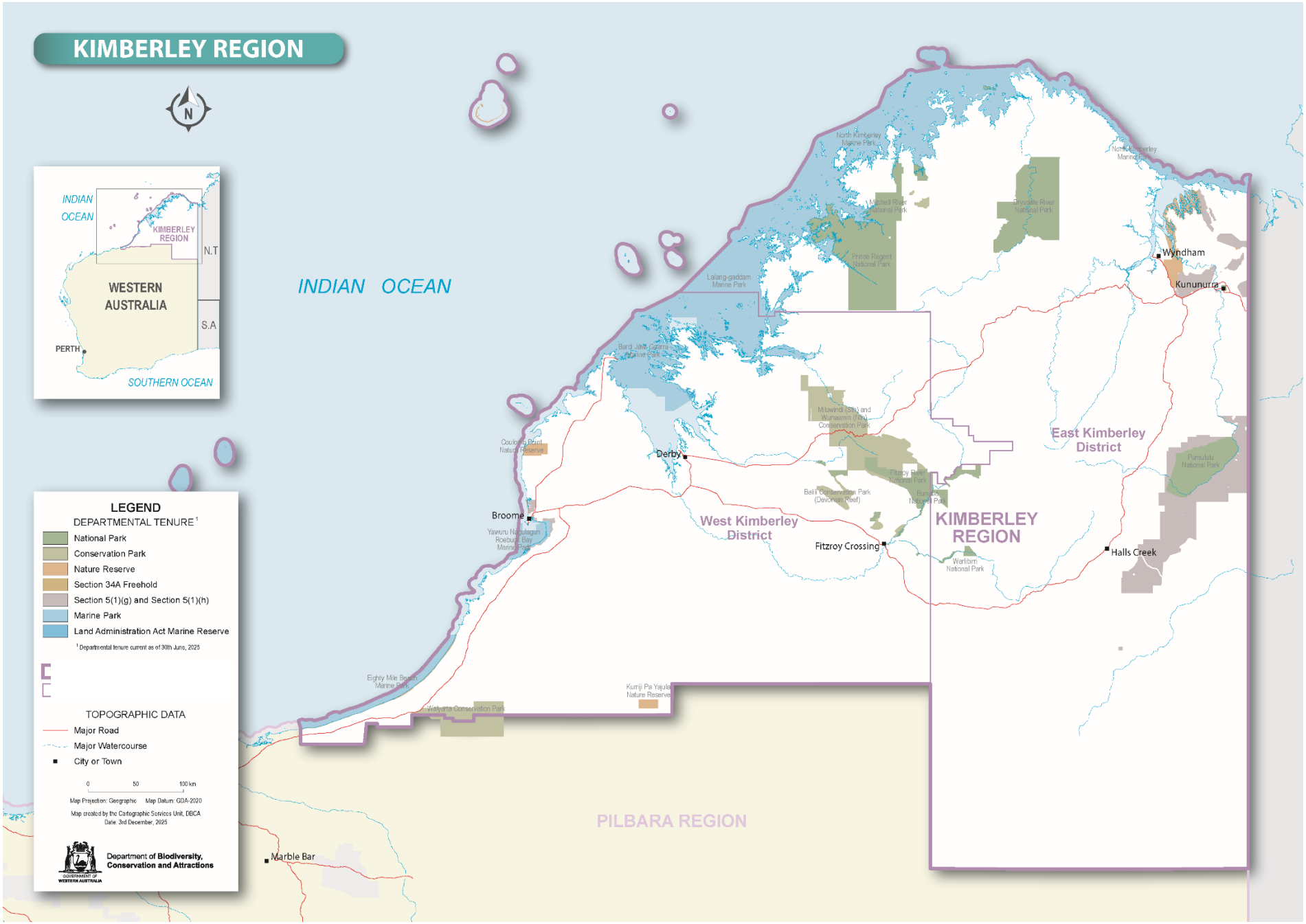

Figure 1 Kimberley Region department-managed land and waters (December 2025).

3 Identification of priority reserves and landscapes

To determine priorities for landscape-scale threat mitigation, the Kimberley Region applied the following approach to identifying priority reserves and landscapes when undertaking the Landscape action prioritisation process, in accordance with the *Regional conservation planning approach*.

3.1.1 Identification of priority landscapes

Despite the Kimberley's nationally recognised biodiversity status (for example National Heritage Listing, National Biodiversity Hotspot), landscapes within the region differ markedly in terms of environmental condition and the overall 'health' of biodiversity. This is primarily due to different land-use histories and the resilience of biota to post-colonisation pressures, which is also influenced by the declining rainfall gradient from north to south, diverse underlying geology, and heterogeneity in the dominant vegetation types. For this reason, the Kimberley was divided into landscape regions that capture this variation: the northern (North Kimberley bioregion), central (Victoria Bonaparte, Central and Dampierland bioregions) and southern Kimberley (Ord Victoria, Tanami and Great Sandy Desert bioregions).

Northern Kimberley

The Northern Kimberley is one of the few relatively intact large wild areas left in the world. It is a National Biodiversity Hotspot with many endemic species. It is the only place in mainland Australia where all the native mammal species understood to be present at the time of European colonisation still occur. This region contains some of the largest department-managed reserves in the Kimberley. Most of these reserves have little or no road access, and management of reserves and biodiversity occurs at landscape scales, often in close collaboration with neighbouring Indigenous Protected Area (IPA) managers. There are four large IPAs, with Ranger groups implementing Healthy Country Plans across these. It has had the most minor agricultural and pastoral activity of any area in the Kimberley, primarily due to remoteness from markets and lack of productive landscapes. Weeds have yet to become dominant in the Northern Kimberley. However, unmanaged cattle and inappropriate fire regimes pose a threat to native vegetation and biodiversity. There has been little mining activity despite significant bauxite deposits.

Central Kimberley

The Central Kimberley faces the most significant of threats to biodiversity conservation of the three bioregions. This is due to the prevalence of pastoralism and agriculture, and to a lesser extent, mining activity. Most of the Kimberley's population live within this region in Broome, Kununurra or several smaller towns between these. Reserves in the Central Kimberley are typically smaller and surrounded by large areas managed for other purposes, primarily cattle production.

Like the Northern Kimberley, large, introduced herbivores and inappropriate fire regimes are major threatening processes. However, weeds are a more significant problem in this region due to widespread pastoralism and higher visitation rates. Extensive roadside populations of grader grass (*Themeda quadrivalvis*) have become established in Wunaamin Miliwundi Ranges Conservation Park and areas along the Gibb River and Kalumburu roads, and hyptis (*Hyptis suaveolens*), stinking passionflower (*Passiflora foetida*) and butterfly pea (*Clitoria ternatea*) are now established in Wunaamin Conservation Park. Geikie Gorge and Darram Conservation Parks are high public visitation parks where weed invasion is extensive, and management is essential. Additionally, there are small occurrences of giant sensitive plant (*Mimosa pigra*) at Lake Argyle, rubber vine (*Cryptostegia grandiflora*) at Willare (Fitzroy River) and on Lisadell Station, and gamba grass (*Andropogan gayanus*) on El Questro station - all Weeds of National Significance. Other species, such as rubber bush (*Calotropis*

procera), prickly acacia (*Acacia nilotica*), bellyache bush (*Jatrop gossypiifolia*), neem trees (*Azadirachta indica*), buffel grass (*Cenchrus ciliaris*) and stinking passionflower (*Passiflora foetida*) are more ubiquitous.

Weeds have the potential to impact biodiversity through the modification of habitats and competition for resources. Such impacts may not immediately be apparent; however, if addressed when the threat is still manageable, may be possible to overcome.

Southern Kimberley
Although it is considered structurally intact and relatively free from anthropogenic modification, the Southern Kimberley has lost a significant proportion of its small to medium sized mammal fauna because of invasive species, in particular foxes and cats. Here, biodiversity benchmarking is still required to increase knowledge and underpin good decision-making for reserve prioritisation and management. Furthermore, information on the condition of some reserves in this region (for example Dragon Tree Soak, Ord River Regeneration Reserve and parts of Purnululu National Park) is lacking. Pastoral leases and unallocated Crown Land surround conservation reserves.

Weeds (particularly buffel grass in the Ord River Regeneration Reserve), large feral herbivores (including camels and horses) and unmanaged cattle are a significant problem to threatened mound springs and important wetlands like Mandora Marsh (in Walyarta Conservation Park), Lake Gregory and Dragon Tree Soak. Feral cats are ubiquitous in this region. There are populations of the greater bilby *(Macrotis lagotis*) and recent discoveries of the critically endangered night parrot (*Pezoporus occidentalis*). The status and distribution of threatened and Priority small-medium-sized mammals (for example spectacled hare-wallabies (*Lagorchestes conspicillatus leichardti*), black-footed rock-wallabies (*Petrogale lateralis lateralis*), scaly-tailed possums (*Wyulda squamicaudata*) and quolls (*Dasyurus hallucatus*)) and other vertebrates are poorly known, making biodiversity benchmarking a priority.

3.1.2 Categorisation of land into management units
Within the broadly defined priority landscapes listed above, department-managed parks and reserves were categorised into management units. These management units were delineated by their biodiversity values, size, joint management arrangements, proximity to department work centres (and how staff are allocated across these), and the nature of the management activities done across these management units. For example, Balili, Danggu and Jungi-wa conservation parks and Bandilngan, Danggu and Dimaluurru national parks are all jointly managed with Bunuba people and captured by the Jalangurru Manyjawarra Bunuba Muwayi Yarrangu joint management plan. They are referred to as ‘Bunuba reserves’ management unit. This process was also followed for other groupings of individual reserves jointly managed with Traditional Owner groups.

3.1.3 Identify priority management units
To identify management units of the highest priority to focus conservation efforts, the Kimberley Region applied basic spatial (Geographical Information Systems) analysis using corporate datasets (threatened and Priority species and ecological communities, Ramsar sites and other important wetlands), the size and intactness of these areas, and joint management partner aspirations and local knowledge to determine the value of each management unit. The Kimberley Region then documented threatening processes impacting these management units or conservation assets within these, referencing threatening processes operating at the relevant scales. Relevant scientific literature and previous

conservation planning initiatives (for example Carwardine et al. 2011), Healthy Country Plans (for IPAs) and existing joint management plans were also interrogated.

Through this assessment, the Kimberley Region identified 46 priority management units and these are listed in Appendix 1.

4 Regional conservation actions

The conservation actions identified and prioritised through the regional conservation planning process are organised into the following sections:

1) Highest priority actions assessed through the prioritisation processes (as described in the *Regional conservation planning approach*) are outlined in section 5.

   These actions will be implemented by regional staff as the highest priority, focused on those actions that are on, or benefit, department-managed land[3,4] and/or involve addressing key information requirements for the management of threatened and Priority species and ecological communities both on and off department-managed land[5].

2) Actions identified through the regional conservation planning process that are not the highest priority are outlined in section 6.

   These actions will be considered in works programming as opportunities arise. They include:

   a) Actions to be led by the region that went through the benefit-cost analysis (for Landscape and Targeted actions) and the risk assessment and value of information analysis process (for Learn actions) and were assessed to not be in the highest priority category.

   b) Actions with a benefit-cost score of zero[6] or less were excluded from prioritisation category allocation, as they have been estimated to deliver no value or may be detrimental based on the information available during the regional conservation planning process. These actions are included for regions to consider should prioritisation process factors change over time (for example new information that improves feasibility or certainty).

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[3] **Department-managed land** includes lands and waters managed under the Parks and Wildlife Service's legislation (the *Conservation and Land Management Act 1984* and *Swan and Canning Rivers Management Act 2006*). It also applies to 1) those lands for which the department under a Memorandum of Understanding (MOU) with the Department of Planning, Lands and Heritage, manages pest animals, weeds and fire on unallocated Crown land (UCL) and unmanaged reserves (UMR) outside the metropolitan area, regional centres and townsites (2004), where resources are available and subject to native title considerations; and 2) Crown lands where the department has a management interest (for example UCL lands that were purchased or identified with the aim of adding them to the formal conservation estate but remain under the management of the *Land Administration Act 1997*).

[4] Actions off, but that will benefit, department-managed land were assessed through the Landscape and Targeted action prioritisation processes. These include actions that:

- are on lands adjacent to department-managed land (for example neighbouring properties, buffers)
- are undertaken in partnership with joint management partners (including potential joint management partners) off department-managed land (relationship building)
- incorporate multiple tenure types, including department-managed land.

[5] Learn actions undertaken by regions on non-department-managed land were included in the Learn action prioritisation process, even if they may not directly benefit department-managed land. This is because information about threatened and Priority species and communities is essential to inform their status, and subsequent management actions either on department-managed land or for the department to encourage actions on other lands.

[6] Zero was defined as 0.0000000001.

c) *Landscape and Targeted actions identified through the action development processes that are off, and do not directly benefit, department-managed land, and/or that rely on third parties for implementation where all costs are not incurred by the region.

   These were not assessed through the prioritisation processes. This is because the primary focus of regions is to implement actions on, or that benefit the lands for which they have a management responsibility, and/or because the benefit-cost analysis could not be accurately applied due to cost and feasibility uncertainty (as these were outside the region's control). These actions include liaison and advocacy, land acquisition and transfer, and education and awareness.

d) *Proposed/new translocation and germplasm collection and storage actions.

   These actions were considered through the Targeted action screening and action development processes but were not included in the regional conservation prioritisation processes, as these actions are dependent on approval processes and considerations at a state-wide level led by other areas of the department.

An asterisk (*) denotes the action types that have not been through the regional conservation planning prioritisation processes.

3) Learn actions that were beyond the region's capacity and/or expertise to address are outlined in section 7.

   The region will pursue collaboration opportunities to address these information requirements as they arise with other business areas of the department and/or external parties.

Conservation actions to be led by the region have been assigned to the relevant overarching biodiversity conservation strategy as outlined in the department's Biodiversity Conservation Framework. Multiple other business areas of the department contribute to achieving these overarching strategies. Therefore, the region may not deliver actions aligned to all the overarching strategies, and regional conservation plans do not reflect all the conservation activities implemented by other business areas of the department.

Many actions identified through the regional conservation planning process align with multiple overarching strategies, therefore they were assigned based on the nature of the action (what the action is focused on doing) rather than the objective (what the action is focused on achieving).

Action numbers
The action number in square brackets is a unique code for specific actions that may be grouped in a summarised format in this plan. The action number can be used to reference the detailed information documented through the prioritisation process for that action within the supporting datasets. The letters of the action number denote the prioritisation process (LA = Landscape action, LE = Learn action and TA = Targeted action). For Learn and Targeted actions, letters also denote the threatened or Priority biodiversity asset type (EC = ecological community, FA = fauna and FL = flora). The numbers are random (they do not relate to their priority).

5 Highest priority actions assessed through prioritisation processes

FAUNA

- Survey for and implement a targeted monitoring program for red goshawk (*Erythrotriorchis radiatus*) in Prince Regent National Park [LE-FA-002].
- Provide suitable artificial nesting structures, carry out further monitoring for visitor impacts to inform future liaison, and provide educational information to tour operators and visitors regarding appropriate practices for conserving the Rowley Shoals population of red-tailed tropicbird (*Phaethon rubricauda*) [TA-FA-213].
- Re-band the Rowley Shoals populations of red-tailed tropicbird (*Phaethon rubricauda*) to understand migratory patterns and fidelity to sites [LE-FA-001].
- Survey for and implement a targeted monitoring program for northern masked owl (*Tyto novaehollandiae Kimberli*) in Prince Regent National Park [LE-FA-003].

FLORA

- Monitor *Stylidium rubriscapum* to determine population size and status [LE-FL-003].
- Identify threatening processes specific to:
  - *Triodia bunglensis* [LE-FL-004]
  - *Triumfetta aspera* [LE-FL-005]
  - *Utricularia aurea* [LE-FL-006].
- Review flora species listed in the Threatened and Priority Flora Database (TPFL) and/or Western Australian Herbarium records without an assigned 'TPFL population number' at the time of the flora screening process, to determine survey, monitoring or other actions required.

ECOLOGICAL COMMUNITIES

- Design a viability analysis to understand which occurrences in the Assemblages of the organic springs and mound springs of the Mandora Marsh area should be prioritised for individual fencing. Those with well-developed peat would be a higher priority (Fern, Eil Eil and Melaleuca springs). Investigate whether fencing the Stock occurrences is warranted given their degraded status [LE-EC-003].

ALTERED HYDROLOGY

- Working with joint management partners and Native Title holders, provide appropriate advice to the Department of Water and Environmental Regulation on the potential impacts of groundwater abstraction on cultural and biodiversity values in Walyarta Conservation Park [LA-034].

FIRE REGIMES

- Implement appropriate fire regimes using prescribed burning and other bushfire mitigation measures to restore and maintain biodiversity values and ecological processes in:
  - Coulomb Point Nature Reserve [LA-009]
  - Kurriji Pa Yajula (Dragon Tree Soak) Nature Reserve [LA-015]
  - Miriuwung Gajerrong reserves [LA-017, LA-018]
  - Ord River and Parry Lagoons nature reserves [LA-025]
  - Prince Regent National Park [LA-028, LA-030].
- Implement prescribed burning to provide buffers at Fern Spring, Melaleuca Spring, Stock Springs (02, 03, 04, 05, 07), Saunders Springs, Grants Spring, Eil Eil Spring and Little Eil Eil Spring, in conjunction with effective strategic landscape-scale fire management to reduce the threat of bushfire for the remainder of springs. Monitor the Assemblages of the organic springs and mound springs of the Mandora Marsh pre- and post-fire events to assess its vulnerability to fire and to inform further fire management [TA-EC-082].

PEST ANIMALS

- Implement a control program for large feral (cattle, donkey, feral pig, horse and camel) and domestic herbivores to reduce impacts on biodiversity values in:
  - Drysdale River National Park [LA-011]
  - Kurriji Pa Yajula (Dragon Tree Soak) [LA-016]
  - Walyarta Conservation Park [LA-035].
- Maintain and upgrade the fencing across the northern boundary of Walyarta Conservation Park to protect all occurrences of the Assemblages of the organic springs and mound springs of the Mandora Marsh area from straying cattle and respond where breaches occur [TA-EC-085].

6 Actions identified through the regional conservation planning process that are not the highest priority

FAUNA

- Implement seasonal closures to protect foraging and breeding areas of dugong (*Dugong dugon*) in areas of high visitation across the species range including Roebuck Bay and Shark Bay in the Kimberley and Midwest regions [TA-FA-163].
- Address the impacts of recreational and commercial activities on common noddy (*Anous stolidus*) by installing surveillance cameras and actively patrolling Adele and Lacapede islands [TA-FA-298].
- Include longcomb sawfish (*Pristis zijsron*) in management plans to ensure continued monitoring of the species [LE-FA-012].

ECOLOGICAL COMMUNITIES

**Land acquisition and transfer actions*

- Investigate the potential acquisition of larger occurrences of the Assemblages of the wetlands associated with the organic mound springs on the tidal mudflats of the Victoria-Bonaparte bioregion that were surveyed in 2017 including Attack Spring, Bamboo Spring, Brolga Spring, Enigma Spring, KMS010, KMS014 and KMS015. Remove stock post-acquisition, fence occurrences and implement weed control as necessary in response to reduced grazing pressure [TA-EC-087].
- In consultation with Bardi Jawi Native Title holders, investigate opportunities to protect Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula occurrences (vine03a, vine06a, vine07a, vine19, vine20a and vine48 [TA-EC-100]; vine02a, vine02b, vine28a, vine29a, vine39, vine44a, vine45 and vine46a [TA-EC-099]; vine04, vine05, vine11, vine12 and vine41 [TA-EC-101]) including providing support to Bardi Jawi rangers to implement weed and fire management.
- In consultation with Jabirr Jabirr/Ngumbarl Native Title holders, investigate opportunities to protect Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula occurrences (JamesPriceNorth and Quandong Downs) including providing support to Jabirr Jabirr/Ngumbarl rangers to implement management for cattle (fencing and removal to maintain destocked status), weeds (i.e., *Merremia dissecta*, *Leucaena leucocephala*, *Macroptilium atropurpureum*), recreation (limit 4WD access, littering and fire risk associated with camping) and fire [TA-EC-097].

LANDSCAPES

- Liaise with Department of Agriculture, Water and Environment in relation to the implementation of an enforcement and compliance program focusing on terrestrial impacts of fishing around Browse Island [LA-004].
- Implement an education, vehicle restriction and compliance monitoring program to reduce the incidence of illegal rubbish dumping on Yawuru reserves around Broome [LA-046].

FAUNA

- Monitor for greater bilby (*Macrotis lagotis*) at Walyarta Conservation Park and Anna Plains Station [LE-FA-006].
- Integrate 30 years of opportunistic observations of threatened and Priority birds including black grasswren (*Amytornis housei*), northern shrike-tit (*Falcunculus frontatus whitei)* and partridge pigeon (*Geophaps smithii blaauwi*) into department monitoring datasets. Utilise findings to inform landscape-scale fire management [LE-FA-009].
- Monitor Gouldian finch (*Erythrura gouldiae*) in Wunaamin to determine population status [LE-FA-005].
- Implement targeted surveys at Wunaamin Miliwundi, Drysdale River, Prince Regent and Mitchell Plateau to determine northern crested shrike-tit (*Falcunculus frontatus whitei*) occurrence and population status [LE-FA-007].
- Implement targeted surveys to assess the condition of the recently rediscovered Lake Kununurra population of purple-crowned fairywren (*Malurus coronatus coronatus*) [LE-FA-004].
- Continue to implement monitoring and surveying programs to inform visitor access management at far eastern curlew (*Numenius madagascariensis*) roosting sites [LE-FA-010].
- Establish an information sharing platform for red-tailed tropicbird (*Phaethon rubricauda*) between the Kimberley Region and South West Region [LE-FA-008].

FLORA

- Monitor the following Priority species to determine population size and status:
  - *Acacia spectrum* [LE-FL-019]
  - *Acacia vincentii* [LE-FL-016]
  - *Auranticarpa resinosa* [LE-FL-017]
  - *Blumea pungens* [LE-FL-023]
  - *Boronia barrettiorum* [LE-FL-020]

- *Boronia pauciflora* [LE-FL-024]
- *Brachychiton incanus* [LE-FL-021]
- *Dicarpidium* sp. B Kimberley Flora (G.J. Keighery 10138) [LE-FL-022]
- *Echinochloa kimberleyensis* [LE-FL-018]
- *Fimbristylis laxiglumis* [LE-FL-008]
- *Grevillea latifolia* [LE-FL-009]
- *Indigofera ammobia* [LE-FL-014]
- *Ipomoea tolmerana* subsp. *occidentalis* [LE-FL-011]
- *Lindernia macrosiphonia* [LE-FL-010]
- *Nymphoides beaglensis* [LE-FL-015]
- *Olax spartea* [LE-FL-013]
- *Tadehagi robustum* [LE-FL-007].

- Liaise with Australian Wildlife Conservancy to obtain survey information and up to date records of the status of *Lazarum peltandroides* to inform required management interventions and further liaison work [LE-FL-012].

ECOLOGICAL COMMUNITIES

- Expand the current weed control program on Yawuru reserves (focusing on *Clitoria ternatea*, *Macroptilium atropurpureum* and *Hyptis suaveolens*), maintain tracks, and implement an education program utilising signage relating to the value of the vine thickets, hygiene awareness, and the importance of keeping to tracks and appropriate rubbish disposal across occurrence vine01 of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula [TA-EC-107].
- On Yawuru reserves, exclude horses and cattle from the Nimalarica (Nimalarragun) claypan community through the construction of fencing along tracks and remove feral herbivores within fenced areas. Additionally, map weeds across the community and implement responsive targeted weed control for known weeds including *Passiflora foetida*, *Pakinsonia aculeata* and *Azadirachta indica* [TA-EC-113].
- On Yawuru reserves, exclude fire from the mound springs and fernland areas (peat-based system) of the Nimalarica (Nimalarragun) claypan community by introducing adjacent prescribed burning practices and actively working to exclude bushfire [TA-EC-112].

**Liaison actions*

- On Yawuru reserves, expand the fire management program implemented at vine01 (reduced fire frequency, reduced incidence of intense late dry-season fires, and increased application of smaller-scale low intensity prescribed burns earlier in the season) to include occurrences BPen01, BPen02, Bilungurr01 and Hidden Valley of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula. Implement a program of information and education through signage and other means to inform visitors about the impact of fire on the community [TA-EC-103].

FIRE REGIMES

- Implement appropriate fire regimes using prescribed burning and other bushfire mitigation measures to restore and maintain biodiversity values and ecological processes in:
  - Bunuba reserves [LA-006]
  - Drysdale River National Park [LA-012, LA-013]
  - Purnululu World Heritage Area [LA-032]
  - Walyarta Conservation Park [LA-036]
  - Wunaamin Miliwundi Ranges Conservation Park [LA-038, LA-041, LA-042, LA-043]
  - Yawuru reserves [LA-044].

PEST ANIMALS

- Review and determine priorities for pest animal management, develop and conduct training, and undertake pest animal control actions to achieve conservation and protection of native species and ecological communities and other values at:
  - Adele Island Nature Reserve [LA-001]
  - Browse Island Naure Reserve [LA-003]
  - Bunuba reserves [LA-008]
  - Coulomb Point Nature Reserve [LA-010]
  - Miriuwung Gajerrong reserves [LA-020]
  - Ord River and Parry Lagoons nature reserves [LA-027]
  - Prince Regent National Park [LA-029]
  - Purnululu World Heritage Area [LA-033]
  - Walyarta Conservation Park [LA-037]
  - Wunaamin Miliwundi Ranges Conservation Park [LA-039].
- Implement a Polynesian rat (*Rattus exulans*) and house mouse (*Mus musculus*) baiting program on Adele and Browse islands respectively to protect common noddy (*Anous stolidus*) [TA-FA-065].
- In collaboration with Traditional Owners and local communities, trial targeted introduced predator management, large feral herbivore control and fire management at known greater bilby (*Macrotis lagotis*) sites in Kujungurru Warrarn Nature Reserve, Yawuru Birragun Conservation Park and Purnululu National Park and monitor populations to determine the impact the trial management actions have on the species [TA-FA-402].
- Implement a control program for cattle and camels across all occurrences of the Assemblages of the organic springs and mound springs of the Mandora Marsh area with particular focus on the Melaleuca Spring and Saunders occurrences [TA-EC-081a].
- Maintain and upgrade the fencing across the north of Walyarta Conservation Park to protect the Inland mangrove community of Salt Creek from straying cattle [TA-EC-094].

WEEDS

- Review and determine priorities for weed management, develop and conduct training, and undertake actions, including weed control and surveys to determine weed distribution and abundance and monitoring effectiveness of weed management actions, to achieve conservation and protection of native flora and other values at:
  - Adele Island Nature Reserve [LA-002]
  - Browse Island Nature Reserve [LA-005]
  - Bunuba reserves [LA-007]
  - Drysdale River National Park [LA-014]
  - Miriuwung Gajerrong reserves [LA-019]
  - Ord River and Parry Lagoons nature reserves [LA-026]
  - Prince Regent National Park [LA-031]
  - Yawuru reserves [LA-045]
  - Wunaamin Miliwundi Ranges Conservation Park [LA-040].
- For occurrences of the *Corymbia paractia* dominated community on dunes that fall within the Yawuru Minyirr Buru Conservation Park, liaise with Yawuru joint management rangers to undertake weed mapping and control for *Passiflora foetida*, *Cenchrus* sp., *Clitoria ternatea*, *Chloris virgata*, *Hyptis suaveolens*, *Jatropha gossypifolia*, *Leucaena leucocephala*, *Macroptilium atropurpureum*, *Merremia* sp., *Stylosanthes hamata* and *Azadirachta indica* [TA-EC-092].
- Update weed mapping following removal of large feral herbivores (see TA-EC-081a) and implement weed control with a focus on occurrences accessible by vehicles (Melaleuca Spring, Fern Spring, Stock Springs (02, 02, 04, 05), Saunders (01-05), Grants Spring, Eil Eil Spring and Little Eil Eil Spring) of the Assemblages of the organic springs and mound springs of the Mandora Marsh area [TA-EC-081b].
- Investigate the status of *Phyla nodiflora* in the Linear Spring and Top Springs occurrences of the Assemblages of the organic springs and mound springs of the Mandora Marsh area to understand if it is localised to the area or should be considered a weed species. If it is determined to be a weed, research best practice weed control [LE-EC-004].

FAUNA

- At Tunnel Creek (Dimalurru National Park), educate visitors to reduce disturbance to ghost bat (*Macroderma gigas*) through signage and educatory talks [TA-FA-239].

*Liaison actions

- Support Traditional Owners in the technical aspects of prescribed burning adjacent to greater bilby (*Macrostis lagotis*) colonies to mitigate large scale bushfires impacting on known populations [TA-FA-388].
- Liaise with ranger groups, WWF-Australia and Australian Wildlife Conservancy to survey and locate breeding areas for Gouldian finch (*Erythrura gouldiae*) and implement fine scale fire mosaic that is a mixture of long unburnt and recently burnt patches at these breeding areas [TA-FA-440].
- Liaise with private property landholders to reduce the impact of cattle on purple-crowned fairywren (*Malurus coronatus coronatus*) by fencing appropriate areas and providing water points for stock [TA-FA-216].
- Liaise with the local government authority (LGA) and all relevant land managers regarding the burning of riparian vegetation to reduce the impact of fire on purple-crowned fairywren (*Malurus coronatus coronatus*) along the Ord River (including Lake Kununurra) [TA-FA-029].
- Support Traditional Owners in the technical aspects of prescribed burning adjacent to great desert skink (*Liopholis kintorei*) colonies across its range in the Pilbara, Kimberley and Goldfields regions to mitigate large scale bushfires impacting on known populations [TA-FA-400].

FLORA

*Education and awareness

- Implement an education program for farmers to assist with conservation and management of all populations of *Typhonium* sp. Kununurra that persist in areas adjacent to agricultural land [TA-FL-577].

*Liaison actions

- Liaise with Karajarri ranger group to manage fire in the sandplain area of the Edgar Range, preventing incursions and protecting Edgar Range pandanus (*Pandanus spiralis* var. *flammeus*) (populations 1 and 2) [TA-FL-574].
- Liaise with and support Dampier Downs pastoral lease owner to enable expansion of the existing fenced area and ongoing fence maintenance for population 1 of Edgar Range pandanus (*Pandanus spiralis* var. *flammeus*) [TA-FL-575].
- Implement weed control targeting *Parkinsonia aculeata* to protect all populations (populations 1 and 2) of Edgar Range pandanus (*Pandanus spiralis* var. *flammeus*) [TA-FL-576].

ECOLOGICAL COMMUNITIES

*Liaison actions

- Liaise with the Jabbir Jabbir Native Title holders to implement *Cenchrus ciliaris*, *Passiflora foetida* and fruit tree control identified through weed mapping and to erect

fencing to exclude feral herbivores from all occurrences of the Assemblages of Bunda Bunda organic mound springs community [TA-EC-077].

- Liaise with surrounding Native Title holders and the Karajarri rangers to implement camel and straying cattle control at the Assemblages of Dragon Tree Soak organic mound spring to reduce the impacts of grazing, trampling and nutrient enrichment [TA-EC-080].
- Liaise with the Karajarri rangers to implement prescribed burns to protect the Assemblages of Dragon Tree Soak organic mound spring from bushfire, ensuring direct ignition of peat mounds is avoided [TA-EC-079].
- Liaise with the Wunggurr ranger group for fire management, weed mapping, and feral pig and cattle control across occurrences Walcott1(19/2), Walcott2(18/24) and Walcott3(21/4) of the Assemblages of Walcott Inlet rainforest swamps [TA-EC-089].
- Liaise with pastoralist to construct and maintain a fence and firebreaks around the KMS014, Enigma Spring and Brolga Spring occurrences of the Assemblages of the wetlands associated with the organic mound springs on the tidal mudflats of the Victoria-Bonaparte bioregion, to exclude cattle and mitigate against bushfire. Monitor the response of the occurrences to the exclusion of cattle, particularly the response of weed species and respond appropriately with weed control [TA-EC-086].
- Maintain the fence across the Black Spring organic mound spring community to exclude cattle and pigs. Where pigs and cattle have been found to have breached the fence, remove them, and continue to undertake responsive management. In the absence of grazing pressure, implement a weed control program informed by weed mapping and maintain strict hygiene standards [TA-EC-090].
- Protect the Black Spring organic mound spring community from frequent and intense bushfires through an early dry season prescribed burning regime targeting the periphery of the community [TA-EC-091].
- For occurrences of the *Corymbia paractia* dominated community on dunes that fall within the Yawuru Minyirr Buru Conservation Park, liaise with the Department of Fire and Emergency Services (DFES) and the Yawuru joint management rangers to protect the community from frequent, large, hot, late dry season fires by managing fuel levels to reduce the consequence of unplanned fire events (fire breaks) and facilitating more effective fire response capability [TA-EC-093].
- Implement an adaptive management control program in collaboration with the Bindunbur ranger groups for cattle and donkeys at occurrences of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula encompassed in the Beagle Bay area where feral herbivore monitoring has detected impacts of grazing on the community [TA-EC-098].
- In consultation with the Minyirr Park weed working group, expand the current weed management program implemented at occurrence vine01 to include occurrences Bilungurr01, BPen01, BPen02 and Hidden Valley of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula [TA-EC-104].
- At the Middle Lagoon occurrence of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula, liaise with Nyul Nyul rangers and Environs Kimberley to

identify if recreation management is still required and if department involvement is required to manage [TA-EC-208].

- On Yawuru reserves, maintain track at occurrences Bilungurr01, BPen01, BPen02 and Hidden Valley of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula near Cable Beach and implement an education program utilising signage relating to the value of the vine thickets, hygiene awareness, and the importance of keeping to tracks and appropriate rubbish disposal [TA-EC-105].
- Support weed management by Bardi Jawi rangers at occurrences vine17, vine18, vine42, vine43a, vine43b and vine43c (One Arm Point) of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula for *Clitoria ternatea*, *Macroptilium atropurpureum* and *Hyptis suaveolens* [TA-EC-110].
- Implement a responsive *Phoenix dactylifera*, *Passiflora foetida*, *Mesosphaerum suaveolens* and *Physalis* sp. control program across the BIGS01 occurrence of the Assemblages of Big Springs organic mound springs informed by a weed mapping and monitoring regime [TA-EC-076].
- Liaise with the Wunggur ranger groups at Gibb River station to implement weed control (grader grass, *Themeda quadrivalvis*) across occurrence GibbR1 of the Organic mound spring sedgeland community of the North Kimberley bioregion. Initiate further conversations regarding fire requirements, particularly an early dry season prescribed burn regime, as well as further construction of fences including ongoing inspections, repair and maintenance to exclude cattle [TA-EC-116].
- Liaise with the pastoralist of Drysdale Station about weed control (*Passiflora foetida* and *Themeda quadrivalvis*) across the Drysdale1a, Drysdale2a, Drysdale3a and DrysdaleStn4 occurrences of the Organic mound spring sedgeland community of the North Kimberley bioregion. Initiate further conversations regarding fire requirements, particularly an early dry season prescribed burn regime, and further construction of fences including ongoing inspections, repair and maintenance to exclude cattle [TA-EC-115].
- Liaise with the pastoralist of Mount Elizabeth station about weed control (*Passiflora foetida* and *Themeda quadrivalvis*) across the MtElizabeth1a, MtElizabeth2a, MtElizabeth3a and MtElizabeth4 occurrences of the Organic mound spring sedgeland community of the North Kimberley bioregion. Initiate further regarding fire requirements, particularly an early dry season prescribed burn regime, and further construction of fences including ongoing inspections, repair and maintenance to exclude cattle [TA-EC-114].
- For all occurrences of the Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly Pouteria) *sericea*, undertake weed control for weeds, inclusive of *Azadirachta indica*, *Jatropha gossypifolia* and *Passiflora foetida*, informed by weed mapping [TA-EC-118].
- For all occurrences of the Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly Pouteria) *sericea*, liaise with the DFES and Yawuru joint management rangers to mitigate the impacts of bushfire by implementing low intensity prescribed burns [TA-EC-119].

- In consultation with Nyamba Buru Yawuru and the LGA, discuss strategic closure of tracks and develop and implement an education program utilising signage relating to the value of the Mangarr, hygiene awareness, and the importance of keeping to existing tracks and appropriate rubbish disposal to protect all occurrences of the Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly Pouteria) *sericea* [TA-EC-156a].

7 Learn action collaboration opportunities

FAUNA

Mammals

- Survey for, and monitor, northern quoll (*Dasyurus hallucatus*) in the southern Kimberley (Great Sandy Desert) to inform threat management (fire, and feral predators).
- Implement a consistent statewide monitoring program to determine the distribution and population trends of northern quoll (*Dasyurus hallucatus*) at a species level. Liaise with Traditional Owners regarding the development and implementation of the monitoring program.
- Undertake genetic research of scattered northern quoll (*Dasyurus hallucatus*) populations and a population viability analysis to inform fire management.
- Establish a medium-term monitoring program for golden bandicoot (*Isoodon auratus auratus*) in the Kimberley region in collaboration with the Australian Wildlife Conservancy and ranger groups.
- Implement a broadscale monitoring plan to investigate current populations of spectacled hare-wallaby (*Lagorchestes conspicillatus leichardti*) in the Kimberley Region.
- Investigate genetic differences between island and mainland populations of spectacled hare-wallaby (*Lagorchestes conspicillatus leichardti*) to ensure genetic diversity is maximised when implementing future conservation actions.
- Survey at popular tourist visitation sites for ghost bat (*Macroderma gigas*) abundance, roost locations and population trends in the Devonian Reef System area and survey maternal caves to inform land use planning and visitor access management.
- Undertake a dietary study of ghost bat (*Macroderma gigas*) to contribute to development of an understanding of prey preference to advise management of foraging grounds and to contribute to distribution data.
- Test deterrent measures on fences (beer cans) to prevent ghost bat (*Macroderma gigas*) collisions.
- Investigate the habitat requirements of:
  - northern leaf-nosed bat (*Hipposideros stenotis*)
  - orange leaf-nosed bat (*Rhinonicteris aurantia*)
  - yellow-lipped bat (*Vespadelus douglasorum*).
- Investigate fire requirements, feral cat predation and the impact of large feral herbivores on greater bilby (*Macrotis lagotis*).

- Undertake more intensive trapping work and novel survey techniques (heat detection sensors) in areas where key habitat for black-footed tree-rat (*Mesembriomys gouldii gouldii*) is identified including Bachsten Creek and the Mitchell Plateau to inform population status.
- Monitor populations of golden-backed tree-rat (*Mesembriomys macrurus*) to determine if they are responding to current landscape-scale feral threat abatement strategies and fire management processes.
- Implement a monitoring program to investigate the genetic differences between nabarlek (*Petrogale concinna monastria*) and monjon (*Petrogale burbidgei*) and liaise with WWF-Australia regarding DNA analysis of scats.
- Survey for blank-flanked rock-wallaby (*Petrogale lateralis lateralis*) in the southern Kimberley (Great Sandy Desert) to inform threat management (fire and feral predators).
- Undertake occurrence surveys for rock-haunting ringtail possum (*Petropseudes dahli*) and compile collected records to understand their status.
- Establish a monitoring program to determine a baseline of the distribution and abundance of northern brushtail possum (*Trichosurus vulpecula arnhemensis*) across its known range and document predator-prey relationships for integration into future management actions regarding the interaction between predation and fire.
- Undertake genetic analysis utilising existing collected samples of northern brushtail possum (*Trichosurus vulpecula arnhemensis*) to improve knowledge of species distribution.

Birds

- Monitor black grasswren (*Amytornis housei*) to determine current populations status. Utilise findings to inform landscape-scale fire management.
- Collaborate with Australasian Wader Study Group and Global Flyway Network to improve data flow regarding surveying and monitoring work on red knot (*Calidris canutus*).
- Undertake survey and monitoring of red goshawk (*Erythrotriorchis radiatus*) to address knowledge gaps surrounding the biology and ecology and prey items and compare to historical data.
- Investigate potential Gouldian finch (*Erythrura g*ouldiae) declines including exploring links with fire and seed availability.
- Monitor Gouldian finch (*Erythrura gouldiae*) population on the Dampier Peninsula to determine size, status, trend and connection to remaining central Kimberley population.
- Develop a monitoring plan to improve understanding of the occupancy and habitat of northern crested shrike-tit (*Falcunculus frontatus whitei*) and liaise with community birdwatching groups to consolidate additional occurrence records.
- Monitor partridge pigeon (*Geophaps smithii blaauwi*) to determine current populations status. Utilise findings to inform landscape-scale fire management.

- Implement a monitoring program for purple-crowned fairywren (*Malurus coronatus coronatus*) to better understand and manage cross-catchment dispersal of the species.
- Implement a banding survey of purple-crowned fairywren (*Malurus coronatus coronatus*) to determine survival and dispersal in Wunaamin Conservation Park.
- Liaise with private property landholders to survey populations of purple-crowned fairywren (*Malurus coronatus coronatus*) that occur in areas of riparian vegetation off reserve.
- Research the interactions between encroaching mangroves and human disturbances and how this impacts the availability of far eastern curlew (*Numenius madagascariensis*) roost sites at Roebuck Bay by monitoring bird response.
- Implement a monitoring program at known night parrot (*Pezoporus occidentalis*) sites to determine species ecology (call, foraging, breeding behaviours and threatening processes).
- Identify suitable night parrot (*Pezoporus occidentalis*) habitat across its range to support improved input into environmental impact assessment and land use planning and to guide survey requirements for proponents.
- Implement a monitoring plan to identify night parrot (*Pezoporus occidentalis*) presence to inform input into environmental impact assessment and land use planning.
- Liaise with joint management partners to conduct surveys of night parrot (*Pezoporus occidentalis*) to increase knowledge of absence/presence.

Reptiles

- Liaise with Traditional Owners and Aboriginal ranger groups regarding implementation of a monitoring plan for great desert skink (*Liopholis kintorei*) and traditional fire management at a larger scale.
- Liaise with Traditional Owners regarding the conservation of great desert skink (*Liopholis kintorei*), and the sharing of knowledge regarding population dynamics and species management.

Fish

- Undertake survey and monitoring of the *Glyphis garricki* to address knowledge gaps regarding habitat specificity and biological characteristics.

Invertebrates

- Survey for a live population of *Amplirhagada astuta* and undertake genetic profile sampling and assessment of threatening processes.
- Survey *Mouldingia occidentalis* and *Westraltrachia alterna* camenid land snail populations along the Devonian Reef System to increase understanding of their distribution.
- Survey for *Westraltrachia inopinata* camenid land snail to increase understanding of population distribution, trends, abundance and threats.

Marine[7]

- Develop and implement a triage system to direct where and when management actions need to occur based on a centralised database for reporting adverse incidents for marine turtles and mammals (for example marine debris, vessel strikes, deaths, strandings).
- Establish monitoring systems to investigate habitat use and the impacts from vessel strike, seismic activity and marine debris on blue whale (*Balaenoptera musculus*).
- Develop a standardised monitoring program to identify breeding habitat and range extensions of southern right whale (*Eubalaena australis*).
- Undertake population trend analysis for all whale species including blue whale (*Balaenoptera musculus*) and humpback whale (*Megaptera novaeangliae*) to determine a trajectory of recovery.
- Target research towards understanding the influence climate change has on dugong (*Dugong dugon*).
- Monitor humpback whale (*Megaptera novaeangliae*) abundance, distribution and patterns of habitat use to quantify the impact of nature-based tourism.
- Monitor for Australian snubfin dolphin (*Orcaella heinsohni*) in key areas including Roebuck Bay.
- Establish a long-term monitoring plan for the Australian humpback dolphin (*Sousa sahulensis*) to address knowledge gaps on abundance.
- Undertake combined monitoring of sea temperatures, nest temperature data and loggerhead sea turtle (*Caretta caretta*) abundance and distribution to inform management actions.
- Liaise with the Department of Primary Industries and Regional Development and Australian Border Force and partake in surveillance to gain ongoing information regarding the impact Indonesian fishers are having on the green sea turtle (*Chelonia mydas*) population at Browse Island and Scott Reef and to ascertain the status of the population.
- Liaise with industry to increase the knowledge of threats to green sea turtle (*Chelonia mydas*) on Browse Island and Scott Reef and implement appropriate management.
- Continue ongoing engagement with the Aboriginal rangers to identify more olive ridley sea turtle (*Lepidochelys olivacea*) nesting sites to gain a greater understanding of the distribution of the species.
- Investigate the data insufficiencies regarding dwarf sawfish (*Pristis clavate*) bycatch in the Barramundi industry (potential candidate for eDNA).
- Monitor largetooth sawfish (*Pristis pristis*) to identify the systems they inhabit and the various areas they utilise during different life stages.

[7] The 'marine' grouping includes marine mammals, marine reptiles and marine fish, including sharks and rays.

FLORA

- Continue to survey at known locations of mountain white gum (*Eucalyptus mooreana*) before and after fire events to determine the species' response to fire and how well it recruits post-fire. Utilise findings to determine an appropriate fire interval to inform fire requirements on the Wunaamin-Miliwundi Ranges.
- Continue to survey at known locations of *Eucalyptus revelata* before and after fire events to determine the species' response to fire and how well it recruits post-fire. Utilise findings to determine an appropriate fire interval to inform fire requirements on the Wunaamin-Miliwundi Ranges.
- Undertake genetic studies to understand if Edgar Range pandanus (*Pandanus spiralis* var. *flammeus*) is a separate species to inform the conservation status of the species and management requirements.
- Survey areas outside of the pastoral station for additional Edgar Range pandanus (*Pandanus spiralis* var*. flammeus*) populations by helicopter.
- Monitor the following Priority species to determine population size and status:
  - *Pittosporum timorense (*previously *Pittosporum moluccanum*)
  - *Ptilotus marduguru*
  - *Tephrosia andrewii.*
- Identify threatening processes specific to Priority flora:
  - *Solanum* sp. Boomerang Bay (K.F. Kenneally P100P2P1)
  - *Teucrium* sp. Sturt Creek (A.A. Mitchell 55P36)
  - *Thysanotus elatior* (previously *T. banksia*)
  - *Triumfetta hapala*.

ECOLOGICAL COMMUNITIES

- Survey all occurrences of the Argyle Land System of the Kimberley Region and submit report forms to ascertain its condition and any potential impacts resulting from land clearing. Improve the accessibility and circulation of information to highlight the cumulative impacts of multiple developments on the community.
- Survey all occurrences of the Assemblages of Bunda Bunda organic mound springs and map weeds to inform future management of grass weeds, passiflora and fruit trees across the community.
- Survey the Bunda 03 vegetated mound to determine whether it is a part of the Bunda Bunda community.
- Implement a comprehensive monitoring plan across all occurrences of the Assemblages of Bunda Bunda organic mound springs that utilise vegetation quadrant techniques to determine the condition of the community.
- Survey the Assemblages of Bunda Bunda organic mound springs to determine if Bunda 02 and another occurrence not recorded in the department's Threatened Ecological Community Database can be considered as part of the community.

- Survey all occurrences of the Assemblages of Bunda Bunda organic mound springs and develop a hydrological model to gain a better understanding of the impact of altered hydrology on the community and to inform future hydrology management.
- Survey all occurrences of the Assemblages of Dragon Tree Soak organic mound spring and develop a hydrological model to gain a better understanding of the impact of altered hydrology on the community and to inform future hydrology management.
- Survey the Assemblages of Lolly Well Springs wetland complex, mapping the community's extent and reporting on its condition to raise the status of the community to threatened, providing it with heightened protection.
- Investigate the vulnerability of all occurrences of the Assemblages of the organic springs and mound springs of the Mandora Marsh to climate change and how this will impact future interactions with fire.
- Implement hydrological monitoring across all springs within the Mandora Mounds community utilising sentinel bores between the impact areas outside of the park and the springs to identify hydrological change before it is realised in the occurrences.
- Survey all occurrences of the Assemblages of the wetlands associated with the organic mound springs on the tidal mudflats of the Victoria-Bonaparte bioregion and develop a hydrological model to gain a better understanding of the potential impact of any proposed development, particularly irrigated agriculture, may impact on the community. Develop a monitoring program to track rising water levels and saltwater intrusion.
- Survey the entirety of the Assemblages of the wetlands associated with the organic mound springs on the tidal mudflats of the Victoria-Bonaparte bioregion to determine the extent of known occurrences.
- Survey for and map additional occurrences of the organic mound springs on the tidal mudflats of the Victoria-Bonaparte bioregion.
- Liaise with the Wilinggin people and the landholder of the Theda pastoral lease to undertake a site visit at the Assemblages of Theda Soak rainforest swamp. Ensure monitoring of implemented actions occurs and ask pastoralist to complete ecological community report forms.
- Monitor the impact of myrtle rust and cane toads across all occurrences of the Assemblages of Walcott Inlet rainforest swamps to advise future management.
- Liaise with the landowner of Madigan Station and other surrounding pastoralists to undertake a site visit of all occurrences of the Bannerman Land System, assessing the status of the community and identifying threatening processes to advise future management.
- Monitor the Black Spring organic mound spring community and develop a hydrological model to gain a better understanding of the aquifer that supports the ecosystem and the ecological requirements of the community. Apply learnings to land use planning advice and other land management.
- Undertake condition survey reports for occurrences of the *Corymbia paractia* dominated community on dunes within the Yawuru Minyirr Buru Conservation Park.

- Survey the Eighty Mile Land System, mapping the community's extent, reporting on its condition and identifying management actions required to address threatening processes.
- Survey the Gladstone Land System, report on the community's condition and advise management that addresses threatening processes.
- Survey the Gogo Land System, map the community's extent, report on its condition and advise management that addresses threatening processes.
- Survey the Gordon Land System, report on the community's condition and advise management that addresses threatening processes.
- Survey the Gourdon Land System and report on the community's condition.
- Develop of a hydrological model to gain a better understanding of the hydrology of the Inland mangrove community of Salt Creek, looking at water quality parameters such as salinity to inform management requirements and environmental impact assessment input.
- Survey the Invertebrate community of Napier Range Cave, mapping the community's extent and reporting on its condition to advise management that addresses threatening processes.
- Develop a hydrological model to gain a better understanding of the hydrology of the Invertebrate community of Tunnel Creek, focusing on water quality parameters to advise management including input into land use planning processes.
- Survey and monitor all occurrences of the Invertebrate community of Tunnel Creek to understand the assemblages present and assess the impact of trampling by visitors to guide further management.
- Liaise with the landholders of Doon Doon, Carlton Hill, Glen Hill and Ivanhoe pastoral leases to undertake surveys for threatened fauna and flora across all occurrences of the Ivanhoe Land System and monitor the hydrology of the community.
- Survey land within the Ivanhoe Land System to improve understanding of current and historical threatening processes to inform further management and areas for priority acquisition. Improve the accessibility and circulation of information including reports, surveys and monitoring data to highlight the impacts of development on the Ivanhoe Land System, particularly the cumulative impacts of clearing from multiple developments.
- Survey the Lake Gregory Land System, mapping the community's extent and reporting on its condition to advise future management.
- Survey for additional occurrences of the Lake Gregory Land System in paleo drainage systems.
- Survey the Legune Land System and report on its condition to advise future management to address threatening processes including feral herbivores.
- In collaboration with the Pilbara Region, contract a botanist to implement a condition survey program for the Lime Land System.
- Survey the Lowangan Land System and report on its condition to advise future management.

- Survey all occurrences of the Lucas Land System and report on its condition to advise future management.
- Design and conduct research that looks at land snails in the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula to overcome identified knowledge gaps.
- Conduct fauna surveys to determine whether fauna species can be included in the community description of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula to secure additional protection. Utilise findings further to prioritise occurrences based on risk level.
- Design and conduct research that builds knowledge regarding local Indigenous knowledge of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula. Relevant knowledge includes vine thicket values, uses and ecology, the availability of bushtucker, and means of protecting them while facilitating commercialisation of particular species.
- Survey for flying fox roost sites and frugivorous bird species on the Dampier Peninsula. Investigate the ecology of these frugivorous fauna (birds, reptiles and mammals) and their role in seed dispersal in the vine thickets. Gain an understanding of this ecological process and the complementary roles of adjacent habitats (savanna, mangroves and other habitats) in the provision of resources for mobile frugivorous species on the Dampier Peninsula and the impact on the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula.
- Implement a water monitoring program in conjunction with the relevant water resource management agencies that improves understanding of baseline water regime conditions (quality, quantity, runoff, drainage and flow patterns) and helps to identify limits of acceptable change and ecological water requirements for all occurrences across the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula. Investigate the use of drainage lines in/on cliffs in coastal dunes where floods are occurring following development (focusing on the Cable Beach occurrence).
- Survey all occurrences of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula, mapping the community's extent and reporting on its condition (focusing on Quandong Downs), inclusive of investigating insect damage in infected trees and understorey species to identify key sites for conservation. Focus mapping and description of habitat to these sites, including groundwater catchment zones to ensure maintenance of the hydrological processes.
- Investigate genetic variation within and between vine thickets of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula to determine whether the ecosystem is likely to have compromised genetic diversity in several smaller patches isolated from sufficient frugivorous migration. Additionally, undertake taxonomic studies of *Capparis jacobsii* on the Dampier Peninsula to determine its conservation status.
- Survey all occurrences of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula and identify areas of high visitation (littering, access management, weeds). Utilise findings to prioritise occurrences based on risk level and to identify management required. Ensure information is used to inform land use planning.

- Liaise with Bardi Jawi to identify threatening processes and condition of occurrence vine 71 of the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula to inform management requirements.
- Experiment with inter-fire intervals during wet and dry seasons and monitor the effects on the Monsoon (vine) thickets on the coastal sand dunes of Dampier Peninsula, with investigation into fire-sensitive species requiring at least twice the juvenile period between burns to survive. Traditional burning methods should be investigated.
- Liaise with the Yawuru Traditional Owners and joint management rangers to investigate the hydrology at the Nimalarica (Nimalarragun) claypan community inclusive of nutrient and groundwater monitoring to inform further liaison regarding hydrology management.
- Establish quadrants and monitor to determine the effects fire regimes on the Nimalarica (Nimalarragun) claypan community and to inform further liaison regarding the implementation of a suitable fire management plan.
- In consultation with pastoralists and the Wunggur ranger group, survey all occurrences of the Organic mound spring sedgeland community of the North Kimberley bioregion and develop a hydrological model and continue to monitor to inform future hydrology management.
- In consultation with pastoralists and the Wunggur and Nyaliga ranger groups, implement a monitoring program that utilises already established quadrats across all occurrences of the Organic mound spring sedgeland community of the North Kimberley bioregion. This should be designed to provide information about the success of land management in the sensitive environment of the mound spring ecosystem.
- In consultation with pastoralists and the Wunggur ranger group, survey all occurrences of the Organic mound spring sedgeland community of the North Kimberley bioregion for the impact of fire and for evidence of peat burns to inform how burns can be managed in the future.
- Survey the *Oryza australiensis* (wild rice) grasslands on alluvial flats of the Ord River and surrounding areas to identify new occurrences that are in better condition to enhance protection from future developments.
- Survey the *Oryza australiensis* (wild rice) grasslands on alluvial flats of the Ord River to improve understanding of both current and historical threatening processes to inform further management and to obtain condition reports. Improve the accessibility and circulation of information including reports, surveys and monitoring data to highlight the impacts of development on the community, particularly the cumulative impacts of clearing from multiple developments.
- Survey all occurrences of the Parda Land System to assess its status and the pressures from grazing to inform whether further conservation works are warranted.
- Research the response of the Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly Pouteria) *sericea* to fire to understand how the increased frequency of less intense fires has impacted on the community compared to less frequent, more intense fires. Utilise findings to advise an appropriate fire management strategy for the community.

- Implement a nutrient monitoring program for the Species-rich faunal community of the intertidal flats of Roebuck Bay that includes linking nutrient enrichment and algae (Lyngbya) monitoring to inform management actions.
- Implement a fauna monitoring program at the Species-rich faunal community of the intertidal flats of Roebuck Bay including monitoring visitor impact, how changes in the benthic community affect shorebirds, and mangrove encroachment and the impact it has on invertebrate and shorebird communities. Implement an additional ongoing monitoring plan for invertebrates across the community.
- Survey all occurrences of the Tanmurra Land System and report on its condition to advise future management.
- Survey and map the following and report on condition to advise future management of:
    - additional occurrences of the Assemblages of Dragon Tree Soak organic mound spring that are likely to exist along drainage lines
    - the following Kimberley Vegetation Associations, mapping the extent and reporting on condition to determine threatening processes and future management: 33, 37, 67, 73, 717, 718, 719, 759, 760, 767, 770, 807,815, 833, 834, 838, 850, 872, 902, 908, 915, 918 and 1271
    - all occurrences of the Plant assemblages on vertical sandstone surfaces to refine the naming and description of the community
    - all occurrences of the Roebuck Land System utilising remote sensing data to undertake a Normalised Difference Vegetation Index (NDVI) analysis to understand the impact of cattle grazing on the system. Utilise findings to meet data requirements to raise the Roebuck Land System to a Threatened Ecological Community listing
    - all occurrences of the Willeroo Land System.
- Survey all occurrences of the Wolfe Land System, mapping the community's extent and reporting on its condition to advise future management.

8 References

Carwardine J, O'Conner T, Legge S, Mackey B, Possingham H, and Martin T 2011. *Priority threat management to protect Kimberley wildlife*. CSIRO Ecosystem Sciences, Brisbane.

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Corey B, Radford IJ, de Bruyn P, Greatwich B, Ricardo H, and Spiridis A 2023. *Fire management and biodiversity monitoring on Department of Biodiversity, Conservation and Attractions managed lands in the Kimberley 2021–22*. Department of Biodiversity, Conservation and Attractions, Broome, WA.

Appendix 1: Priority management units identified through the prioritisation process for landscape-scale threat mitigation actions for priority reserves and landscapes

Table 2 Kimberley Region priority management units.

Priority reserve or management unit	Component reserves	Value	Responsibility	Joint management partner
Prince Regent National Park	Prince Regent National Park	Exceptional	East Kimberley District	None
Drysdale River National Park	Drysdale River National Park	Very High		None
MG Reserves	Barrbem Conservation Park Darram Conservation Park Goomig Conservation Park Mirima National Park Darramalanka Conservation Park Ngamoowalem Conservation Park Wilijim (Point Springs) Nature Reserve Mijing Conservation Park	Low* Moderate Moderate Moderate Moderate Moderate Moderate Moderate		Miriuwung and Gajerrong (MG) people
Ord River and Parry Lagoons	Ord River Nature Reserve Parry Lagoons Nature Reserve	Very High Very High		None
Kununurra townsite	R 50588 Kununurra Arboretum (R 27244) Dumas Hill (R 52321)	N/A		None
Purnululu World Heritage Area	Purnululu National Park Purnululu Conservation Reserve Ord River Regeneration Reserve Wolf Creek Meteorite Crater	High High Low* Low		None

Priority reserve or management unit	Component reserves	Value	Responsibility	Joint management partner
Bunuba Reserves	Danggu (Geikie Gorge) Conservation Park, Balili (Devonian Reef) Conservation Park Bandilngan (Windjana Gorge) National Park Danggu (Geikie Gorge) National Park Dimalurru (Tunnel Creek) National Park Jungiwa (Brooking Gorge) Conservation Park Fitzroy River National Park	Moderate Moderate Moderate Moderate Moderate Moderate Moderate	West Kimberley District	Bunuba people
Wunaamin Miliwundi Ranges	Wunaamin Conservation Park Miliwundi Conservation Park	Very High High		None Bunuba people
Coulomb Point Nature Reserve	Coulomb Point Nature Reserve	Low*		None
Yawuru reserves	Yawuru Birragun (out of Broome reserves) Yawuru Minyirr Buru (in Broome reserves)	Moderate Moderate		Yawuru people
Walyarta Conservation Park	Walyarta Conservation Park	Very High		Karajarri and Nyangumarta people
Offshore Islands (West)	Adele Island Nature Reserve Browse Island Nature Reserve Lacepede Islands Nature Reserve	High Moderate High		None
Warlibirri National Park	Warlibirri National Park	Unknown*		Gooniyandi people

*Based on limited knowledge of biodiversity values, making biological inventory a priority.

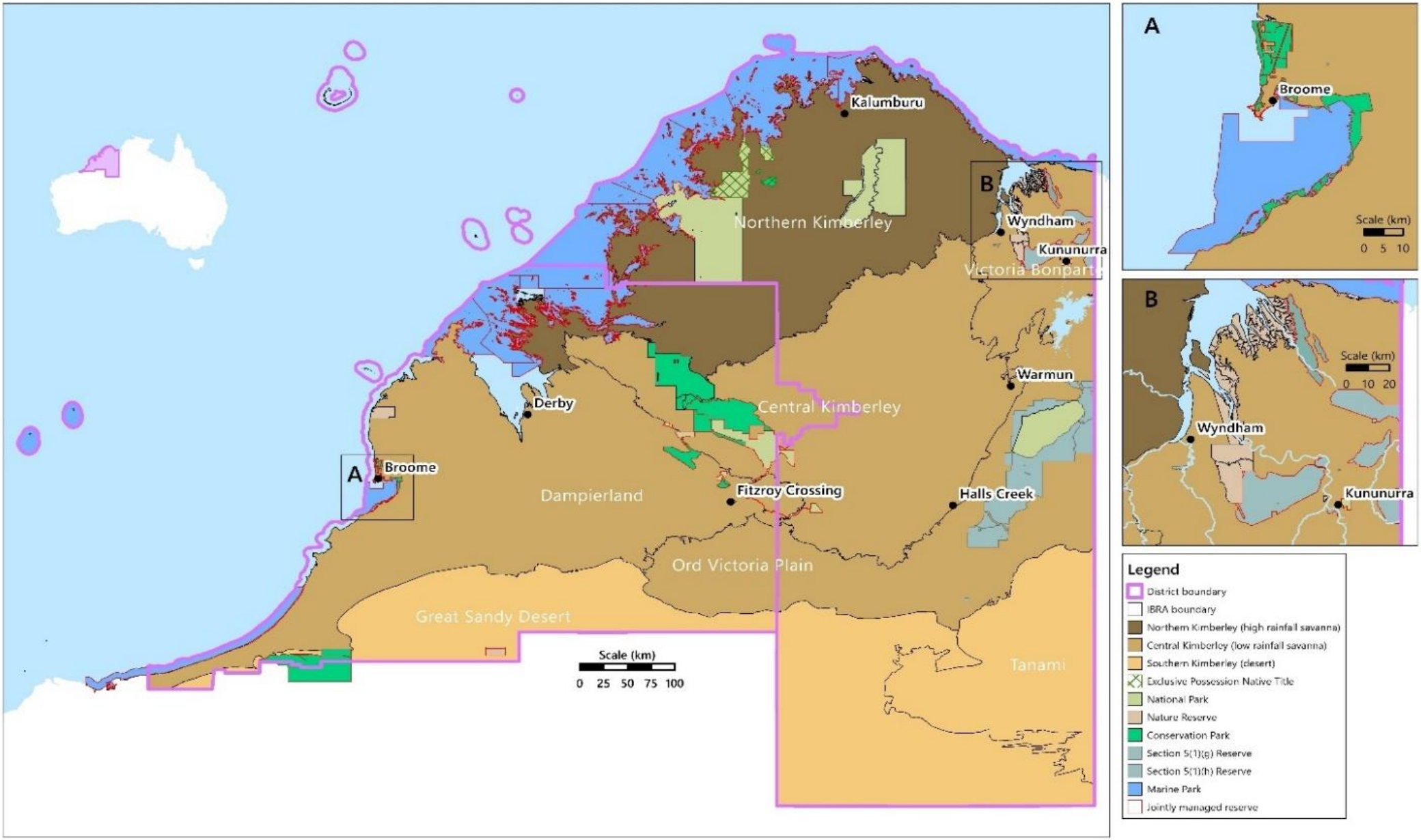

Figure 2 Bioregions and priority landscapes in the Kimberley Region (2023).

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