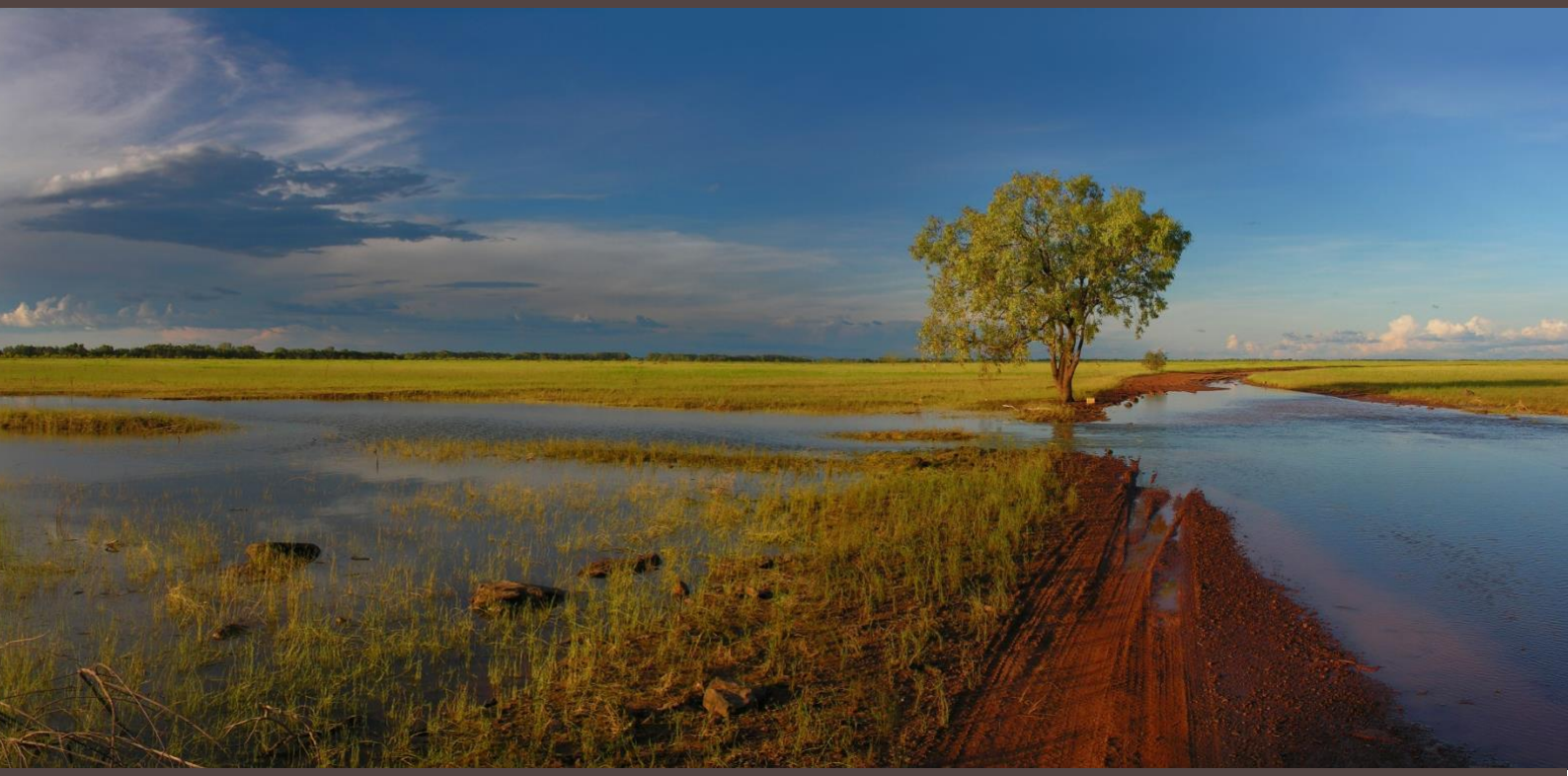
Northern Australia Environmental Resources Hub

National Environmental Science Programme



Looking back to look forward: A timeline of Western Australia's Fitzroy River catchment

Report

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Acronyms

KLC ..... Kimberley Land Council

NGO..... non-government organisation

PBC ..... Prescribed Body Corporate

Acknowledgements

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Warning

Aboriginal and Torres Strait Islander people should be aware that this website contains images or names of deceased persons in photographs, illustrations or printed material.

All users should be aware that certain words, terms, or descriptions may be culturally sensitive and considered inappropriate today but reflect the period in which they were written.

1. Summary

Given proposed expansion of developments in northern Australia and current tensions among different interest groups, there is a need to develop new planning approaches that support multiple uses of land and water, while maintaining environmental and cultural values. The development of the timeline of the Martuwarra (Fitzroy River) catchment described in this report was part of a project aimed to demonstrate how to operationalise multi-objective catchment planning supported by scenario thinking, by which stakeholders collaboratively build and assess the outcomes of alternative development futures. The project used participatory scenario planning to guide stakeholders through a systematic and critical examination of possible development trajectories and their associated environmental and socioeconomic outcomes. A multi-stakeholder group worked through a series of workshops to explore alternative development pathways and their outcomes.

The timeline was created during the first project workshop (July 10–11 2018). The workshop included 40 people from 26 organisations across all main interest groups, including the Australian Department of Agriculture, Water and the Environment, state agencies, local governments, mining, agriculture and tourism organisations, environmental NGOs, and Aboriginal organisations representing the views and interests of Traditional Owners. The workshop involved a series of activities for team members to get to know each other, strengthen relationships, and build trust – all critical elements of participatory scenario planning. During the workshop, we discussed the meaning of development, driving forces of land use change, and development initiatives proposed for the region.

An important goal of the first workshop was to create shared understandings of what is happening in the region that could shape the future development of the catchment. Therefore, before exploring the future, we looked back into the past. We created a timeline for the Fitzroy, identifying the events and forces that have shaped how the catchment looks today and could drive land use change in the future. Such events included social movements, policy changes, resource exploration, early irrigation projects, road improvements, and the proclamation of the Native Title Act that recognises the rights and interests of Aboriginal and Torres Strait Islander peoples in land and waters according to their traditional laws and customs, among many others.

This report summarises the process underpinning the creation of a timeline of the Fitzroy River catchment. For this timeline, the group identified the things that have changed the region and shaped the way things are today. Building this timeline helped participants to understand and share ideas about driving forces of land-use change. This activity opened up thinking on how local and external events and processes have shaped and will continue to change the region. The Story Map referred to in this report (Looking back to look forward: A timeline of the Fitzroy River catchment) was created based on the timeline. The online application combines text, images, and maps to describe a series of key events that have shaped the Fitzroy catchment.

2. Background

There are varied development plans for northern Australia, including irrigated agriculture, nature and cultural tourism, extraction of mineral resources, payment for ecosystem services (e.g. carbon farming), and others (Hill et al., 2006; Australia 2015; Gerritsen et al., 2019). New developments can alter terrestrial and aquatic ecosystems and compromise some of the services they provide (e.g. carbon sequestration, water supply, traditional uses), as well as modify the access to land and water resources by different groups (Stoeckl et al., 2015; Bryan et al., 2016; Connor et al., 2019). Yet, the views about the costs and benefits of development options vary (Chambers et al., 2018; Chambers et al., 2019; Gerritsen et al., 2019), and knowledge about their effects on people and biodiversity is limited (Stoeckl et al., 2015; Adams et al., 2016; Whitehead et al., 2017; Connor et al., 2019; Boschetti et al., 2020).

Exploring possible development options and having a better understanding of their socioeconomic and environmental outcomes can improve management decisions (Adams et al., 2016; Bryan et al., 2016; Grundy et al., 2016). This requires identifying the broader social, economic, and political environment that could lead to different development projects (KDC 2015; Adams et al., 2016; Bryan et al., 2016; ACF 2017). A critical examination of the possible futures of the region can support effective planning for development and conservation of northern Australia's nationally and globally significant cultural and natural values (Álvarez-Romero et al., 2015; Pintor et al., 2019; Álvarez-Romero et al., 2021).

Scenario planning can be useful to deal with high uncertainty and low controllability of management decisions (Peterson et al., 2003; Oteros-Rozas et al., 2015; Cork 2016), thus it can help inform discussion around development, particularly given the diverse socioeconomic and political factors shaping development in northern Australia (Dale et al., 2014; Adams et al., 2016; Adams et al., 2017). In particular, participatory scenario exercises can promote ownership by stakeholders, allow collaborative and innovative development of solutions (Beery et al., 1997; Cork 2016; Allan et al., 2018), and provide opportunities for useful conversations about alternative development futures (Bohnet and Smith 2007; Butler et al., 2012; Auge et al., 2017).

The Australian Government's National Environmental Science Program (NESP) Northern Australia Environmental Resources Hub's project on multiple objective planning in northern Australia is guiding participatory scenario planning to construct and assess the outcomes of alternative development scenarios in the Fitzroy River catchment, Western Australia. The project's scenario planning team worked through a series of workshops to explore possible development pathways for the catchment and their outcomes (Álvarez-Romero et al., 2021; Kim et al., 2021a; Kim et al., 2021b).

The project is based on a series of interviews, meetings, and workshops that allowed researchers and stakeholders to: exchange views and concerns about development options; collaboratively imagine possible development futures and build spatially explicit maps of alternative future land/water use scenarios; and assess the potential outcomes of these scenarios (Kahane 2012; Cork 2016; Álvarez-Romero et al., 2021). This included identifying and assessing possible environmental and socioeconomic changes in the region under alternative development trajectories. In particular, we studied how changes in the landscape associated with different development trajectories can affect people who live in the region.

3. Study area

The project uses the Martuwarra (Fitzroy River) catchment as a case study and aims to provide outputs that can guide ongoing and future planning in the catchment, but methods are transferable to other areas in northern Australia. The outputs of this planning process provide information regarding alternative land and water uses and how these can affect land and water values, thus explicitly aiming to inform decisions, inclusive of future developments in the region (Dale et al., 2014). In particular, there is potential to contribute with information that can inform a catchment land use/management plan proposed by the government of Western Australia. The globally significant cultural and natural values of the area are well recognised and protected under the West Kimberley National Heritage Place listing (CENRM 2010), which covers 34% of the catchment (Figure 1).

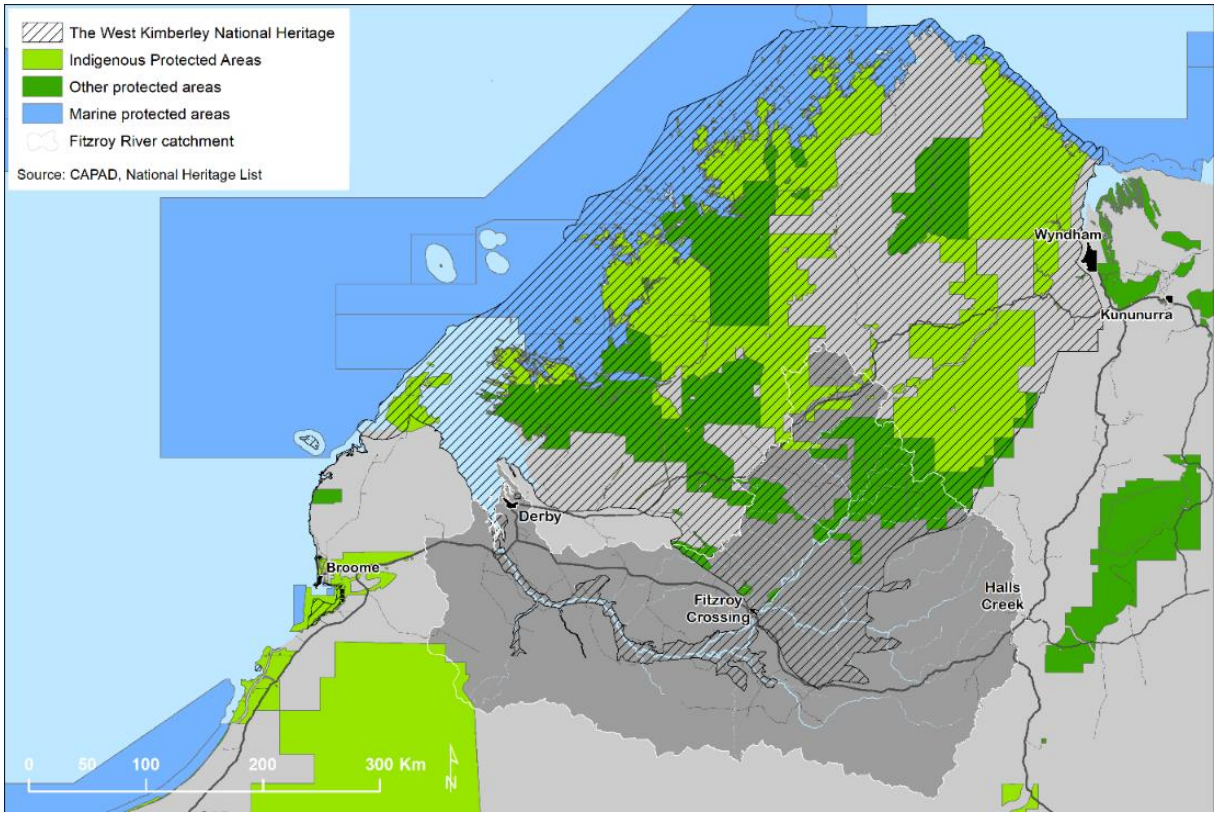

Figure 1. Location of the Martuwarra (Fitzroy River) catchment, Kimberley region, Western Australia.

The Fitzroy River connects the lands of 10 Traditional Owner groups (Figure 2), where at least nine Aboriginal languages are widely spoken (McGregor 2002). The area has been inhabited and under the stewardship of Aboriginal Australians for more than 47,000 years (Vigilante 2001; Maloney et al., 2018). The social–cultural–ecological system is characterised by the strong interdependence between Country and the Aboriginal peoples living in the region (Toussaint et al., 2001; Griffiths and Kinnane 2011; Poelina et al., 2019). Over thousands of years, this unique system has been shaped and maintained by its Traditional Owners through management (e.g. traditional burning), use (e.g. ceremony, medicinal, fishing), and protection of land and water following customary law and practices (Vigilante 2001; Jackson 2015; Maloney et al., 2018; Poelina et al., 2019).

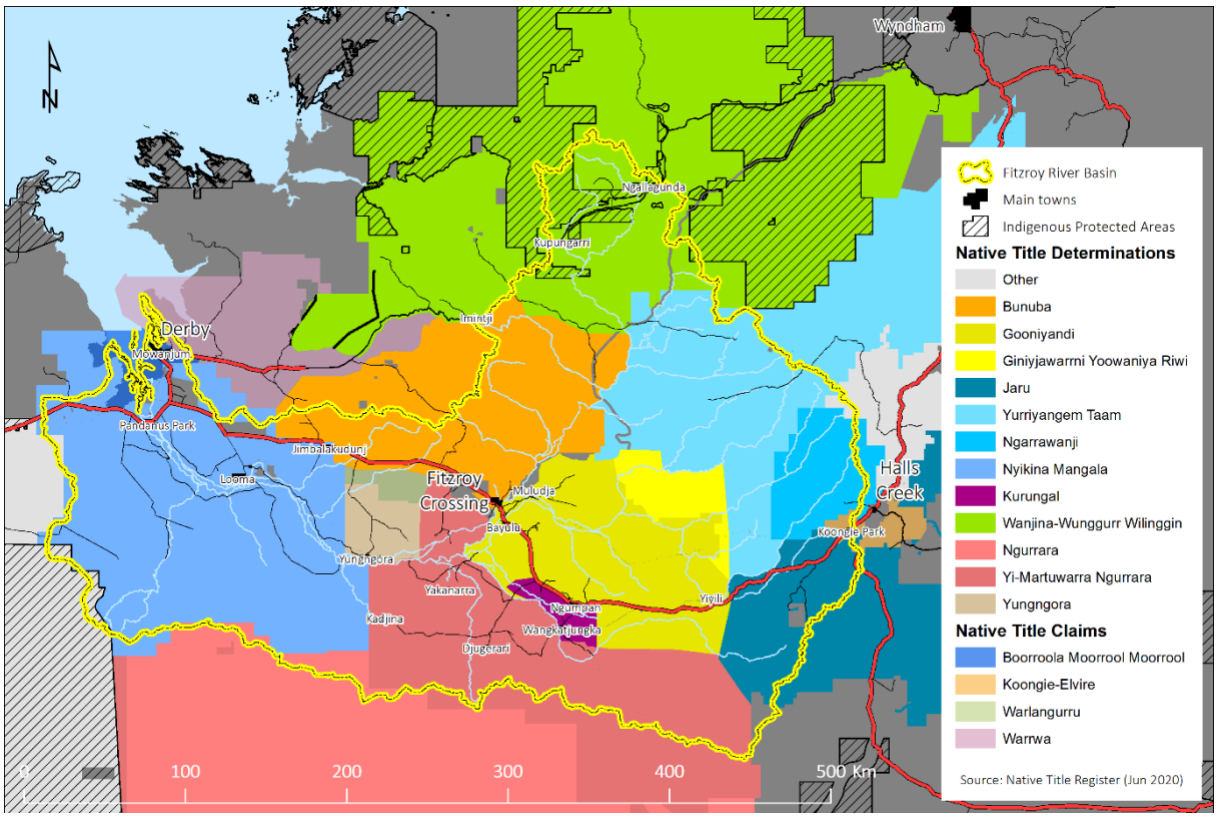

Figure 2. Land boundaries of the Traditional Owners of the Martuwarra, based on Native Title determinations and claims.

The diversity of land uses overlay a complex land tenure system that includes a majority of Crown leasehold land or reserves, and virtually the entire catchment (98%) is subject to Indigenous Native Title rights and interests under the federal Native Title Act 1993. Within this area, Traditional Owners hold exclusive and non-exclusive (e.g. access and use the land for fishing, ceremony or camping) rights over 32% and 63% of the catchment, respectively (Figure 3).

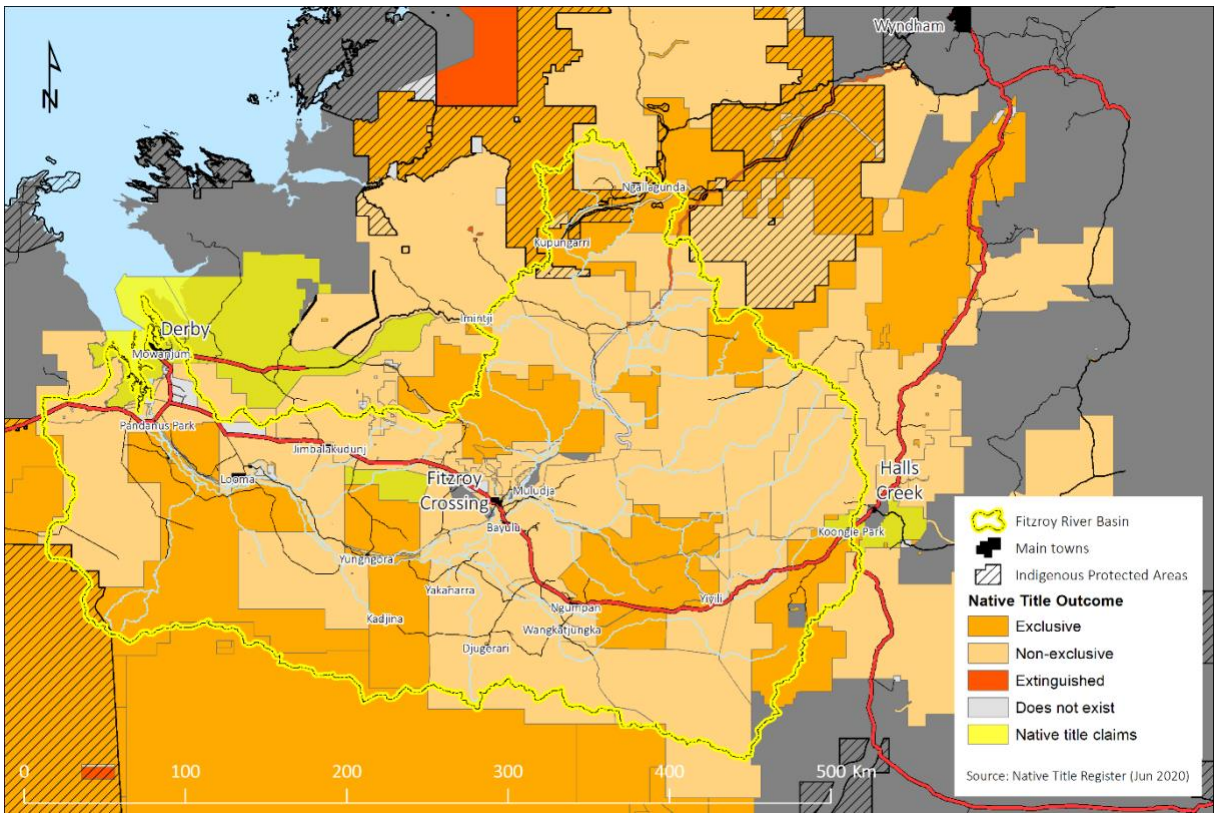

Figure 3. Outcomes of the Native Title determinations, including exclusive and non-exclusive Native Title rights.

4. Research ethics

The research presented in this report was carried out according to Human Research Ethics requirements from James Cook University (approval number H6773) and The University of Western Australia (approval number RA/4/1/9235), which ensured the appropriate protocols were in place for engaging with research participants. During workshops, participants were read a description of the research activities and gave signed consent to participate, but were free to withdraw at any moment. The research was guided by a set of principles and, after each workshop, participants evaluated the project based on such principles (Alvarez-Romero et al. 2021).

4.1 Governance principles guiding research activities

Credibility: A sound process using trustworthy information.

Relevance: The project is relevant or useful to participants' (and/or their organisations') knowledge needs for land and water planning and management decisions.

Accountability: The roles and responsibilities of project participants (scenario planning team, facilitators, and researchers) are clear and reasonable; and participants are answerable, to their peers, for their responsibilities.

Transparency: Relevant information regarding the project process and outputs is made available within a reasonable timeframe, and open to scrutiny by participants; the reasoning behind processes and decisions is clear or readily clarified by the relevant project team members; and information is presented in forms appropriate to participants' needs.

Inclusiveness: All the relevant groups have appropriate opportunities to participate in the project (given time, resources and group size constraints).

Fairness and adaptability: Participants are heard and treated with equity and respect; the project reasonably incorporates participants' suggestions and concerns; and the project team uses different engagement approaches, according to the perceived needs of each group.

Adaptability: New knowledge and learning is incorporated into the project process and outputs; there is systematic reflection on project performance; and threats, opportunities and associated risks are anticipated and managed.

Capability: There are enough resources, skills, leadership, knowledge and experiences to enable the project to deliver effectively on its objectives.

4.2 Participation of Aboriginal peoples

The activities and outputs described in this report involved collaboration with representatives from six PBCs representing the rights and interests of Aboriginal groups with determined Native Title Areas in the catchment, including Bunuba, Gooniyandi, Nyikina Mangala, Wilinggin, Yi-Martuwarra Ngurrara, and Yungngora (Figure 2). Research protocols agreed with the approaches for working with Traditional Owners outlined by the Kimberley Land Council (KLC). The details on the terms of the collaboration between researchers and PBCs are detailed in research agreements signed with each of these organisations.

During the whole study, researchers worked closely with the KLC (mainly through the Regional Research Coordinator) and had regular meetings with representatives from Aboriginal Corporations to develop and implement the research activities with Traditional Owners. The Regional (Fitzroy) Research Coordinator worked with researchers to prepare research agreements and liaise with the KLC and PBCs/claimant groups to help coordinate engaging for this and the other NESP projects with research activities in the study area.

5. Results

5.1 Workshop participants

On July 10–11 2018, NESP researchers led the first project workshop, gathering 40 people from 26 organisations across all main interest groups, including the Australian Department of Agriculture, Water and the Environment, state agencies, local governments, mining, agriculture and tourism organisations, environmental NGOs, Rangelands Natural Resource Management, Kimberley Land Council, and Prescribed Body Corporates representing the interests of Bunuba, Gooniyandi, Nyikina Mangala, Yi-Martuwarra, and Yungngora peoples. The workshop involved a series of activities for team members to get to know each other, strengthen relationships, and build trust.

5.2 Goals of the workshop

The goal of the first workshop was to build a shared understanding of what is happening in the system of which the scenario team members are part and which they want to influence. It aims to allow participants to expand their particular perspectives, and see more of the whole catchment system through the views of other participants and the information presented by the research team. In participatory scenario planning approaches, the first workshop is usually important for participants to improve their understanding of each other and to create a 'common language' about the situation – in this case, development of the Fitzroy catchment. This is particularly important in situations where, as in the case of the Kimberley, the perceptions and meanings of development are very different among the diverse groups that are part of the region (also see report summarising interviews with members of the scenario planning team). The workshop also aimed to identify the driving forces shaping development in the region and that could influence land use change in the catchment. Finally, the workshop aimed to identify the different development initiatives that have been undertaken, proposed or that could be implemented in the catchment.

5.3 Introduction to the workshop

The first workshop covered introductory activities, including an overview of the project (what has happened in the project so far, project stages, time frames and activities), geographic area the project covers (in our case including an explanation of the concept of a catchment), and an overview of development in northern Australia and how this triggered the project. The workshop also included an explanation of what a scenario is (with examples) and an introduction of the research team and facilitators, and a clear description of their roles.[1] The research team introduced the information and consent forms (sent electronically before the workshop) and explained their need, emphasising confidentiality, access and sharing of outputs, photos, and audio/video recording. Most introductory activities were included in all workshops, adjusted to the specific requirements of each meeting.

[1] Facilitators were running the process and their key role was managing discussions, helping to keep everyone on track, ensuring everyone had a say, and creating a space and atmosphere that allowed people to contribute equally and non-judgementally. Facilitators did not have an opinion on content and focus on the process.

Researchers explained that the process also had the potential to shift thinking, create empathy, understanding, and trust, which together can then lead to changes in individual and collective actions that could shape the future of the region.

5.3.1 Group introductions

This activity aimed for participants to know about each other and to help people have more open and honest conversations. During this activity, participants introduced themselves by telling their name, favourite foods, and one word to describe how they were feeling at that moment. Participants then lined up in alphabetical order and briefly discussed with the person besides them the origin/meaning of their name. Facilitators then asked participants for any surprises or similarities.

5.3.2 Development in northern Australia and defining development in context of the project

An important step was to contextualise and frame the discussions. To achieve this, researchers gave an overview of development in northern Australia and how certain policies and other development planning initiatives (e.g. RDA 2013; Australia 2015; KDC 2015) contributed to the development of the project (Figure 4) and gave a summary of key findings from the interviews to scenario team members, focused on describing the diversity of views on and meanings of development (and perceptions about the state of development in the catchment).

Figure 4. Key strategic planning documents reviewed and summarised in the workshop.

The group identified key aspects emerging from ongoing discussions around developing northern Australia:

- early stage of development
- transformation, achieving its enormous potential
- unlocking opportunities and confronting challenges

- solutions to pressing social challenges
- economic and social advancement
- cultural and wilderness assets and unparalleled resources
- new economy led by agriculture, minerals and energy production, tourism, and other industries, new jobs
- improving land and water access, use and management
- engaged Aboriginal population, leadership, locally owned and managed.

To facilitate exchange of ideas the facilitators invited participants to discuss the term ‘development’, including examples of how the term was used in different countries and contexts (avoiding qualifying it as negative or positive). The question guiding this discussion was:

What does development mean to you?

It was stressed that the goal of this discussion was to create shared understandings of the varied perceptions and views about development in the context of this project. In preparation for this discussion, facilitators guided an activity designed to help people listen to each other without having to provide a comment or rebuttal.

Facilitators presented colloquial discussion topics. In pairs, each person talked for three minutes about one of the topics of their choice with the other person listening carefully to what was said. At the end of the three minutes, the listener had to summarise what their partner said without debating, agreeing or disagreeing. People in each pair then switched roles and repeated the process.

The group then discussed the following questions:

- When you were speaking how did you feel about your partner’s ability to listen with an open mind?
- Did your partner’s ‘body language’ communicate how they felt about what was being said?
- When you were listening how did you feel about not being able to speak your own views on the topic?
- How well were you able to keep an open mind?
- How well did you listen?
- How well did the listening partners summarise the speakers' opinions?
- Do you think you would get better if you repeated the exercise? How can we use the lessons from this exercise in this workshop (or anywhere else)?

Researchers then presented a summary of the results from interviews, particularly regarding participants' views on how development should look in the Fitzroy catchment and the current state of development in the region. These results were summarised in a presentation to start the discussion about the commonalities and differences in views on development held by participants (Figure 5).

Figure 5. Word cloud showing recurrent themes underpinning the meaning of development among the scenario team.

5.4 Putting change into perspective

During this activity, the scenario team mapped out key changes over the past 50 years. Specifically, the group identified the events that have changed the region notably and shaped the way things are today. Identifying waves of change helped participants to understand and share ideas about forces in the region and opened up thinking on how local and external events and processes have created and could continue to generate change in the catchment. The activity also served to introduce the concept of 'driving forces of change' and to start thinking about how these drivers can create change in the future. Creating a timeline helped to reveal how change has been a constant, sometimes directed by people living in the region and other times originating from the outside. Previous scenario planning exercises have used similar approaches to understand and identify divers of change (Enfors et al., 2008; Oteros-Rozas et al., 2015; Mitchell et al., 2016).

To achieve this goal, the group had table discussions to identify major events, happenings, changes, policy, organisations, etc. that have influenced the catchment. Participants worked in tables, wrote down events in as few words as possible (including date), and discussed with others on their table. Each table gave notes to facilitators as they emerged, who put them on the wall in chronological order. Participants then identified sections that stood out, by responding to the question 'Can we identify different eras or patterns?'.

The group then identified and named each section (era),and discussed key elements of each.

The group identified key historical events and periods of time when change had been most evident, notably shaping the region. Participants grouped events into the following eras or periods of change:

1960s – From a pastoral perspective, this period saw the largest move of Aboriginal peoples, who left pastoral stations.

1970s – An important event was the formation of the Kimberley Land Council (1978), which pushed forward all the Indigenous activities that happened afterwards regarding Indigenous self-determination.

1980s – A period characterised by more internal processes; the Western Australia Aboriginal Land Inquiry (1983–1984) which explored forms of land use and title over Aboriginal land, namely what kind of Aboriginal relationship to land should be protected and the ways in which to satisfy the reasonable aspiration of Aboriginal people to rights in relation to land; this was accompanied by significant cultural activism. From a pastoral perspective, this decade also saw the return of Aboriginal people to the stations, including the purchase of some stations.

1990s – Building on the events during the 1980s, this was a period with very active environmental activism, including several community activities and increase of general environmental awareness; the end of this decade marked the start of the post-determination pastoral era (after the Northern Territory).

2000s – Building on the changes in the 1990s, the early 2000s saw the culmination of the pastoral transition, which affected the way pastoral stations are managed today.

2010s – Period where there seems to be stronger presence of big corporations, perceived to be supported by some government policies; also a time with noticeable changes in allocation of research funding more directly to community.

The team also identified elements that, despite the significant and ongoing changes, appeared to be persistent in the region and, to some extent, the constants define aspects of the region and that will continue to affect its future. In some cases, the constants actually referred to continuous change, such as political policies and funding. The constants included aspects related to people, main land uses, and environment:

- Aboriginal people still live throughout the region and continue being born; based on the account of historical events, there was a recognition that Aboriginal peoples can stand up for their rights and they can continually engage with mainstream politics and media.
- Pastoralism, in some form, has been there for a long time, with Aboriginal people working on stations or with stations; observed changes in relations of Aboriginal peoples with stations across time exemplify the potential influence of forces originating outside the region, such as divisions between Indigenous and non-Indigenous Australians more broadly.
- Repeated attempts (or proposals) to establish some form of irrigated agriculture; in many instances, these have been driven by external forces and not by locals.
- Petroleum exploration drilling has been happening in the catchment since 1921 (Freeney No. 1 well, drilled near Christmas Creek), coexisting with pastoral uses. Since that time,

there have been almost 300 wells drilled in the Canning Basin. Exploration has followed the price of oil with peaks of drilling most recently in the late 1970s to early 1980s, and more recently from 2008 until today.

- Marked seasons, with periodic significant floods.
- Continuous state and federal policy changes, perceived mainly as an external force in the shape of legislation constantly affecting the region and being a driver of change. Policies are associated with varied and episodic funding streams. Some noted that federal decisions do not always fit well into the regional Kimberley context.
- The Kimberley is highly susceptible to outside forces; this is reflected in how locals change in response to these forces, such as pastoral stations adjusting to external markets.
- People also observed the constant waves of external people coming to the catchment (including researchers) to understand the system and to explore development options.

The awareness (and concern) that external forces keep influencing the region was well articulated by one of the participants:

> *Kimberley people are always told what to do; now we can figure it out for ourselves, counter those market forces and decide what is next.*

Some noted the recurrent concerns about the flow of benefits from developments to local people, even in cases where these developments have proven to be profitable. Others expressed concerns regarding the relatively smaller role that other industries (e.g. mining) have had in the recent history of development of the catchment. Overall, participants thought the timeline was a useful exercise and draw some lessons about the influence of local and external forces that have shaped development of the region (Figure 6).

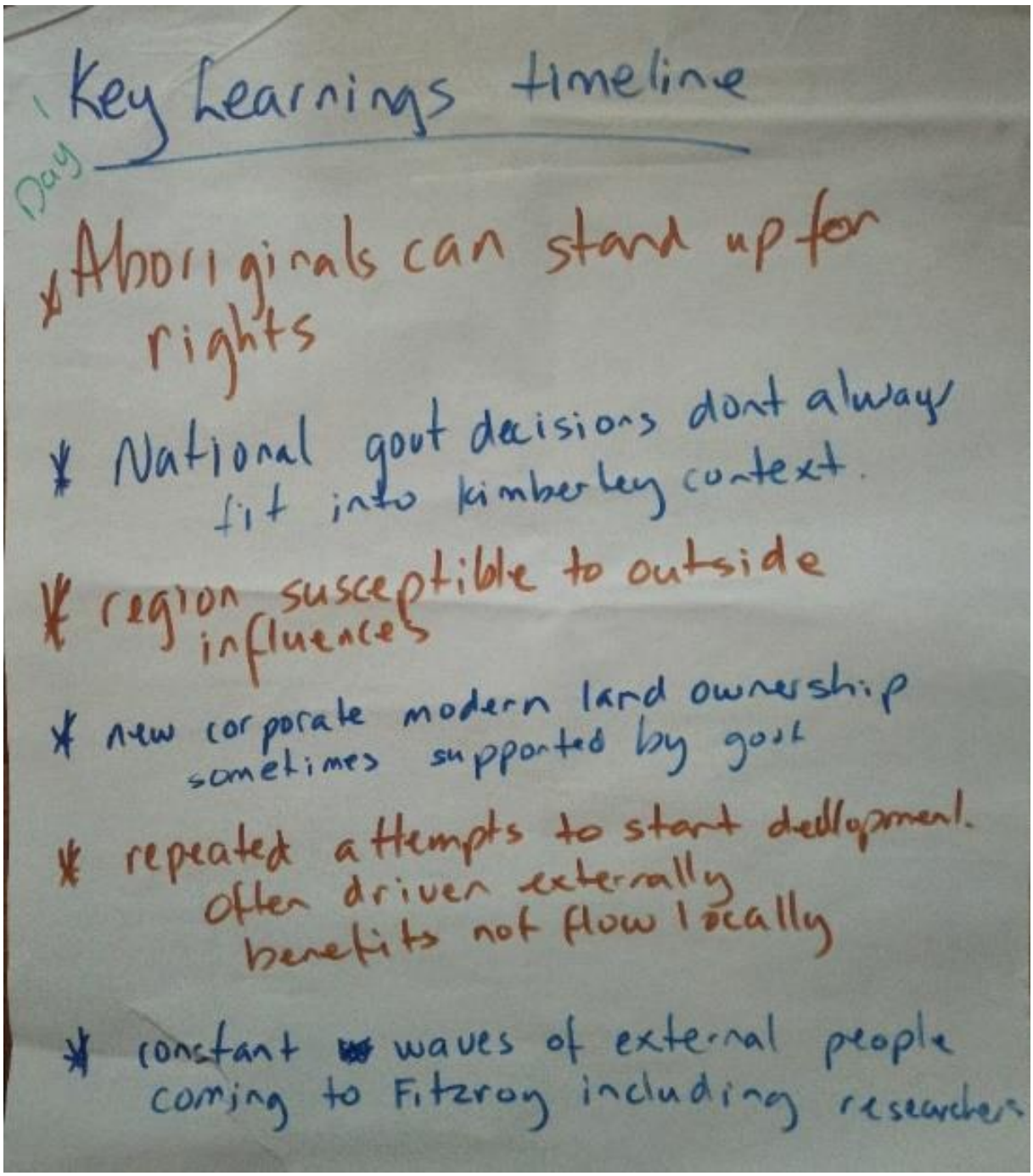

Figure 6. Notes from group discussion regarding lessons from the exercise to develop a timeline of the Fitzroy catchment.

From this first discussion, the group shared ideas and developed a broader understanding about driving forces of development. The session finalised with the group identifying a first list of drivers that could be important in terms of influencing change now and in the future, including:

- government policy has driven every change we see today and will likely continue
- people and industry working together
- locally driven development agenda
- foreign investment could play a stronger role
- reliability of climate, particularly rainfall
- developing land infrastructure and resulting changes in proximity to markets
- changes in world markets
- environmental management of impacts and risk (e.g. biosecurity, biodiversity)
- Increase local governments' land use and management decision-making power (e.g. constitutional changes)
- changes in civic participation
- investment to assist transition to renewable energy
- reclaiming indigenous sovereignty to self-determination
- shift in relationship between government, communities, and Aboriginal peoples
- changes in (opening of new) markets
- vulnerable local meat market, easily affected by conditions at point and time of sale
- growing awareness and concern from other parts of Australia about the Kimberley
- new and upcoming Native Title determinations
- future markets, future opportunity, diversifying opportunity to markets.

Remarks made by participants about the timeline exercise during the workshop evaluation included comments

- about the exercise process, e.g.

  The timeline was really good, not as boring as I thought; it would have been good to dig a little deeper and talk a bit about the things that failed so that we don't repeat them.

- its meaning

  The timeline allowed us to create a survey of historic impacts.

- and things that the exercise allowed exploring, such as:

  relationships that underpin the timeline.

5.5 Timeline of the Fitzroy catchment – a Story Map

Using the information from this activity, researchers created a Story Map of the timeline, which participants can explore online (Figure 7). The story map describes a timeline of key events that have shaped the Fitzroy River catchment. It was created to help understand and explore the driving forces of development in the region.

Figure 7. Opening page of the Story Map app created to share the timeline of the Fitzroy River catchment

This application allows results to be shared in a user-friendly format, to keep it updated (and live) after the process finishes, and to help to communicate the timeline with the wider community. Creating a story map allowed images and interactive maps relevant to events to be included and updated as needed (Figure 8). Researchers are discussing the process to update, incorporate feedback from participants, and add new events, including past, ongoing and future.

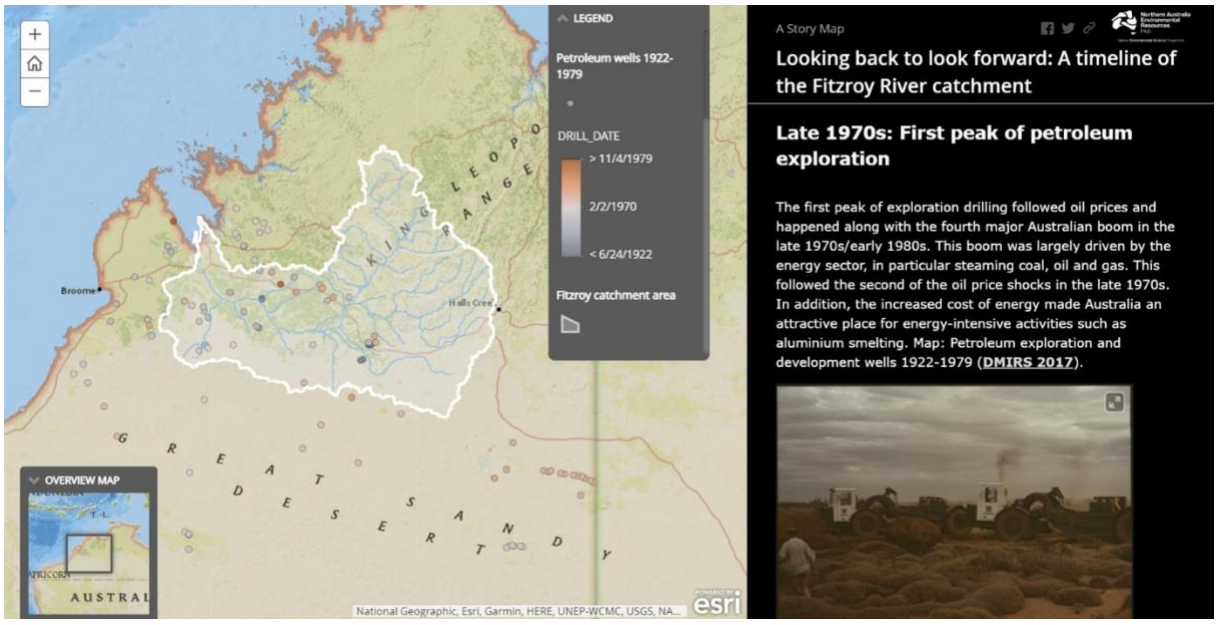

Figure 8. Example of an event associated with photograph and spatial information relevant to the topic

5.6 Driving forces of change

Following discussions on the timeline, participants identified key driving forces of land use change in the region. This activity started by researchers providing an explanation of the concepts of driving forces and how they apply to the project. The group was given time to ask questions to clarify and discuss the concepts.

Key remarks made by participants in this discussion included

- *Sometimes we don't have much control on the end point or direction of development initiated by drivers.*
- *Not all driving forces will act in the same direction .*
- *Constraints can be described as driving forces acting in opposite or diverging direction to a driver of interest.*
- *Drivers will act together to drive us to one scenario and we should discuss what we do if we get there.*
- *Is it possible to give more direction by influencing some drivers?*

Facilitators then asked questions to start discussions and identify a draft list of driving forces:

- *Looking at the timeline, what do you think is likely to happen that could drive change in the coming 30 years?*
- *So why is that an issue – what is pushing that to happen?*

At each table, participants brainstormed and discussed driving forces that might shape or affect the future of the Fitzroy catchment in the next 30–50 years and came up with a list. Each table shared the most important driver of their list and facilitators write them on sticky notes and placed them on the wall (Figure 9). The activity included a number of rounds, until participants felt the list was comprehensive. Once the list was complete, facilitators asked participants to group (if needed) and to identify the 8–10 most important drivers.

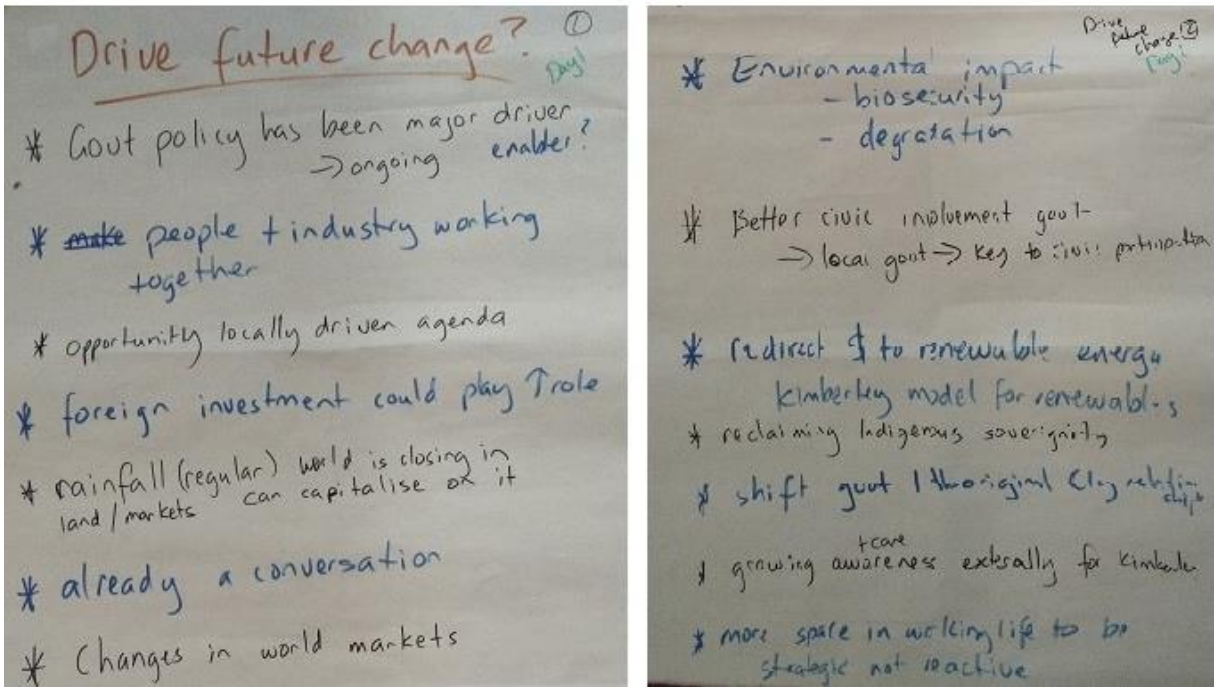

Figure 9. Notes from group discussion regarding driving forces of development affecting the Fitzroy catchment.

After identifying the key drivers, some groups discussed the possible interactions between drivers and their combined influence on attitudes, decisions and different aspects of society in the region and beyond (Figure 10). This served to illustrate the complexity of how many driving forces are shaping the region, thus emphasising the need to consider uncertainties when considering future development scenarios.

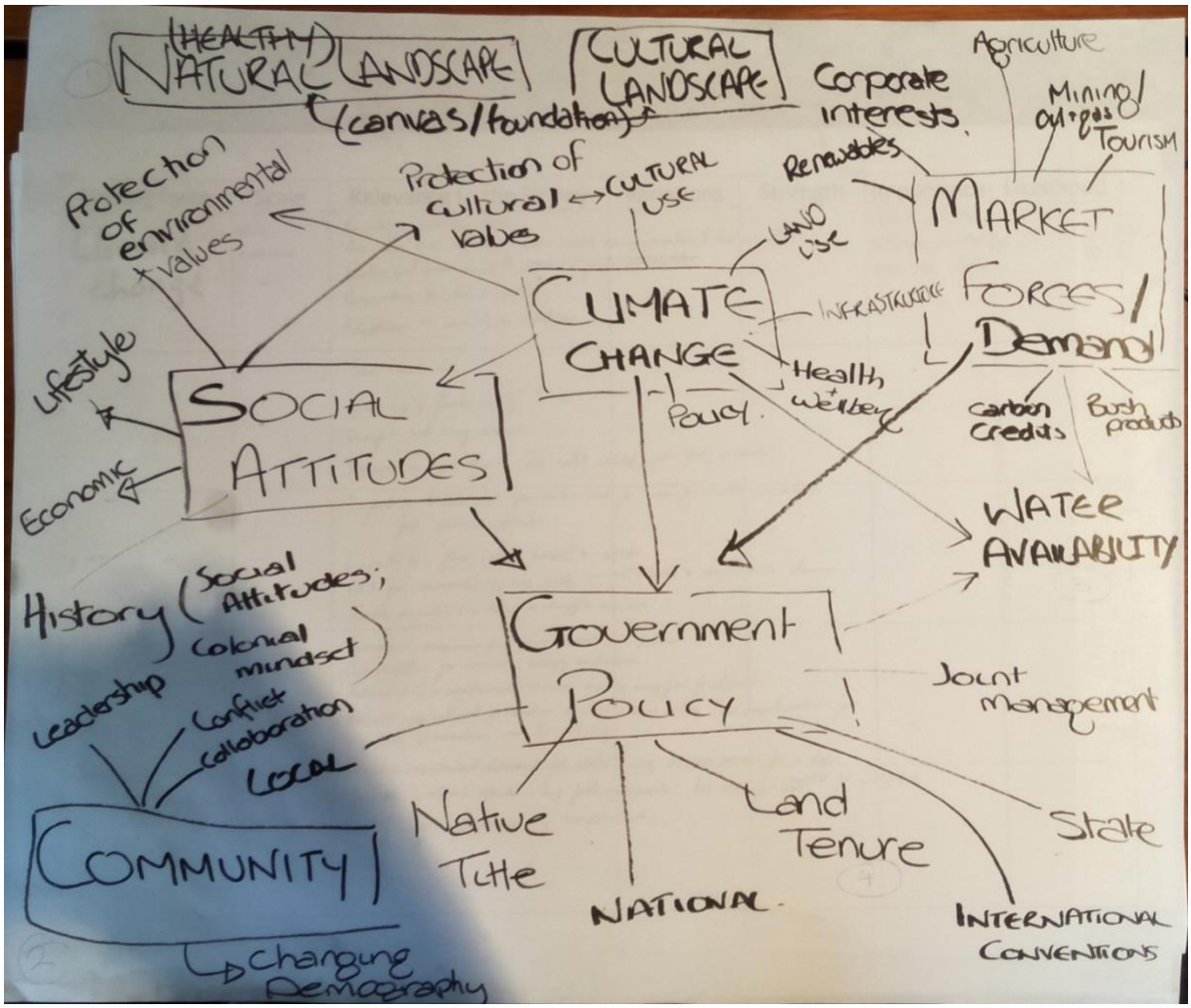

Figure 10. Notes regarding possible interactions between driving forces of development in the Fitzroy catchment.

6. Conclusions

The timeline is not comprehensive and cannot be generalised as representative of all interest groups or residents of the catchment. However, our participatory approach based on experts representing diverse views allowed us to identify significant events and driving forces shaping land use change in the region. The activities designed to get participants familiar with each other and to share views of development were critical to create shared understandings of the processes that can shape the future development in the catchment. Creating a timeline was an important step of the scenario planning exercise because it gave the group a better understanding of the concept of driving forces, which underpin the structure and process of building scenarios. Creating the timeline was also a good opportunity for participants to share their perspectives, which differed across different groups, about how different events were more or less relevant in shaping the ways things are today. The timeline also exposed sensitive discussions, such as the inequalities in access to opportunities provided by different development initiatives and policies. Overall, we suggest that creating a timeline of events can be an important early step when developing scenarios, particularly in multi-stakeholder participatory planning in contested landscapes.

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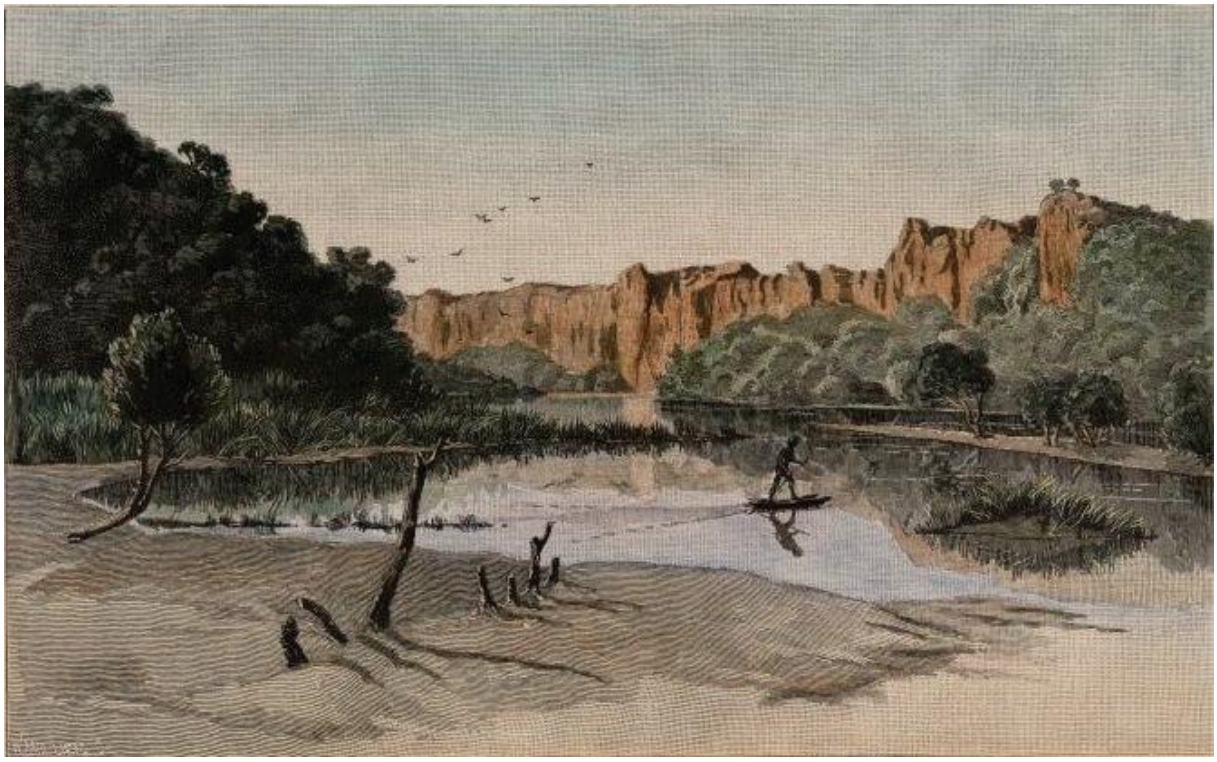
Appendix 1. Looking back to look forward: A timeline of the Fitzroy River catchment, Story Map

This story map describes a timeline of key events that have shaped the Fitzroy River catchment, Western Australia. It was created in a scenario planning exercise to help understand and explore the driving forces of development in the region.



Danggu Geikie Gorge, Fitzroy River, circa 1886. © State Library of Western Australia, B2801181

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Credits

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Warning

Aboriginal and Torres Strait Islander people should be aware that this website contains images or names of deceased persons in photographs, illustrations or printed material.

All users should be aware that certain words, terms, or descriptions may be culturally sensitive and considered inappropriate today but reflect the period in which they were written.

Introduction

Using participatory scenario planning, we created and assessed future scenarios of the Fitzroy River catchment. A multi-stakeholder group worked through a series of workshops to explore alternative development pathways and their outcomes. For this timeline, the group identified the things that have changed the region and shaped the way things are today. The goal was to understand and share ideas about driving forces of land-use change. This activity opened up thinking on how local and external events and processes have shaped and will continue to change the catchment.

Read the project report.

The Martuwarra (Fitzroy River) catchment

The Martuwarra (Fitzroy River) in the Kimberley region of Western Australia connects 10 major Traditional Owner groups, whose traditional lands are within or overlap the catchment's boundary, and where at least nine Indigenous languages are still widely spoken.

Traditional Owners' lore and law describe how the region has been inhabited since time immemorial, with one occupation site dated at more than 47,000 years, and the resulting sociocultural–ecological system is characterised by the strong interdependence between Country and people.

Over thousands of years, this unique system has been shaped and maintained by its Traditional Owners through active management (e.g. traditional burning), use (e.g. ceremony, medicinal, fishing), and protection of land and water following customary law and practices.

Early 1880s: First pastoral stations

The establishment of Yeeda Station (1880), where sheep were first introduced, was followed by Gogo, Fossil Downs, Liveringa, and Noonkanbah stations. By 1883, sheep were being landed in their thousands at the newly established port in Derby and from there driven inland across the Fitzroy and other West Kimberley rivers.

THE FIRST HOUSE BUILT IN THE KIMBERLEYS.

Yeeda Station, originally owned by the Murray Squatting Company, headed by Mr. Geo. P. Patterson of Pinjarra. The house was erected by Mr. Patterson on the banks of the Yeeda River in 1881. The sides are constructed of wood and iron, while the roof is of bark. The nearest neighbours were at De Gray Station, 400 miles away. The photograph was taken by the late Lord Forrest in 1893.

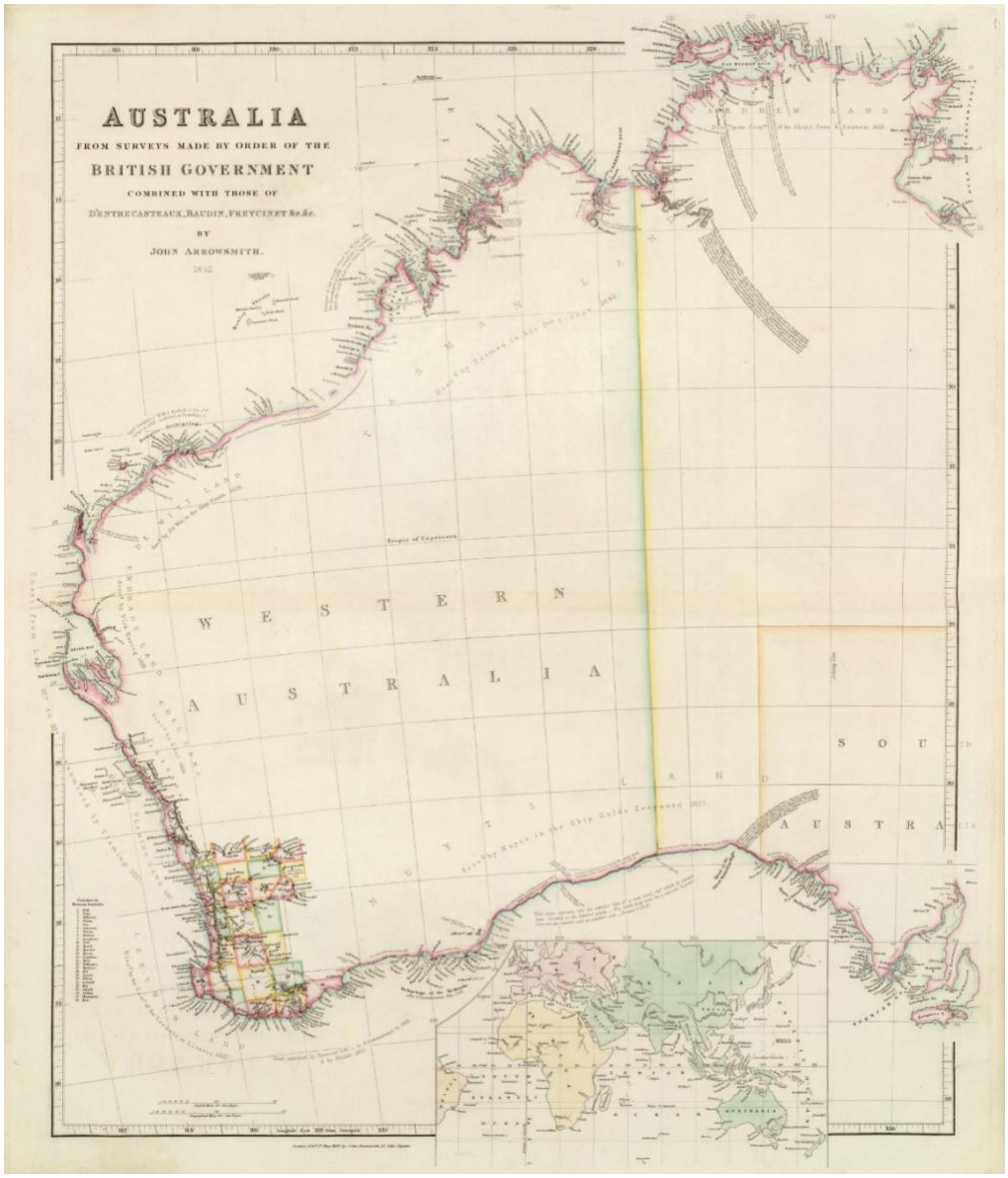
Yeeda Station homestead, 1893. Source: Wikipedia

1829: Proclamation for Western Australia

Proclamation, 18 June 1829

"By His Excellency James Stirling Esquire Captain in the Royal Navy and Lieutenant Governor of His Majesty's Settlement in Western Australia.

Whereas his Majesty having been pleased to Command that a Settlement should forthwith be formed within the Territory of 'Western Australia' ..."



Map of Australia from surveys made by order of the British Government combined with those of D'entrecasteaux, Baudin, Freycinet et al., John Arrowsmith, 1842. © David Rumsey Map Collection, Stanford Libraries

1885: Gold rush in Halls Creek

Prospector Charlie Hall found a 1 kg gold nugget and the discovery drew more than 5,000 people to Halls Creek. While the gold rush lasted less than three months, Halls Creek became a trading centre for cattle stations, Aboriginal communities and miners who stayed in the area. This opened up the catchment to the east Kimberley and the port of Wyndham. For people living along the river, it also provided a nearby market for beef and allowed the establishment of new cattle stations.

The gold rush in Western Australia. Waterfall gold mine, Boorara, Kalgoorlie,Western Australia, 1896. © The Print Collector, Alamy Stock

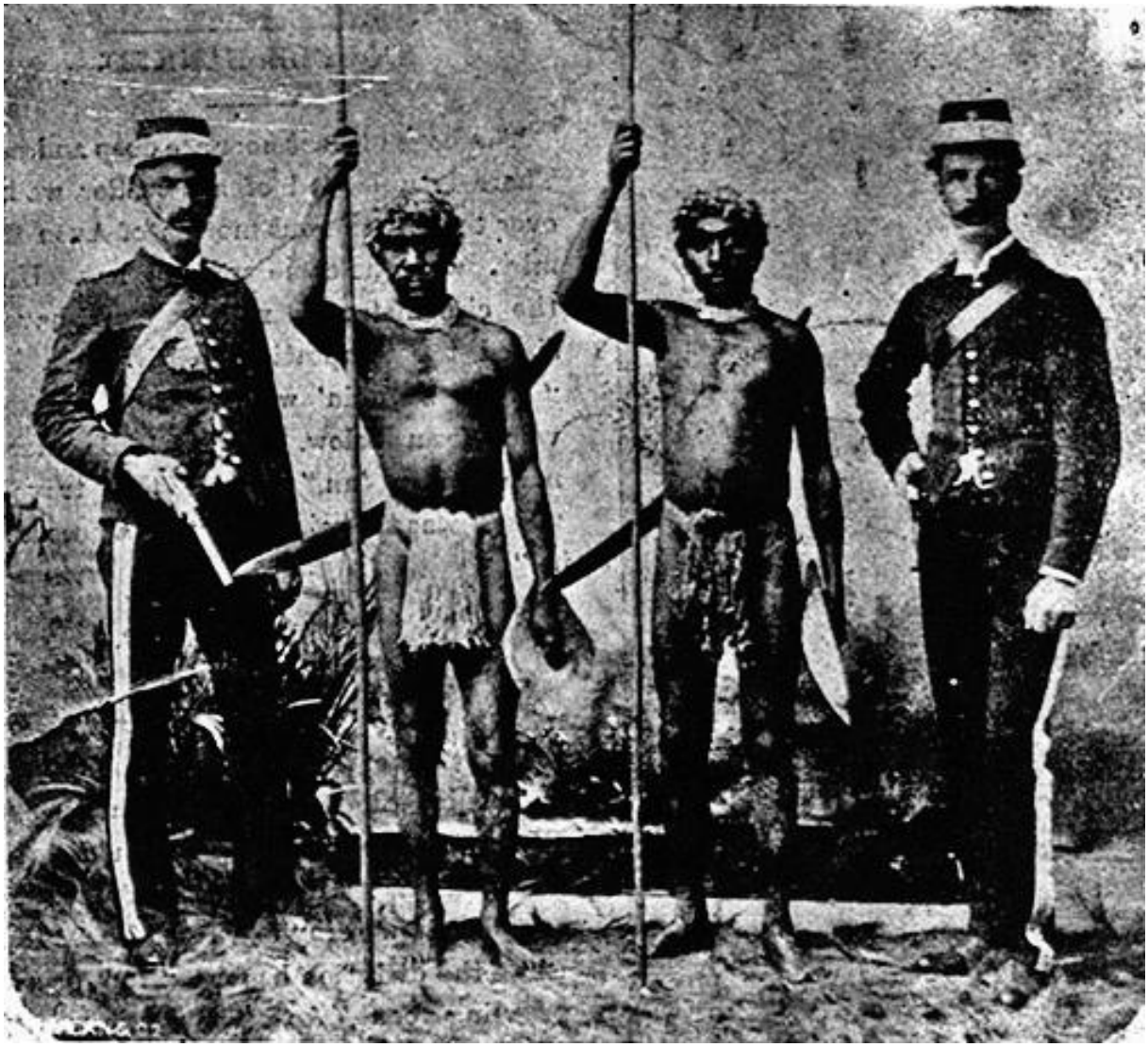
1885: William MacDonald arrives at Fossil Downs

The station was established the following year when cattle arrived from the eastern states to stock the lease. With 700 head of cattle, of which 327 cattle arrived, it was the longest drove of cattle at the time. The lease was issued in 1883 to the MacDonald family from New South Wales for 259 km^2 at the junction of the Margaret and Fitzroy rivers.

Stockmen and stockyards, Fossil Downs station circa 1905 to 1910. © StateLibrary of Western Australia, 283022PD

1894 to 1897: Jandamarra and the Bunuba resistance

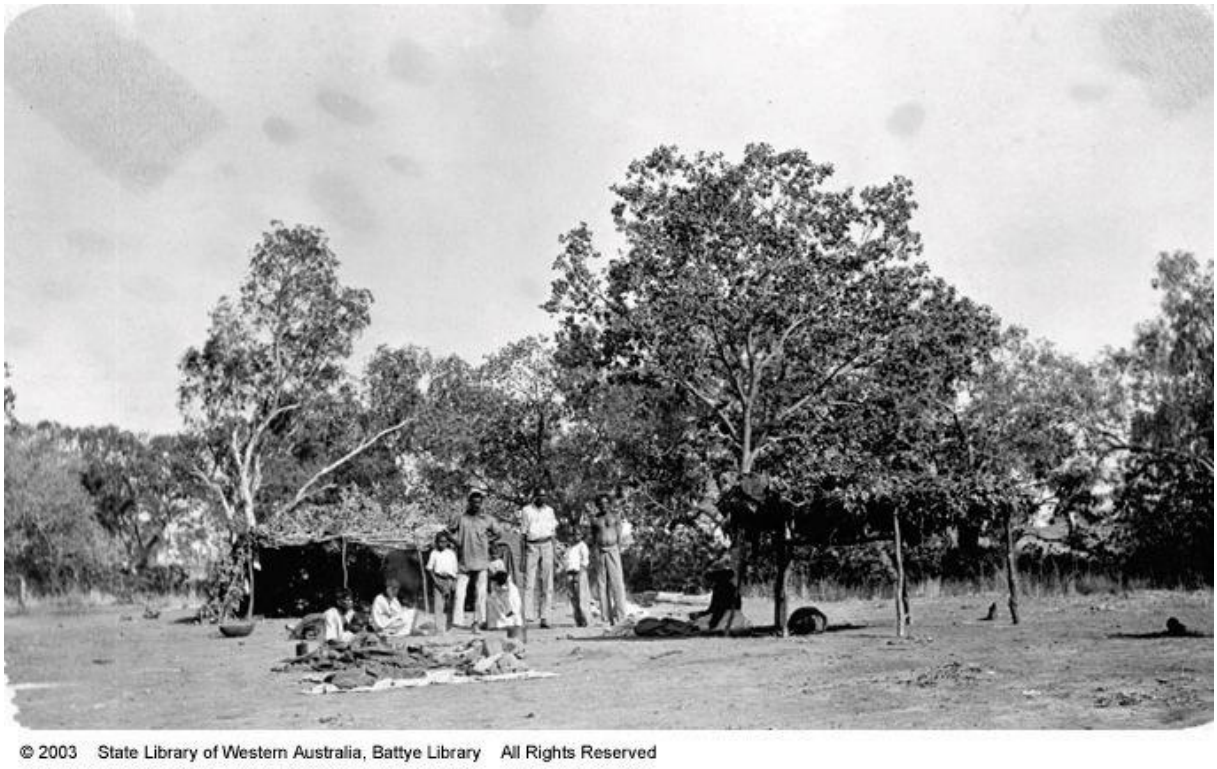
Jandamarra was a Bunuba Aboriginal leader who worked at Lennard River station. He won repute as the district's finest Black stockman. In 1894, he was recruited as a tracker (assigned to Constable Richardson) to help locate and capture Bunuba warriors. Following the killing of Richardson, Jandamarra's gang ambushed stock parties. He planned to defend his country using firearms and envisioned an Aboriginal uprising that would transcend tribal boundaries. Fifty ochre-painted warriors fought the Whites in the major battle of Windjana Gorge on 16 November 1894. In 1895, he raided Lillimooloora police station and in 1896, attacked Oscar Range homestead. In 1897, he was shot dead at Tunnel Creek. Leopold Downs Station was established in the heart of Bunuba land and within two years most of their land was occupied.



Two Aboriginal desperadoes, Pigeon [Jandamarra] and Lillimarra [Ellemarra], The Western Mail, 15 October 1897. Source: Available at the StateLibrary of Western Australia on microfilm and electronically at trove.nla.gov.au/newspaper

Early 1900s: Desert people walked from desert to river country and pastoral stations

Julparija, Juwaliny, Mangala, Manjiljarrra, and Wangkajunga peoples began leaving their traditional lands of the Great Sandy Desert. Many walked north towards the river.



Camp at Gogo Station, west Kimberley, circa 1912. © State Library of WesternAustralia, 008385D

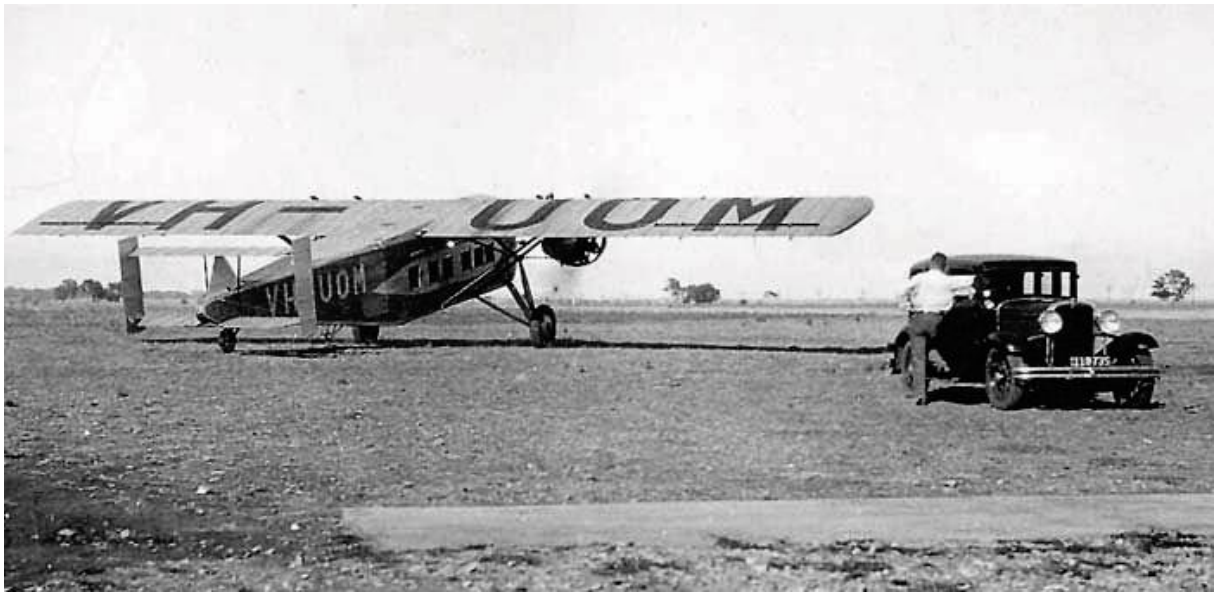
1921: First petroleum drill

Exploration drilling in the Canning Basin goes back almost 100 years, with the first oil well drilled north of Christmas Creek in 1921. The well was drilled for water by two sailors, H. Price and F. Massen. At a depth of 100 ft, they noticed a peculiar odour from the borehole and found black oily material on the drill and cable. With World War II, the need for oil became urgent and the conditions of the Kimberley were ideal prospective territory. Many oil companies came, explored and departed. Map: Petroleum exploration well (DMIRS 2017).

The 1922 Locke Oil Expedition started at Leonora along the Canning Stock Route to Halls Creek, led by geologist L.J. Jones with assistant H.P. Buckley. ©State Library of Western Australia, B1898396.1

1922: First air service between Derby and Geraldton

Air service in Australia connected remote communities, including Derby and Geraldton. The VH-UOM Vickers 198 Viastra II aeroplane was acquired by Western Australian Airways on 8 October 1931 and crashed in Redcliffe, Western Australia on 11 October 1933.



Original photo of VH-UOM of Western Australian Airways. Source: Australian Commercial Aviation Collection

1935: First bridge of the Fitzroy River

In 1935, the Fitzroy got its first bridge. A low-level concrete structure, it was built up into a wider structure in 1958. This bridge could be closed for several months at a time during the wet weather and travellers were then forced to use a flying fox, which operated about 200 m south of the crossing.

Fitzroy River, looking north from the bridge at Fitzroy Crossing.Source: Wikipedia

1949: Gibb River Road started

The grant to build the Gibb River Road was part of the Beef Roads Scheme. The road is a 660-km track right through the heart of the Kimberley and a major tourist attraction in the region, connecting Derby, Kununurra, and Wyndham.

Pentecost River crossing, Gibb River Road, Kimberley. © Nick Haslam, Alamy Stock

1952: Camballin irrigation scheme

The Camballin irrigation scheme included the Fitzroy River barrage, Seventeen Mile dam, pump, irrigation channels, a 17-km levee bank, silos for grain storage and other infrastructure located at the townsite created around the development. The scheme was designed as a large-scale rice-growing venture – trials included fodder crops, sorghum, oats, and cotton. The scheme was seriously affected by flooding which damaged infrastructure and crops and was abandoned in 1983.

The Fitzroy River barrage, Camballin irrigation scheme. © David Morgan

1960s to 1970s: Transition from sheep to cattle

In the final years of the 19th century, sheep stations were battling against harsh conditions, poor markets, disease and major stock killings. Yet, stations such as Liveringa and Noonkanbah grew their flocks to around 100,000 head of sheep, making them some of the biggest sheep stations in Australia's history.

The Kimberley's wool industry enjoyed major highs during the 1950s but was struggling again in the 1960s before eventually collapsing in the mid-1970s.

Sheep on Debesa (Liveringa) Station. © Frank Rodriguez

1967: Referendum

Winning 93% of votes cast, the Australian Government gained control to pass laws related to Indigenous citizens. Previously, it was the responsibility of the states which led to inconsistent laws across the nation. The formal recognition of Indigenous peoples as part of Australia's population led to amendments of the constitution.

Map: Percentage voting Yes per state.

Activism during the 1967 referendum. © The Age Archives

1968: Equal pay for Aboriginal people

In late 1967, the Commonwealth Conciliation and Arbitration Commission decided to remove the racially discriminatory clause from the Federal Pastoral Industry Award. Equal wages for Aboriginal workers were phased in from December 1968 in the Kimberley. However, when the equal wages decision was handed down, hundreds of people were forced to leave the stations they had grown up on and to live in town reserves.

Aerial photograph of Fitzroy Crossing, 1964. © Aerial Surveys Australia, StateLibrary of Western Australia, B2406090.1

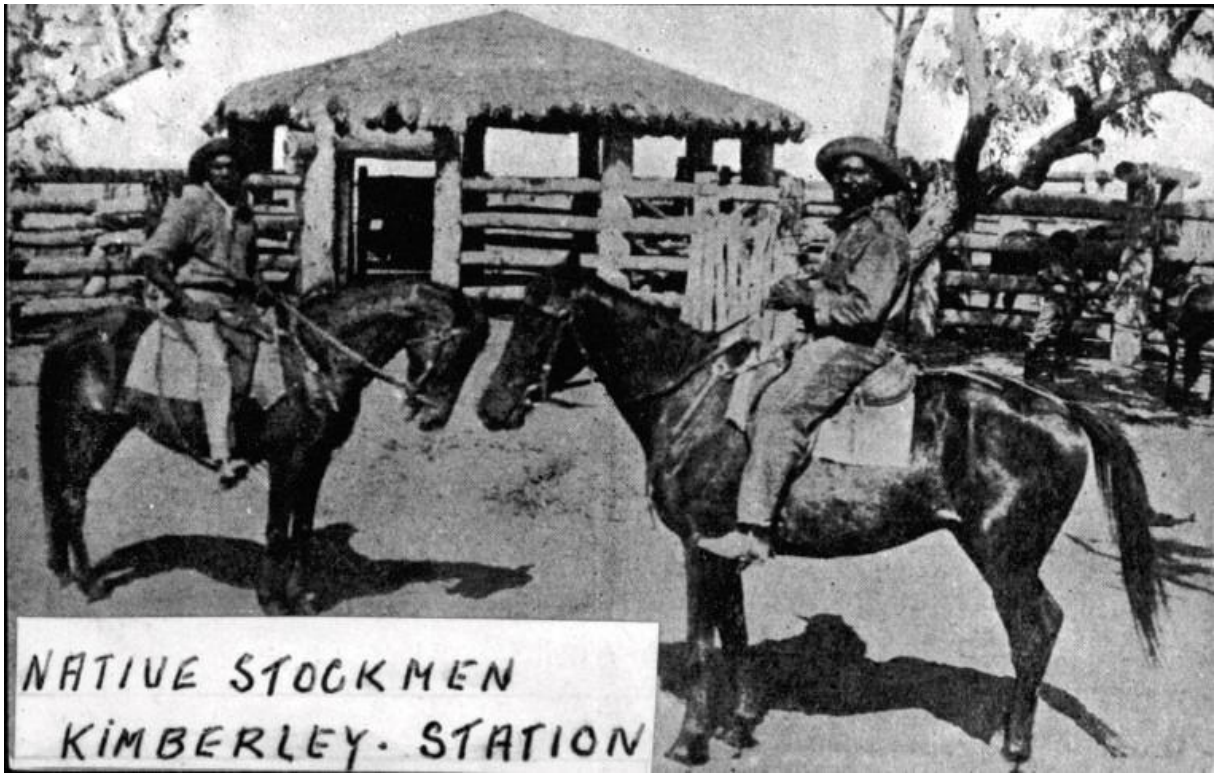
1968: Willare Bridge

The Willare (390 m long) and Minnie (200 m) bridges opened in June 1968. Costing about $700,000, the bridges were placed 2.1 m higher than the highest known flood level. The single-lane bridges were designed to handle more extensive flooding, with the water flowing over them if necessary.

Willare Bridge over the Fitzroy River near Derby. © Ben Collins, ABC Kimberley

1970s: Aboriginal people walk off Fitzroy valley stations

Following the passing of the Pastoral Award, many station owners in the Kimberley decided that Aboriginal people living on the stations who were not employees would be removed. They did not expect that many of the employed labour force, whose loyalties were to their families, would move as well. Many pastoralists found they lost both their access to cheap labour and their most experienced stockmen. For most of these Aboriginal people, the 'station times' ended in the 1970s and the struggle for land rights commenced.



Aboriginal stockmen on a cattle station, Kimberley. © State Library of WesternAustralia, B1992982.1

1970: Danggu Geikie Gorge National Park

Danggu Geikie Gorge National Park, 420 km east of Broome, was established in 1970. The park is one of the most accessible in the Kimberley as it is only 20 km from Fitzroy Crossing and is serviced by a sealed road – this makes it a main tourist attraction in the region. Danggu Geikie Gorge, located within Bunuba Country, provides strong evidence of Indigenous cultural logic and affiliations to land and water. The park lies in the centre of today's proposed Fitzroy National Park.

Danggu Geikie Gorge, Kimberley, 1972. © State Library of Western Australia,B5096982.2

1971: Traditional Owners walk off Noonkanbah Station

When the low-wage era ended in the late 1960s, the working relationship between Aboriginal people and pastoralists was affected. The Yungngora people, Traditional Owners of Noonkanbah, were employed by the station until 1971 when they walked off over disputes about pay and working conditions. They set up a fringe camp outside Fitzroy Crossing. In 1976, the station was purchased by the Aboriginal Land Fund Commission to be developed by the Traditional Owners and about 200 people moved back. It has been run by the Yungngora community since then.

Riverine plains, Noonkanbah Station, circa 1974. © State Library of WesternAustralia, B4260744.1

1974 to 1975: New bridge on the Fitzroy River

Fitzroy Crossing received its first bridge in 1935 and was built up into a major structure in 1958. However, this bridge could be closed for months during the monsoonal summer. By late 1972, as part of the Beef Roads program, a new high-level bridge was built adjacent to the area surveyed for the new town.

The need for the bridge and relocation of the settlement was highlighted by the 1974 flooding. In 1974, a new bridge was built south of the crossing, shifting the town centre.

Fitzroy Crossing bridge. IAR Photographics. Source: TripAdvisor

1975: Homeland communities

In 1975, the Liberal Party replaced Labour in the federal election, which changed the policy of self-determination to self-management. At the start of this government, federal expenditure on Indigenous programs doubled, changes to social security led to payments in cash, and land rights facilitated the homelands movement. The Community Development Employment Program was established in 1976 and allowed locals to work for cash while providing labour services to their community.

A turn-off for some Aboriginal communities in the Kimberley. © RachelBuissereth

Late 1970s: Helicopters introduced for mustering

Until the 1970s, cattle droving was an exacting, tough and isolated way of life. Drovers moved herds over vast distances in search of food or to market, sometimes travelling for a year at a time. This changed when helicopters, four- wheel-drive vehicles, and road trains were introduced and used for mustering and moving stock. Mustering involves bringing in cattle from around a sprawling station so that they can be branded, dehorned, vaccinated, earmarked and checked. Some cattle go to live export, while others go back to mature or are used for breeding.

Mustering with a helicopter, horse, and four-wheel-drive vehicle. © RichardWoldendorp, State Library of Western Australia, B2435765.1

Late 1970s: First peak of petroleum exploration

The first peak of exploration drilling followed oil prices and happened along with the fourth major Australian boom in the late 1970s/early 1980s. This boom was largely driven by the energy sector, in particular steaming coal, oil and gas. This followed the second of the oil price shocks in the late 1970s. In addition, the increased cost of energy made Australia an attractive place for energy-intensive activities such as aluminium smelting.

Map: Petroleum exploration and development wells, 1922 to 1979 (DMIRS 2017).

Dinoseis seismic trucks, Lake Betty. © Murray H. Johnstone, State Library ofWestern Australia, B6375528.2

1978: Kimberley Land Council creation

Senior Aboriginal leaders called Kimberley Aboriginal people from more than 30 communities to come to the first official meeting of the Kimberley Land Council (KLC) at Noonkanbah. Established as a political land rights organisation, the KLC has become the peak Indigenous body in the Kimberley. The KLC works with Aboriginal people to secure Native Title, conduct conservation and land management activities, and develop cultural business enterprises. Today, the lands of more than 40 Aboriginal groups are recognised through Native Title determinations and claims.

Yungngora men, women and children protest against mining at NoonkanbahStation in 1976. © Michael Gallagher, ABC News

1978 to 1980: Noonkanbah protests

The mining boom of the 1970s led to hundreds of resource tenements on Noonkanbah station. In 1979, the station experienced a political dispute when the state government allowed American oil company AMAX to drill for oil.

Traditional Owners asked for time to get the station working and said no to the exploratory drilling on sacred land. Disputes lasted over a year, culminating in the Liberal Premier of Western Australia allowing the exploration to go ahead. On 7 August 1980, a convoy of 45 non-union drilling rigs and trucks travelled from Perth protected by hundreds of police. Violent confrontations between police and protesters followed, culminating in the drilling rigs forcing their way through community picket lines.

Protests at Noonkanbah, 1976. © Michael Gallagher, ABC News

1970s to 1980s: Agent Orange chemical spraying

In the 1970s and early 1980s, the Western Australian Agriculture Protection Board hired more than 300 men to spray weeds (Noogoora Burr and *Parkinsonia*) that were affecting livestock across the north. The herbicide contained the now-banned substance 245T, an ingredient in the defoliant Agent Orange. The men sprayed the chemicals wearing shorts and singlets in several stations across the Kimberley, including Liveringa and Noonkanbah. Three inquiries were conducted in the early 2000s and since then workers have been allowed to apply for compensation for medical problems.

Man spraying toxic chemicals. © ABC News

Early 1980s: Second peak of petroleum exploration

Oil exploration continued through the 1950s, 1960s, and 1970s but in the early 1980s, oil was discovered in commercial quantities on Blina Station, leading to the development of the Blina, Sundown, West Terrace and Lloyd oilfields. Oil from Blina was shipped out of Broome for 25 years. This discovery led to a boom in exploration during the early 1980s before the oil price and the 1987 stock market crash dried up the funding for exploration in the basin. Map: Petroleum exploration and development wells, 1922 to 1989 (DMIRS 2017).

Sandstone outcropping, Poole Range, Canning Basin. © DMIRS

1980s: Indigenous art centres are founded

Waringarri Aboriginal Arts was the first Indigenous-owned art centre established in the Kimberley region. One of the oldest continuously operating art centres in Australia, it supports economic independence for artists and their community. Mangkaja Arts began as an arm of Karrayili Adult Education Centre, first established in 1981 for local people who wanted to learn the English language. The initiative, led by the local men, provided a place where people could study and paint their personal stories, bush trips and histories.

Ngarralja Tommy May painting at Mangkaja Studio in Fitzroy Crossing. ©Mangkaja Arts Agency

1980: Noonkanbah and Millijidee stations leased to Aboriginal people

Millijiddee outstation and the surrounding area near the St George Ranges were the focus of repeated requests to state and federal government departments for the granting of appropriate tenure. The Kadjina and Noonkanbah communities are significant because their requests are some of the first documented and successful land rights claims prior to the existence of formal land rights legislation.

Millijiddee Station was originally part of the Noonkanbah lease. It was excised as a separate lease (originally held by Waratea P/L) in 1982. The Yungngorah Association Inc acquired the northern Noonkanbah lease in 1986 and Kadjina Community Inc acquired the southern Millijidee lease in 1988.

Station workers cutting and joining the poly pipes for the trough in the yard;Eugene, Steven, and Roy at Beaton's bore yard at Millijidee Station. © Benjamin Laurel, Wulungarra Community School blog

1982: Landcare national program

A community-based movement dedicated to dealing with environmental problems led to the emergence of natural resource management (NRM) bodies (e.g. Rangelands NRM). In 1989, the national Landcare movement was officially recognised by the National Farmers' Federation and the Australian Conservation Foundation, convincing the federal government to support the emerging movement. On 20 July 1989, the government announced its 'Decade of Landcare Plan' and committed $320 million to fund the National Landcare Programme.

The not-for-profit organisation Landcare Australia was established in 1989.

1983: Great Northern Highway upgrade

The Great Northern Highway links Perth with the northern port of Wyndham. With a length of 3200 km, it is the longest highway in Australia. It is the only sealed road link between the Northern Territory and northern Western Australia. Economically, it provides vital access through the Wheatbelt and Mid West to the Pilbara and Kimberley. Mining, agriculture, and tourism depend on this highway in these areas. Economic growth and development in the north- west prompted improvement efforts and the national Beef Roads Scheme in the 1960s led to higher-quality roads in the Kimberley.

A road sign on the Great Northern Highway, Kimberley region. © RachelBuissereth

1984: Seaman Land Inquiry

The Western Australia Aboriginal Land Inquiry (1983 to 1984) explored forms of land use and title over Aboriginal land – namely, what kinds of Aboriginal relationships to land should be protected and the ways in which to satisfy the reasonable aspiration of Aboriginal people to rights in relation to land.

Pastoral land and agriculture, Fitzroy River catchment. © Jorge G. Álvarez-Romero

1988: Australian Bicentenary

The bicentenary of Australia, celebrated in 1988, marked 200 years since the arrival of the First Fleet of British convict ships at Sydney in 1788. The event was controversial and triggered a debate on Australian national identity, Aboriginal rights, historical interpretation and multiculturalism. Some wanted to remember the colonisation as an invasion of lands where Australia's First Peoples have been living for millennia. Others wanted it to focus on historical re-enactments.

First fleet re-enactment, Australian bicentenary, Sydney Harbour, 1988. ©Australian Overseas Information Service, National Archives of Australia

1988: Sam Lovell awarded Sir David Brand Tourism Award

In 1988, Sam Lovell, the first Aboriginal tourism operator, received the Sir David Brand Award for his contribution to tourism. Sam is known as the father of Indigenous Tourism in Western Australia. Employed as an Aboriginal Tourism Project Officer by the Western Australia Aboriginal Economic Development and the Department of Primary Industries and Regional Development, Sam has helped thousands of Aboriginal people and families develop their own businesses. Sam has encouraged the establishment of greater self-sufficiency and independence for Aboriginal communities across the Kimberley.

Sam Lovell, Kimberley, Western Australia. © The Australian, 2017

1990s to 2005: Aboriginal and Torres Strait Islander Commission

In 1987, the federal government announced it would replace the Department of Aboriginal Affairs and the Aboriginal Development Commission with the Aboriginal and Torres Strait Islander Commission (ATSIC). An Aboriginal Economic Development Corporation would be established as part of ATSIC to encourage and facilitate Aboriginal participation in commerce and enterprise. The government would then embark on a process to reach an agreement, treaty or Makarrata between Indigenous and non-Indigenous people in Australia. The Aboriginal and Torres Strait Islander Commission Act 1989 established ATSIC. In 1990, the first elections for the ATSIC were held, with one-third of eligible Aboriginal people voting.

1992 to 1993: Mabo decision and Native Title

This event marked a key change of aspirations in land management. After 10 years, the Mabo decision of 1992 recognised Native Title for the first time. The Mabo case recognised the land rights of the Meriam people, Traditional Owners of the Murray Islands in the Torres Strait. The case debunked the myth that at the time of colonisation Australia was *terra nullius,* land belonging to no one. The High Court recognised that Indigenous peoples had lived in Australia for thousands of years and enjoy rights to their land according to their own laws and customs. Twelve months later, the Native Title Act 1993 was passed. Two years later, the Tjurabalan People registered their claim and in 2001, it was the first Native Title determination in the Kimberley.

Eddie Koiki Mabo and plaintiffs in the Supreme Court of Queensland, 1989. Leftto right: Dave Passi, Eddie Mabo, Bryan Keon-Cohen (lawyer) and James Rice. © National Film and Sound Archive of Australia

1992 to 1994: Leopold Downs and Fairfield stations handed back to Bunuba people

Leopold Downs and Fairfield stations were handed back to Bunuba people between 1992 and 1994.

Aerial photograph of Leopold Downs station, 1965, © State Library of WesternAustralia, 258352PD

1992: Dimalurru Tunnel Creek National Park

Dimalurru Tunnel Creek National Park, 112 km from Fitzroy Crossing, is part of the Devonian Reef Conservation Parks. Tunnel Creek is Western Australia's oldest cave system, part of the 350 million-year-old Balili (Devonian reef) system. Bunuba people are the Traditional Owners of Bandilngan Windjana Gorge, Dimalurru, and the surrounding areas. The names of the parks recognise the cultural and continuing significance of the area to Bunuba and their involvement in park management. Tunnel Creek is famous as a hideout used late last century by Jandamarra, an Aboriginal leader who was killed outside its entrance in 1897.

Dimalurru Tunnel Creek National Park. © Ingo Oeland, Alamy Stock

1994: Global recognition of Indigenous protected areas

Globally, over a quarter of the land is controlled by Indigenous peoples, covering around 38 million km^2 across 87 countries, and intersecting with many ecologically intact landscapes (Garnett et al. 2018). The rights of Indigenous peoples to manage lands and waters are thus critical to conservation.

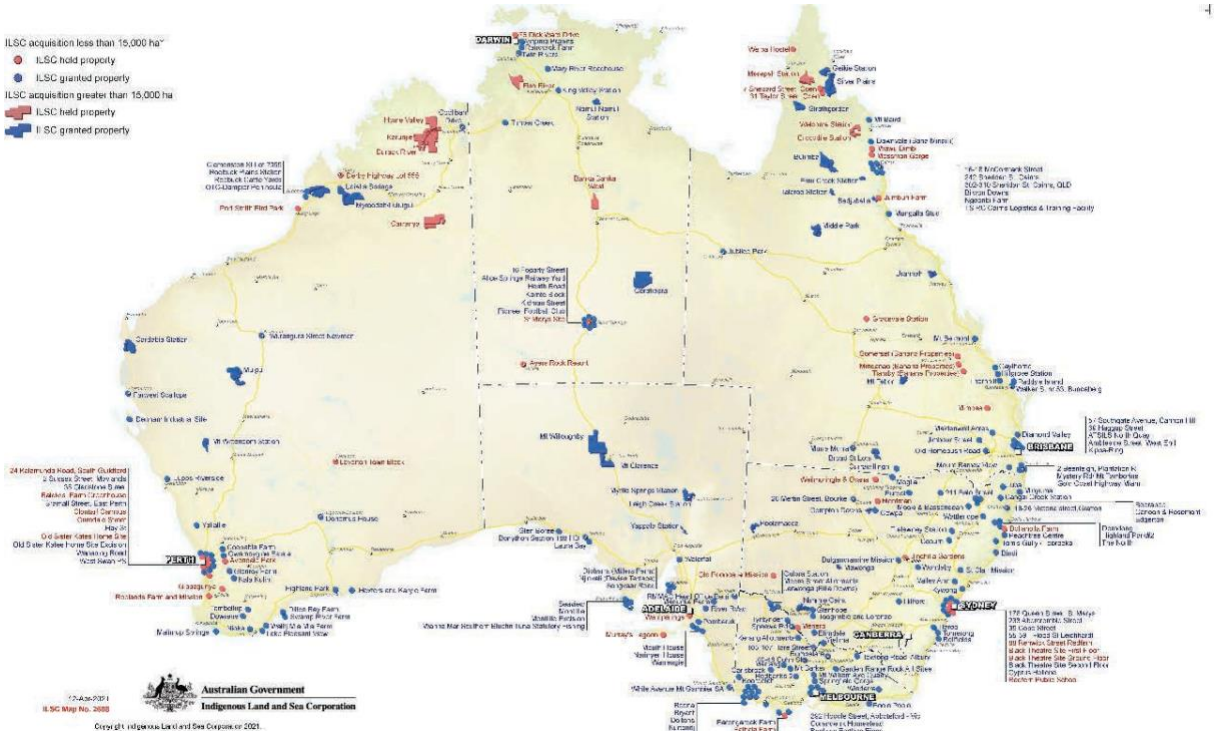
In 1994, the new categories of the International Union for Conservation of Nature (IUCN) protected areas recognised the rights and interests of Indigenous peoples around the world to own, manage, and sustainably use land and sea of conservation value. Indigenous Protected Areas are managed under these categories.

Today, we recognise that Indigenous peoples' and community conserved territories and areas (ICCAs) are central to conserving biodiversity along with social and cultural goals. In ICCAs, communities are closely connected to a territory, area or species – they play the main role in decisions about their management, and their efforts are central to conserving the territory, area or species and linked cultural values.

***Map**: Registered ICCA case studies from around the world. © ICCA 2021, UNEnvironment Programme World Conservation Monitoring Centre*

1995: Indigenous Land Corporation

The Indigenous Land Corporation (ILC) was established to assist Aboriginal and Torres Strait Islander people acquire and manage land to achieve economic, environmental, social and cultural benefits that the ownership and management of land, water and water-related rights can bring. The Land Fund (now Land Account) received money from the Federal Budget to establish a capital base. The Indigenous Land and Sea Corporation (ILSC), previously ILC, holds properties of significant livestock value. On 30 June 2020, the ILSC Group held 49,805 head of livestock at a value of $31.1 million (ILSC Report 2019–2020).



***Map**: Indigenous Land and Sea Corporation held and granted properties, April2021. © ILSC*

1996: Cotton irrigation and dam proposals

In the late 1990s, Western Agricultural Industries (WAI) proposed to dam the Fitzroy River at Dimond Gorge, as well as the Margaret and Leopold rivers. The plan was to irrigate 225,000 ha of cotton south-east of Broome. There was strong opposition from the community to impound the Fitzroy River or its tributaries and broad-scale cultivation of cotton. WAI abandoned the dam proposal and explored off-river storage of groundwater. The plan did not pass pre-feasibility due to opposition from the community and Traditional Owners who did not grant access to bore construction. Community concerns about large-scale irrigation remain in the region. Bandaral Ngadu, a pan-Kimberley activist group, formed to fight the proposals.

Fitzroy River at Dimond Gorge in Western Australia's Kimberly region. © DavoBlair, Alamy Stock

1996: Environs Kimberley creation

Environs Kimberley (EK) was set up to support Traditional Owners in protecting the Kimberley from the damming of the Fitzroy River and large-scale land clearing to grow cotton. EK works across the Kimberley which includes the shires of Broome, Derby–West Kimberley, Halls Creek, and Wyndham–East Kimberley. EK works with communities and land managers, especially Traditional Owners and rangers, on diverse areas including managing fire, weeds and feral animals, and protecting wildlife and their habitats.

Environs Kimberley staff group photo. Source: EK website

1997: New programs to support NRM

In 1997, the federal, state and territory governments identified 56 natural resource management (NRM) regions for Australia. NRM involves the integrated management of the natural resources that make up Australia's natural landscapes. NRM groups, including Rangelands NRM, were mandated to coordinate projects dealing with NRM priority issues through the Natural Heritage Trust program (NHT) and its successors, Caring for our Country and National Landcare Program. The NHT and National Action Plan for Salinity and Water Quality programs provided a decade of stable funding (1997 to 2007) and governance support for NRM.

Learn more about NRM regions.

1997: Indigenous Protected Area program

The Indigenous Protected Area (IPA) program was created to help Indigenous communities voluntarily protect their land or sea country. IPAs combine traditional and contemporary knowledge into a framework to leverage partnerships with conservation and commercial organisations and provide employment, education and training opportunities for Indigenous people.

Most IPAs are dedicated under IUCN protected area categories V (protected landscape/seascape) and VI (protected area with sustainable use of natural resources), which promote a balance between conservation and other sustainable uses to deliver social, cultural and economic benefits for local Indigenous communities.

Since the creation of the first IPA in 1998 – Nantawarrina IPA in South Australia, 78 IPAs have been established across Australia covering 746,940 km^2 (47% of the National Reserve System).

Map: Indigenous Protected Areas of Australia (CAPAD 2018)

1999: Environment Protection and Biodiversity Conservation Act

The Environment Protection and Biodiversity Conservation Act is the central legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places. Matters of national significance in the Kimberley include World Heritage properties, National Heritage places, nationally threatened species and ecological communities, and migratory species.

Purple-crowned Fairy-wren, Mornington Wilderness Camp. © BradLeue, Australian Wildlife Conservancy

2001: AWC acquired Mornington Station

Mornington Station was run as a beef cattle station for 80 years. The Australian Wildlife Conservancy bought and now runs the station as a wildlife refuge to protect threatened species. Recognised for their integrated land management and conservation science, Mornington and Marion Downs Sanctuaries protect almost 6,000 km^2 of the Kimberley. The diverse wildlife includes critical populations of threatened species such as the Gouldian Finch, Purple-crowned Fairy-wren and Northern Quoll. The complex is part of the largest fire management program in Australia (EcoFire), the second-largest feral herbivore-free area in Australia, and the most extensive feral cat research program.

The Fitzroy River at sunset, Sir John Gorge, Mornington Wilderness Camp,Kimberley, Western Australia. © Steve Waters, Alamy Stock

2002: Ellendale mine

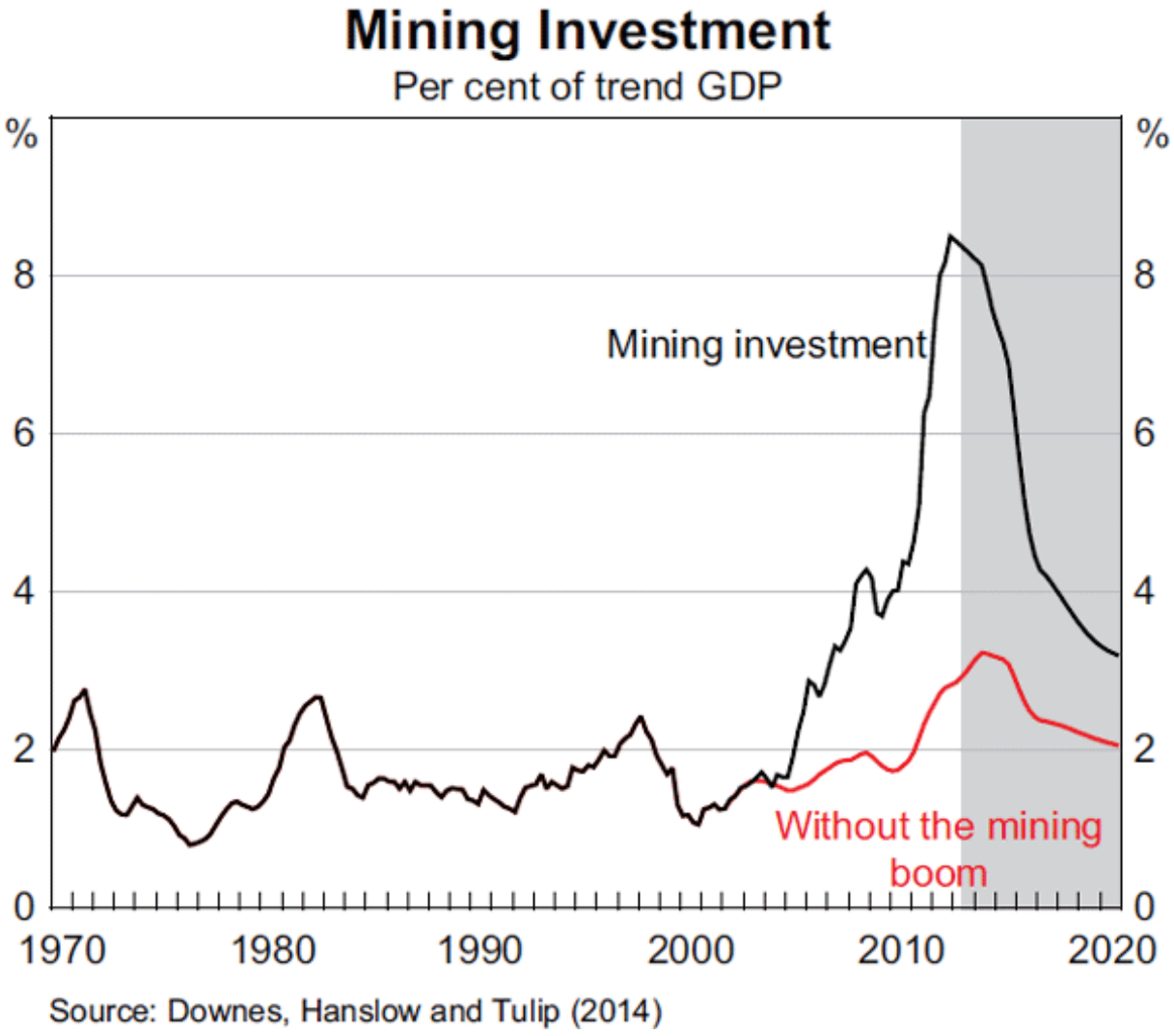
Ellendale diamond mine is located 120 km east of Derby in the west Kimberley region, within two active pastoral leases. Ellendale is internationally known as a source of high-quality yellow diamonds. Mining commenced in 2002 and continued through 2015. Currently, the state government is asking for expressions of interest from companies interested in reopening the mine on a new mining lease. Ellendale represents an opportunity for future extraction of diamonds.

Ellendale diamond mine, Kimberley region, Western Australia. © DMIRS

2003: Latest national mining boom

The prices for commodities (e.g. iron ore, coal, liquefied natural gas) began rising driven by increased demand from China and other Asian countries.

Unexpectedly, iron ore prices went from $20 to $30 per tonne to a peak of around $170. Thermal coal went from $40 to $50 per tonne to $150 to $180.



The effect of the mining boom on the Australian economy, RBA Bulletin 2014

2004: Wanjina–Wunggurr Native Title determination

The Wanjina–Wunggurr Aboriginal Corporation manages land on behalf of the Wanambal, Worrorra, and Ngarinyin peoples. Their ownership over the land was recognised in the Wanjina–Wunggurr Wilinggin Native Title determination and subsequently in Uunguu Part A, Dambimangari, and Uunguu Part B. The Wanjina–Wunggur Wilinggin claim, made in 1995, included over 7,000 km^2.

The Wilinggin Aboriginal Corporation represents the interests of the Ngarinyin people.

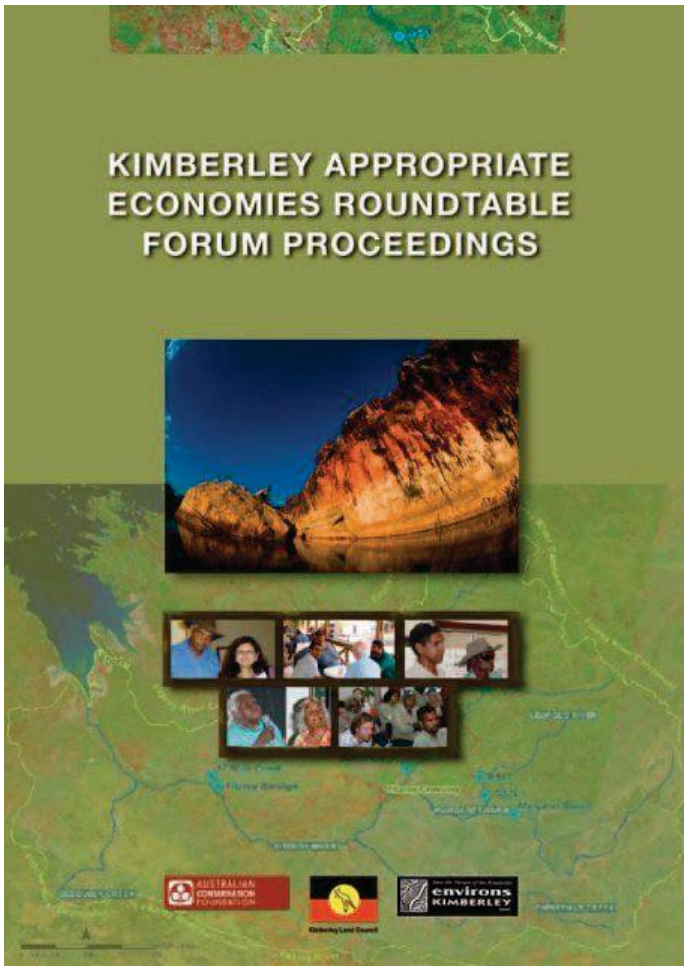
Dalmanyi (Bell Gorge), Wunaamin Miliwundi (King Leopold Ranges) Conservation Park. © Prisma by Dukas Presseagentur GmbH, Alamy Stock

2005 to 2012: TRaCK research program

The Tropical Rivers and Coastal Knowledge (TRaCK) research consortium provided science and knowledge to support the sustainable use and management of Australia's tropical rivers and estuaries. TRaCK undertook studies across northern Australia, including studies in the Fitzroy, Daly and Mitchell river catchments. TRaCK partners draw expertise from Australia's leading environmental and social researchers. From 2005 to 2012, TRaCK ran a $30 million research hub funded by the Australian Environment Research Facility, Land and Water Australia, National Water Commission, Fisheries Research and Development Corporation, and the Queensland Government. The program included 21 projects, with several activities in the Fitzroy River catchment.

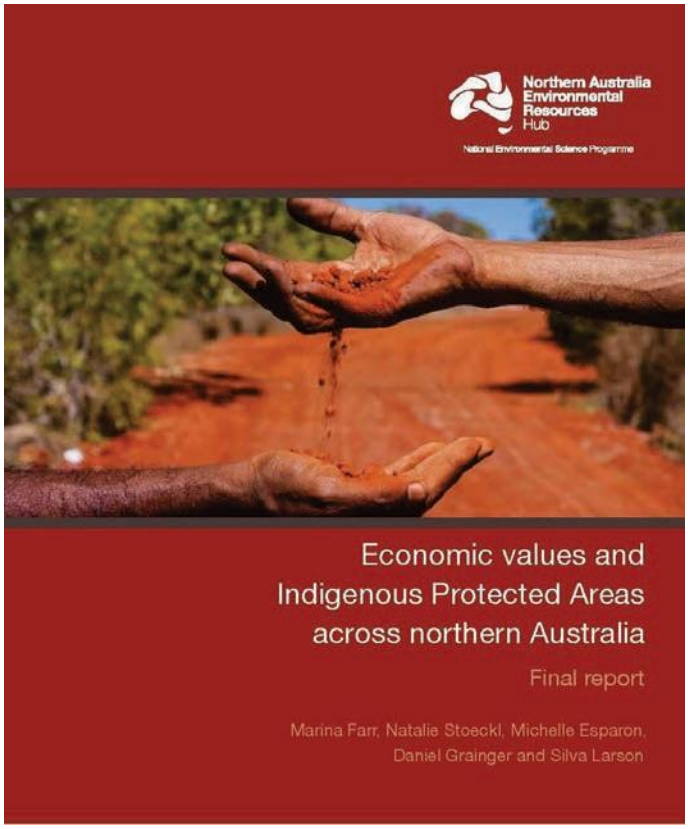
2005: Kimberley Appropriate Economies Roundtable Forum

More than 100 people from the Kimberley, elsewhere in Australia, and overseas met to chart an ecologically, culturally, socially and economically sustainable development for the Fitzroy and Canning basins. Participants included Traditional Owners, academics, pastoralists, training providers, small- business people, farmers, representatives of government agencies and environmentalists. The forum emerged in response to local people's desire to assert their rights and set the agenda for the future development of the Kimberley, rather than continually responding to unsustainable proposals from groups outside the region. The report explores options for future land uses of the region.



2006: Commonwealth funding for IPA program grows to more than $3 million

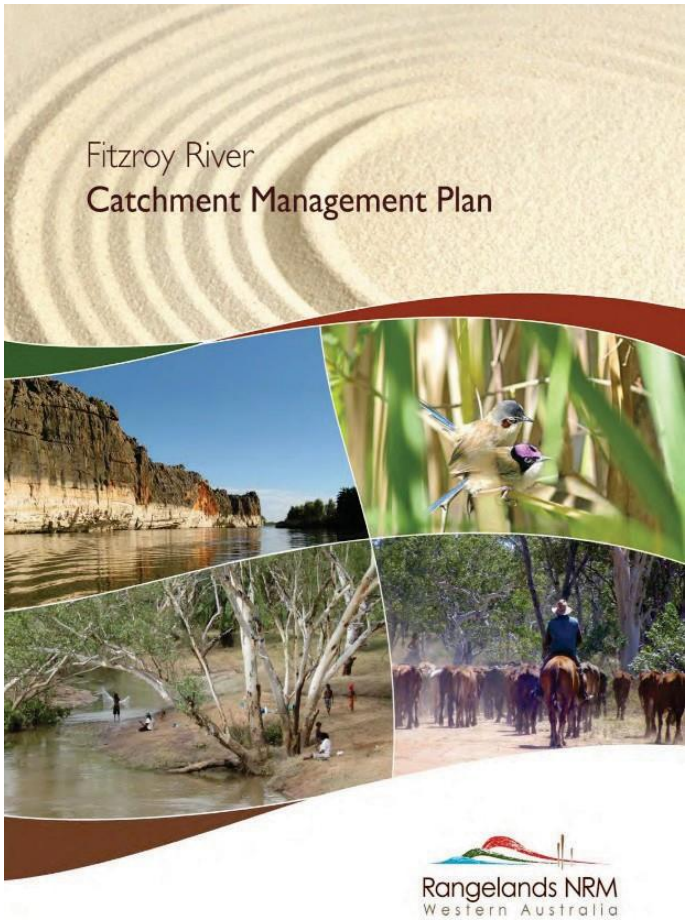
Up until 2006, many IPAs were already established but the additional support prompted the rapid growth of IPAs, particularly in northern Australia. Today, 78 IPAs have been established across Australia covering 746,940 km^2 (47% of the National Reserve System). IPAs generate a large and diverse range of benefits to a wide range of stakeholders. Besides their environmental and biodiversity contributions, IPAs provide important social, economic and cultural benefits (Farr et al. 2016). Map: Indigenous Protected Areas of Australia (CAPAD 2018)



2007 to 2010: The FitzCAM collaborative planning process and catchment management plan

The Fitzroy Catchment Management (FitzCAM) project had broad, whole-of-catchment, cross-industry, and interest group representation, including Traditional Owners from 10 groups. FitzCAM started from local concerns that the catchment needed a united voice. This coincided with a push from various agencies to establish a catchment-focus group that could be engaged to discuss issues around development, planning and sustainability. FitzCAM was formed in 2007 as a Rangelands NRM initiative – the Fitzroy was one of five priority catchments that received NHT funding to develop a plan to guide future investment. The first FitzCAM meeting was in Fitzroy Crossing in June 2008.

Rangelands NRM built on this effort and published the first Fitzroy River Catchment Management Plan (CMP). Developing the Fitzroy CMP was a major step towards the sustainable use and management of the river, its cultural values, its water quality and the ecological integrity of the catchment (CENRM 2010).



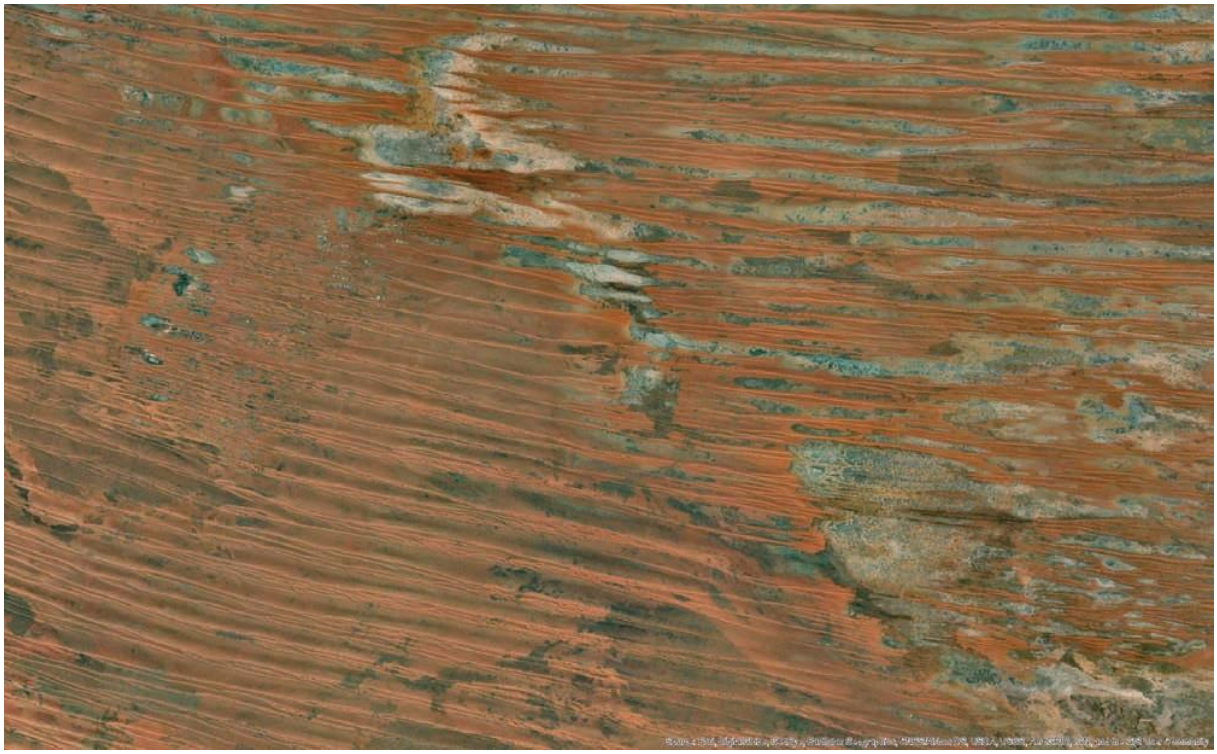
2007: Noonkanbah Native Title determination

The determination arose from an application lodged with the National Native Title Tribunal in March 1998. The determination recognises the Yungngora People's Native Title rights over 1,811 km^2 of land. The Yungngora Aboriginal Corporation is the Prescribed Body Corporate to the Noonkanbah determination and administers land on behalf of the Yungngora people.

Satellite image of Yungngora Country. © ESRI

2007: Ngurrara Native Title determination

The determination arose from an application lodged in 1998. In 2007, the Ngurrara people were recognised as Native Title holders in one of three claims. This first determination, Ngurrara Part A, includes 75,848 km^2 of land in the southern Kimberley. Current Ngurrara determinations recognise the Ngurrara people's Native Title rights over 77,595 km^2 of land. The Yanunijarra Aboriginal Corporation is the Prescribed Body Corporate to the Ngurrara determination and administers land on behalf of the Ngurrara people.



Satellite image of Ngurrara Country. © ESRI

2008: National apology

On February 13, Prime Minister Kevin Rudd made a formal apology to Australia's Indigenous peoples, particularly to the Stolen Generations whose lives had been blighted by past government policies of forced child removal and Indigenous assimilation. This moment had its origins in the Bringing them home report. This report tabled the findings and recommendations of the Human Rights and Equal Opportunity Commission inquiry. The inquiry was instigated by Attorney-General Michael Lavarch in May 1995, and its terms of reference were extensive. The first was a call for a thorough examination of past laws, practices and policies.

Crowds gather for the National Apology, Parliament House, Canberra, 13February 2008. © Commonwealth of Australia

2008: Caring for our Country

The Caring for our Country (CfoC) program was an initiative that offered multi- year competitive funding to provide certainty for stakeholders. The program aimed to ensure targeted delivery on federal priorities and required monitoring and evaluation. Over the first five years, from 2008 to 2013, CfoC provided more than $2 billion in funding. Read the Caring for our Country report.

2010 to 2012: Fracking tests at Yulleroo

Buru Energy completed a fracture stimulation (frac) of three zones in the Yulleroo-2 well, the first fracture stimulation in the Canning Superbasin. This frac demonstrated the potential of the Laurel Formation as a major unconventional wet gas resource. The exploration drilling program identified potentially large tight wet gas accumulation in the Valhalla area with additional drilling at Yulleroo leading to resource estimate at Yulleroo. Further drilling at Valhalla and Yulleroo led to the identification of Basin Centred Wet Gas Accumulation in the Laurel Formation and independent estimates of resources in May 2012.

2011: West Kimberley National Heritage

The west Kimberley is one of Australia's most special places. It is a vast area of unique and relatively undisturbed landscapes of great cultural and biological richness and important geological and fossil evidence of Australia's evolutionary history. The West Kimberley National Heritage listing is based on the National Heritage Criteria and the Environment Protection and Biodiversity Conservation Act 1999. The area was listed based on its outstanding heritage value because of its importance to Australia's natural and cultural history.

Section of the 350 million-year-old Balili (Devonian reef) system, within the Devonian Reef Conservation Park, West Kimberley. © Jorge G. Álvarez-Romero

2011: Oil discovery at Ungani

Up until 2000, almost 250 oil and gas exploration wells had been drilled in the onshore Canning Basin. The rising oil price in the early 2000s generated more interest in the basin. The Ungani oilfield is located approximately 90 km east of Broome. The 2011 discovery of the Ungani oilfield by Buru Energy has driven a far-reaching change in perceptions of the prospectivity of the Canning Basin of Western Australia.

Previously the basin had been portrayed as difficult, with a number of potential and promising petroleum systems that had not lived up to expectations. The Ungani oilfield is producing high-quality oil from four conventional oil production wells, two of which were drilled in late 2017 to early 2018. The discovery revitalised exploration in the Canning Basin and in particular the search for the next field.

Map: Petroleum exploration and development wells (DMIRS).

2011: Land Sector Package

The $1.7 billion Land Sector Package assisted land managers participating in emission reduction markets to deliver on carbon storage and sequestration goals. The package created economic rewards for land managers who reduce pollution or store carbon and protect biodiverse carbon stores and secure environmental outcomes from carbon farming. More than 800 area-based projects have been registered under the Emissions Reduction Fund (ERF). In the Kimberley, savanna burning and revegetation projects cover 108,165 km^2.

Map: ERF projects.

Savanna burning activities, northern Australia. © Glenn Campbell

2011 to 2012: Duchess Paradise coal project

Exploration by Rey Resources, which holds tenements in the Canning Basin, identified coal deposits including the Duchess Paradise reserves. Development of the Duchess Paradise deposit received a positive Definitive Feasibility Study in 2011, based on a bituminous thermal coal mine to export up to 2.5 million tonnes/year to the Asian market for power generation. The proposed mine included a coal handling and preparation plant and an access road to the Great Northern Highway, which connects to the Derby Port. The project was challenged on the grounds that the Fitzroy River forms part of one of the largest networks of unregulated and relatively intact tropical rivers in the world and has unique cultural and wilderness values. The project did not go ahead as planned in 2012.

Map: Mineral exploration drillholes (DMIRS 2019).

2011: Gogo Station centre pivot

The 1,000-ha farm was approved under a diversification permit for the production of cattle fodder to be used on the station. Water is obtained from two bores that extract water from a local limestone aquifer associated with the Canning Basin. Additional water is captured in a horseshoe dam on the side of a sloped area, which provides stock with water when the area is utilised for grazing. The bore water is applied through centre pivot irrigators. Water from the gully dam is applied as bay irrigation on fields downslope of the dam. Less than half of the 1,000 ha is watered. The remaining land is rain-grown cropping. Hay produced for cattle includes sorghum- based crops and lucerne hay. A range of other crops has been trialled to select appropriate varieties suited to the region.

Centre pivot irrigation, Gogo Station. © Jorge G. Álvarez-Romero

2012: Bunuba Native Title determination

The Bunuba people's Native Title rights and interests were recognized after a 13-year process. The applicants first sought a declaration of Native Title in 1999 over an area of 3,500 km^2 of land located north of Fitzroy Crossing. The Bunuba Dawangarri Aboriginal Corporation administers land on behalf of the Bunuba people.

Satellite image of Bunuba Country. © ESRI

2011 to 2012: Live cattle export ban

Australia's livestock export grew notably over the last 30 years, including the export of live cattle, which increased from 80,000 head in 1988 to over 1 million in 2015. The live cattle ban came into effect in June 2011, when

the Australian Minister for Agriculture signed a blanket order one week after initially suspending exports to Indonesian abattoirs featured in ABC's Four Corners. Significant public support for the ban included rallies in capital cities and an online petition by GetUp with more than 200,000 signatures in three days. Australian live cattle exports fell 42% from 500,000 in 2010, the year before the ban, to 275,000 in 2012. The ban was lifted on 6 July, introducing new export permit requirements. Australian government assistance for affected businesses followed, including a $5 million welfare contingency fund, a $30 million Live Exports Assistance Package, and subsidised interest rates for new loans.

Cattle station, Fitzroy River catchment. © Michael Douglas

2012: Second Ngurrara Native Title determination

On 27 November 2012, the Federal Court of Australia determined that the claims corresponding to Ngurrara Parts B and C would be added to the Native Title determinations of the Ngurrara people. The Yanunijarra Aboriginal Corporation administers land on behalf of the Ngurrara people.

Satellite image of Ngurrara Country. © ESRI

2013: Gooniyandi Native Title determination

Ownership over the land by the Gooniyandi people in an area to the east and south of Fitzroy Crossing was first recognised in the Gooniyandi Combined #2 determination of June 2013. Exclusive Native Title rights and interests were recognised over approximately half the determination area, and non-exclusive Native Title rights and interests over the remainder of the area. A number of Native Title applications were lodged from 1997 to 2000, which were combined under a lead application in 2000. The area of the combined application covers almost 11,209 km^2 of land, including wetlands and riverine systems. The Gooniyandi Aboriginal Corporation administers land on behalf of the Gooniyandi people.

Mount Pierre Station, Kimberley. © Nicolas Axelrod

2013: Amendments to the EPBC Act

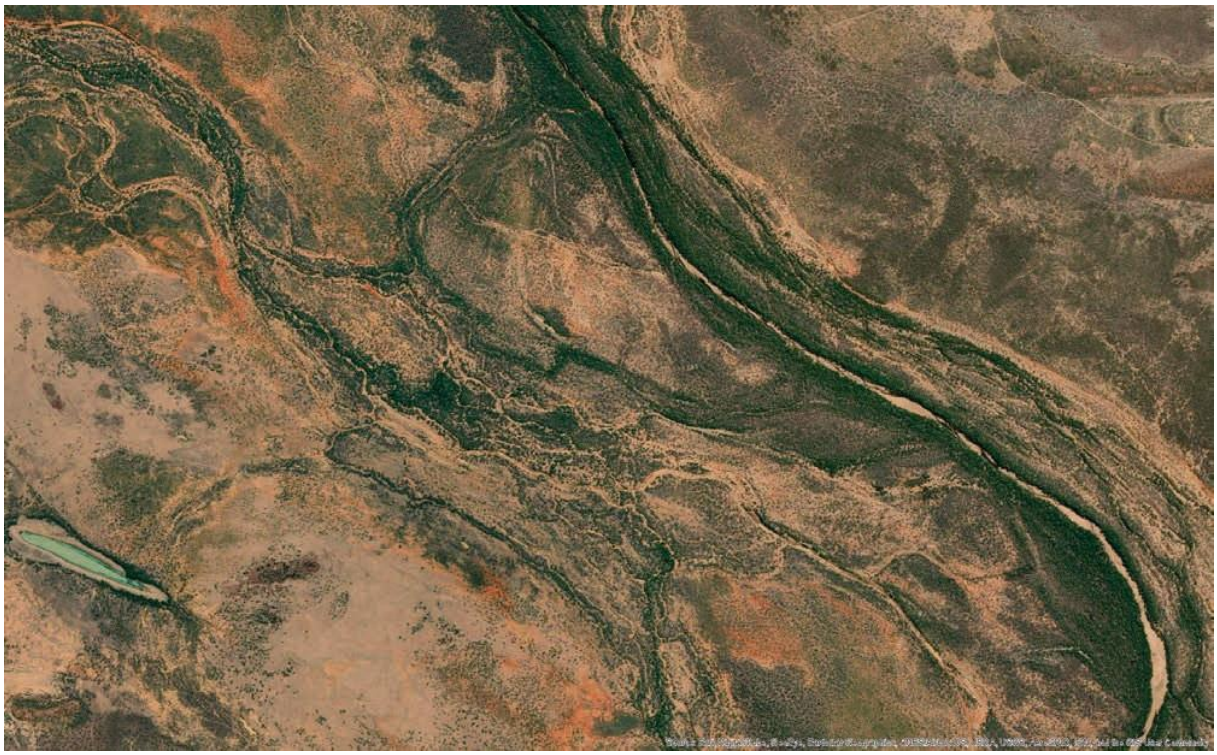
Amendments to the EPBC Act in 2013 made water resources a matter of national environmental significance, in relation to coal seam gas and large coal mining development. The EPBC Act affects any group or individual (e.g. developers, industry, farmers, councils) whose actions may affect matters of national environmental significance. The EPBC Act comes into play when a proposal has the potential to have a significant impact on a matter of national environmental significance.

Fitzroy River, Kimberley. © Michael Douglas

2014: Nyikina Mangala Native Title determination

Ownership over their land was recognised in the Nyikina Mangala determination of 2014. This case arose from a Native Title claim made in 1998 by the Nyikina Mangala people. The application covers an area of approximately 26,215 km^2 of land located south of Derby, east of Broome, and west of Fitzroy Crossing.

The Walalakoo Aboriginal Corporation administers land on behalf of the Nyikina Mangala people.



Satellite image of Nyikina Country. © ESRI

2015: White paper on developing northern Australia

Our north, our future: White paper on developing northern Australia set the priorities to drive growth in Australia's north. It is a 20-year plan for investment and support to develop the north through:

- Simpler land arrangements to support investment
- Developing the north's water resources
- Business, trade and investment
- Infrastructure to support growth
- The northern workforce
- Good governance

The Office of Northern Australia is leading the implementation of the northern Australia agenda in partnership with state, territory and local government agencies, industry and community bodies.

2015: Expiration and renewal of pastoral leases

On 1 July 2015, all eligible Western Australian pastoral leases that met renewal conditions were renewed. The renewal of pastoral leases marks a historic event. It is the only time in the state's history that every pastoral lease has expired on the same date. It was also the only time every eligible pastoral lease that met the renewal conditions was renewed on the same date. Lease renewal gives pastoral leases security and certainty, with new leases providing tenure for up to 50 years. The renewal of the 2015 pastoral leases is the result of two decades of consultation and collaboration between the state government and the pastoral industry.

Pastoral land in the Fitzroy River catchment. © Jorge G. Álvarez-Romero

2015 to 2018: Northern Australia Water Resource Assessment

CSIRO's Northern Australia Water Resource Assessment (NAWRA) was commissioned as an initiative of the White Paper on Developing Northern Australia and the Agricultural Competitiveness White Paper. NAWRA investigated land and water resources, water storage options, and the commercial viability of aquaculture and irrigated agriculture. It also looked at potential environmental and social impacts.

NAWRA investigated three catchment areas: Fitzroy (Western Australia); Finniss, Adelaide, Mary and Wildman (Northern Territory); and Mitchell (Queensland). The study found enough suitable land and available water to develop 1.7% of the Fitzroy catchment. Groundwater has the lowest cost and risk and can support small- to medium-scale forage development to supplement the existing cattle industry. Higher-cost surface water harvested in on-farm dams pumped from the river or collected from floods could support large-scale irrigated agriculture. The economic value of the region's irrigated agriculture has the potential to increase 10-fold, generating jobs and growing communities (CSIRO 2018).

2015 to 2021: National Environmental Science Program

The Northern Australia Environmental Resources Hub is funded by the Australian Government's National Environmental Science

Program and partners with leading Australian academic institutions. The Hub's $23.88 million research portfolio delivered knowledge, tools and partnerships in three areas: landscape studies of savanna, rainforest and aquatic ecosystems and biodiversity; land and water planning for urban, agricultural, and infrastructure development; and Indigenous land management. The multidisciplinary research program was based on issues-driven, regional case studies. The White Paper on Developing Northern Australia influenced the selection of study areas.

2015: Kurungal Native Title determination

Registered in 1997, the Kurungal claim has since been amended twice, most recently in 2012. The determination resulted in the recognition of non- exclusive Native Title rights to 890 km^2 of land. The Tiyatiya Aboriginal Corporation was incorporated in September 2015 with the determination taking effect on 1 December 2015. The Tiyatiya Aboriginal Corporation holds land in trust for the Kurungal people.

Satellite image of Kurungal Country. © ESRI

2016: Second Bunuba Native Title determination

After more than 15 years, the Bunuba People were granted Native Title rights over their remaining lands and waters through the Bunuba Part B, Bunuba #2 (Part A), and Bunuba #3 native title claims. Together with the Bunuba Part A determination, the Bunuba People now have their Native Title rights recognised over a significant area of land stretching from Fitzroy Crossing to the south- east, the Leopold Range to the north-east, the Oscar Range to the south-west, and the Napier Range to the north-west. The Bunuba Dawangarri Aboriginal Corporation holds the rights and interests in trust for the group and is the registered Native Title body corporate.

Satellite image of Bunuba Country. © ESRI

2016: Fitzroy River Declaration

In November 2016, Traditional Owners from the Bunuba, Gooniyandi, Walalakoo, Wilinggin, and Yanunijarra Aboriginal Corporations, together with the Kija Native Title claim group, met to discuss the future of the Fitzroy River and its catchment. They developed the Fitzroy River Declaration, which reads as follows:

> *Traditional Owners of the Kimberley region of Western Australia are concerned by the extensive development proposals facing the Fitzroy River and its catchment and the potential for cumulative impacts on its unique cultural and environmental values.*
>
> *The unique cultural and environmental values of the Fitzroy River and its catchment are of national and international significance. The Fitzroy River is a living ancestral being and has a right to life. It must be protected for current and future generations, and managed jointly by the Traditional Owners of the river.*

The declaration includes eight key steps which the Traditional Owners have agreed are necessary to protect the traditional and environmental values around the river.

2016: New abattoir in northern Australia

The Kimberley Meat Company (KMC) abattoir opened in 2016 on Yeeda Station as the second meat processing facility in northern Australia. Before this abattoir, Kimberley cattle would be transported to Perth for processing. The live export ban made clear that local meat processing was needed for the future of the cattle industry in the region. The abattoir produces over 35,000 animals for sale each year and supplies international and domestic markets.

The abattoir sources cattle from across the north-west.

Kimberley Meat Company's abattoir, Great Northern Highway. © KMC

2017: 20th anniversary of the Ngurrara Canvas

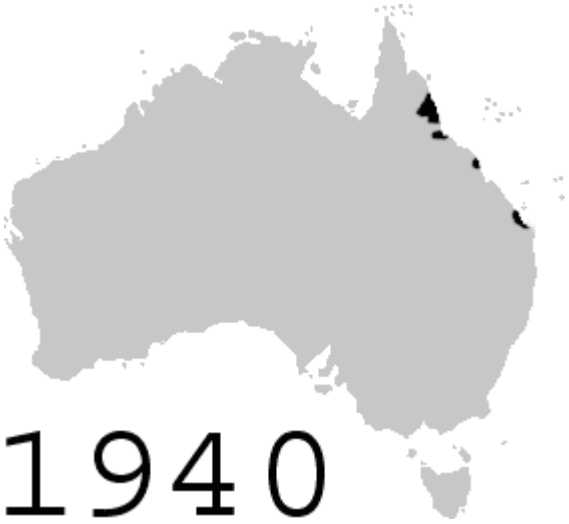
The Ngurrara Canvas is a map of Ngurrara country and the product of thousands of years of traditional knowledge and was used in their 1996 Native Title claim as evidence of their connection to their land. Read more about the event.

Painting the Ngurrara Canvas. © Ngurrara Canvas Aboriginal artists,Photographs by Karen Dayman

2017: Cane toads arrive in the Fitzroy

Introduced to north Queensland in 1935 to control the cane beetle, cane toads proved a threat to wildlife. Since their release, they have bred rapidly and evolved to be larger and have longer legs. These morphological changes assisted their spread across the north. They reached New South Wales in 1978, the Northern Territory in 1984, and the Kimberley in 2009.

Map: Cane toad habitat suitability adjusted by distance to known occurrences (Pintor et al. 2019).



Animated map showing the spread of the cane toad (Rhinella marina) inAustralia from 1939 to 1980. Source: Wikipedia

2017: WA Government election commitments

In 2017, the Labor Government made three election commitments: create the Fitzroy National Park, support the development of a management plan, and not allow the damming of the Fitzroy River or its tributaries.

Danggu Geikie Gorge, Fitzroy River, Kimberley. © David Foster, Alamy Stock

2017: Bunuba and DBCA sign ILUA

In 2017, WA's Department of Biodiversity, Conservation and Attractions (DBCA) signed an Indigenous Land Use Agreement (ILUA) with the Bunuba People for all national parks in Bunuba Country. This allows for joint management and co-vesting of land. Read the joint management plan, Jalangurru Manyjawarra Bunuba Muwayi Yarrangu (DBCA 2019).

Oscar Range, Balili (Devonian Reef) Conservation Park. © Viktor Posnov,Alamy Stock

2018: Yi-Martuwarra Ngurrara Native Title determination

The determination arose from an application lodged in 2012. The determination recognises the Yi-Martuwarra Ngurrara people's Native Title rights over 22,064 km^2 of land. The Yanunijarra Aboriginal Corporation is the Prescribed Body Corporate to the Yi-Martuwarra Ngurrara determination and administers land on behalf of the Yi-Martuwarra Ngurrara people.

2018: Martuwarra Fitzroy River Council

In response to the Fitzroy River Declaration, Traditional Owners from across the catchment came together to form the Martuwarra Fitzroy River Council. The group intends to act as the Traditional Owner governing council for the Fitzroy River and its catchment and include council members from all Prescribed Body Corporates and Native Title applicants along the Fitzroy River. In its establishment, the Council called for:

> *WA State Government to recognise the Martuwarra Fitzroy River Council as the agreed forum for the WA Government, its agencies and other third-party interests to engage with in matters relating to Aboriginal interests in the future planning and management of the Fitzroy River Catchment.*
>
> *... a Moratorium be placed on all future Water Allocations in the Fitzroy River Catchment until a Martuwarra Fitzroy River Catchment Management Plan is completed and implemented.*

Northern Australia Environmental Resources Hub

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