



ASSESSMENT OF NOONGAR CULTURAL VALUES TO INFORM FOREST MANAGEMENT IN THE COLLIE REGION, WESTERN AUSTRALIA

February 2023

For South West Timber Hub



DOCUMENT INFORMATION

4 May 2023

Version: FINAL

Prepared by Archae-aus Pty Ltd for South West Timber Hub

Table 1. Archae-aus Document Control

Version	Effective Date	Prepared By	Reviewed By	Approved Date
Draft 1.0	17/02/2023	Myles Mitchell Koa Jaensch Phoebe Oliver	Lucy Sinclair	20/02/2023
Draft 2.0	17/02/2023	Myles Mitchell Koa Jaensch Phoebe Oliver	Lucy Sinclair (Archae-aus), Wendy Perdon (SW Timber Hub), Brad Barr (Wespine)	2/05/2023
FINAL	04/05/2023	Myles Mitchell Koa Jaensch Phoebe Oliver	Wendy Perdon (SW Timber Hub)	04/05/2023

Table 2. Distribution of Copies

Version	Date Issued	Media	Issued to
Draft 1.0	20/02/2023	PDF and WORD	Wendy Perdon (SW Timber Hub)
Draft 2.0	02/05/2023	PDF and WORD	Wendy Perdon (SW Timber Hub)
FINAL	04/05/2023	PDF	Wendy Perdon (SW Timber Hub)

Archae-aus Project Code: SW22DJ1a

CITATION: Archae-aus (2023) Assessment of Noongar Cultural Values to Inform Forest Management in the Collie Region, Western Australia; Prepared for South West Timber Hub by Archae-aus Pty Ltd, North Fremantle, May 2023.

Archae-aus Pty Ltd

1/107 Stirling Highway
North Fremantle WA 6159
PO BOX 742
FREMANTLE WA 6959

T: 08 9433 1127

E: office@archae-aus.com.au

<http://www.archae-aus.com.au>

Project Manager: Myles Mitchell
Email: mylesm@archae-aus.com.au

COPYRIGHT

This report and the information contained herein is subject to copyright and may not be copied in whole or part without the written consent of the copyright holders being Archae-aus Pty Ltd, South West Timber Hub and the Gnaala Karla Booja representatives.

WARNING

Please be aware that this report may contain images of deceased persons and the use of their names, which in some Aboriginal communities may cause sadness, distress or offence.

DISCLAIMER

The authors are not accountable for omissions and inconsistencies that may result from information which may come to light in the future but was not forthcoming at the time of this research.

REPORT FORMAT

Section One of this report introduces the project and to Djarlma concepts. Section Two is an overview of the methods used in the desktop study and ethnographic consultations. Section Three contains the desktop study results, including a Noongar cultural context and relationship with forests. The Consultation results are in Section Four, alongside the forest assessments, proposed Djarlma Standards and a Noongar modal for forest management. Section Five is the advice and recommendations.

SPATIAL INFORMATION

All spatial information contained in this report uses the Geocentric Datum of Australia (GDA94), Zone 50, unless otherwise specified. All information obtained from South West Timber Hub is assumed to be accurate to two decimal places. All spatial information obtained during fieldwork was taken using a handheld Garmin GPS with a purported accuracy of ± 3 m. Where we report spatial information collected in the field, we have opted for a slightly wider degree of accuracy of ± 5 m.

AUTHORSHIP

This report was written by Dr Myles Mitchell (PhD Anthropology [ANU]; BA Communication Studies, Archaeology [UWA]), and Koa Jaensch (MA Community Development [Murdoch], BA Anthropology & History [UWA];) and Phoebe Oliver (BA (hons) Anthropology & Sociology [UWA]). Lucy Sinclair (BA (Hons) Archaeology, UWA) reviewed the draft report.

EXECUTIVE SUMMARY

This report was commissioned by the South West Timber Hub as part of the wider objectives to deliver on the Western Australian Forest Industry Framework for Action 2019-2030, including 'The Djarlma Plan', which focuses on four key pillars:

- ▶ Healthy forests
- ▶ Wood products
- ▶ Industry development
- ▶ Community

Djarlma is a Noongar concept that looks at the interconnected ecological, spiritual, and commercial relationships between people, forests, and woodland. By implementing the Djarlma Plan, using a holistic approach, engaging communities, and using traditional knowledge; the ultimate goal is to achieve new thinking and better outcomes for the forest industry.

The Project Aim, as outlined in the Consultant Brief:

Develop a framework for assessing Djarlma concepts & forest management (including health of forests, use of timber, and fire), from a Traditional Owner's perspective.

KEY OBJECTIVES

- 1) To determine if there are correlations between measurable forest attributes that describe the different forest treatments from both a Western perspective and the Elder assessed Djarlma concepts.
- 2) To develop a matrix of indicators that can be used to assess different forest treatments incorporating Djarlma concepts.
- 3) Conduct assessments by recognised Elders in thinned, un-thinned and burnt forests in the Collie area and determine if there is consistency in response to forest condition.
- 4) Develop suggested Djarlma Standards that align with internationally recognised certification scheme standards to benchmark the forestry industry against cultural values.
- 5) Document findings in a manner that would be suitable to be published in a peer reviewed journal of high standing.

The fieldwork component of this report was undertaken over two *On Country* consultations with Noongar Traditional Owners on 30 August 2022 and 20 December 2022. The consultations comprised of an ethnographic assessment of Noongar conceptions of spiritually and culturally 'healthy' forest, in relation to forestry industry management practices. This included the assessment of thinned, thinned and burnt and un-thinned forests in the Collie area.

SUMMARY OF RESULTS

Results of Rees Block Forest Assessment

Type of Treatment	Trees / Hectare	Basal area / Hectare (m ² /ha)	Average Diameter (cm)	Result of Noongar Forest Health Assessment	Reasons for Assessment Result
Thinned & burnt	240	14.7	35.3	Excellent	<ul style="list-style-type: none"> ● Range and variety of flora, especially on the ground level. ● Better light levels through the canopy. ● Lower fuel load-lower susceptibility to 'out of control' fire. ● Habitat for animals and movement space. ● High Biodiversity. ● Very useable for people.
Un-thinned	917	25.8	20.3	Poor	<ul style="list-style-type: none"> ● High fuel load (fire risk). ● High percentage of ground cover/leaf litter (reduces biodiversity and fauna habitat). ● Dominant tree species-reduced biodiversity. ● Inability for people to use the forest due to density of vegetation.

Results of Munro Block Forest Assessment

Forest Cell Number	Type of Treatment	Result of Noongar Forest Health Assessment	Reasons for Assessment Result
Cell 1	No treatment	Poor	<ul style="list-style-type: none"> ● Too thick. ● High fuel load. ● High percentage of ground cover/leaf litter (reduces biodiversity and fauna habitat). ● Inability for people to use the forest due to density of vegetation.
Cell 2	Log sections cut to length, leaving bark and tops. Spray resprouts in Year 2.	Very poor	<ul style="list-style-type: none"> ● High fuel load. ● Messy. ● Inability for people to use the forest. ● Unhappy forest.
Cell 3	Whole tree removal with concurrent chemical application to stumps.	Excellent	<ul style="list-style-type: none"> ● Low fuel load. ● High forest canopy. ● Easy movement for animals. ● Very useable for people
Cell 4	Trees felled and retained intact on site, no stump treatment.	Very poor	<ul style="list-style-type: none"> ● High fuel load. ● Saplings drinking too much water.
Cell 5	Manual thinning: notching and ringbarking.	Good (but not quite as good as cell 3)	<ul style="list-style-type: none"> ● Low fuel load. ● High forest canopy. ● Easy movement for animals. ● Useable for people.

Djarlma Standards and Indicators

Based on the results, a comprehensive table of standards and indicators has been developed to communicate how the Noongar Elders' standards relate to the Montreal Standards (see Table 5).

A Model for Active Noongar Forest Management in the Collie Region

During the two day on-Country consultation, the Noongar participants outlined a model for how they see Noongar Standards for Forest Management being delivered in the Collie region. The model is based on Noongar work crews being employed to actively manage the forest.

Vision

Teams of local Noongar people are employed under the leadership of Elders to actively manage the ecological and spiritual health of forests for commercial gain and for the direct benefit of local communities.

Cultural Leadership

The teams comprise a mix of Elders with younger fit and able individuals at a ratio of approximately one Elder to every five younger people. This mix of personnel ensures that cultural leadership and appropriate traditional knowledge are embedded in the on-Country work teams.

Spiritual health of Country is inherently addressed in the daily work flow. Elders provide leadership to help motivate and support team members to achieve good results. A Circle of Elders meet periodically to provide strategic direction for the work teams. Elders are also engaged in the recruitment process to ensure that cultural considerations are taken into account when the teams are being put together.

Commercial Gain

The model needs to be commercially viable in order to be sustainable. This will require the works teams to integrate with the commercial goals and practices of the forestry industry. At the same time, the forestry industry needs to integrate its operations with Noongar values and practices through two-way knowledge exchange and working together. The model will also need to develop new avenues for commercial gain.

Community Benefits

Fundamental to the proposed Noongar model for forest management is linking forest products to the needs of local communities.

Conclusions

An unavoidable core tenet of Djarlma in practice, which was borne out of the background research and fieldwork results, is the critical importance of *listening to Country*. This concept is one that is often difficult for Western scientific approaches to integrate because it relies on the theoretical tenets of the *more-than-human* approach to understanding the ever-present interactions between people, plants, animals, weather, rocks, water, spirits and the all-encompassing Aboriginal concept of Country. In this conception, Country is a sentient being that can be talked to and can itself communicate and feel.

Where the Western approach of developing a series of standards and indicators to assess forest health has some utility for Djarlma concepts, it falls short of the dynamic Aboriginal approach of *listening to Country*. This is not to say that there is no utility in trying to integrate the two approaches by developing indicators and standards for forest management based on Aboriginal perspectives. **There are indeed a number of correlations between measurable forest attributes**

within the Aboriginal and Western perspectives. Furthermore, this research indicates that there is strong consistency in the response between individual Noongar participants to various indicators of forest health. This consistency makes it easier to develop Noongar standards and indicators for healthy forests. However, the ultimate goal of maintaining healthy forests based on Djarlma concepts, cannot be realised without the active and ongoing engagement of Noongar people in forest management.

This key finding presents an opportunity for the forestry industry to achieve the aims of the Djarlma Plan through the active and ongoing engagement of Aboriginal people in forest management. The results of on-Country consultations outline a model for this engagement in the Collie region through Noongar work teams. The model outlines a culturally defined process for integrating traditional knowledge into on ground works programs. **Critical to this model is a cultural governance system that brings Noongar Elders and younger generations together on Country.** The model could be particularly effective if the teams also integrate experienced forestry Elders to also impart some of their knowledge to younger generations. This would entail two-way knowledge exchanges between Noongar knowledge and forestry knowledge. The model presents an opportunity to trial a wholistic approach that aims to integrate the ecological, spiritual, and commercial relationships between people and Country to achieve new thinking and better outcomes for the forestry industry and local communities.

RECOMMENDATION

There is a single recommendation as a result of the findings in this report:

1. It is recommended that South West Timber Hub and their project partners seek to implement the tenets of the Djarlma Plan in the Collie region, through the active and ongoing professional engagement of local Noongar work teams in forest management. A model for undertaking this recommendation is provided in this report.

TABLE OF CONTENTS

DOCUMENT INFORMATION	2
COPYRIGHT	3
WARNING	3
DISCLAIMER	3
REPORT FORMAT	3
SPATIAL INFORMATION	3
AUTHORSHIP	3
EXECUTIVE SUMMARY	4
KEY OBJECTIVES	4
SUMMARY OF RESULTS.....	5
<i>Results of Rees Block Forest Assessment</i>	5
<i>Results of Munro Block Forest Assessment</i>	5
<i>Djarlma Standards and Indicators</i>	6
<i>A Model for Active Noongar Forest Management in the Collie Region</i>	6
<i>Conclusions</i>	6
RECOMMENDATION	7
TABLE OF CONTENTS.....	8
LIST OF FIGURES.....	10
LIST OF TABLES	10
SECTION ONE – INTRODUCTION	11
SCOPE OF WORKS	11
PROJECT AIM	11
KEY OBJECTIVES	11
CONSULTATIONS	11
DJARLMA	12
PERSONNEL	13
TRADITIONAL OWNERS.....	13
ARCHAE-AUS.....	13
SOUTH WEST TIMBER HUB AND WESPINE INDUSTRIES	13
SECTION TWO –METHODS	14
DESKTOP RESEARCH METHODOLOGY	14
<i>‘More Than Human’ Methodological Approach</i>	14
<i>Consultations Methodology</i>	15
SECTION THREE – DESKTOP RESEARCH RESULTS	16
NOONGAR CULTURAL CONTEXT	16
LOCAL CULTURAL CONTEXT	17
NOONGAR RELATIONSHIPS WITH FORESTS	18
INDIGENOUS FOREST MANAGEMENT	20
SUMMARY: ABORIGINAL FOREST VALUES.....	22

FOREST VALUE INDICATORS.....	22
<i>Biodiversity.....</i>	22
<i>Healthy Forest Marker Species-Birds, Orchids, Echidna's</i>	23
<i>Water availability.....</i>	24
<i>Cultural sites</i>	25
<i>Fuel Load.....</i>	25
<i>Other Relevant Indicators</i>	26
INTERNATIONAL REVIEW	26
<i>The State of Canada's Forests – Annual Report 2022</i>	26
<i>Sustainable Management of New Zealand's Forests: New Zealand's Third Country Report on the Montreal Process Criteria and Indicators.....</i>	28
SECTION FOUR –RESULTS.....	31
ON COUNTRY CONSULTATIONS.....	31
<i>Use of the Forest</i>	31
<i>Healthy Forest.....</i>	31
<i>Fire</i>	33
<i>Spirituality.....</i>	35
<i>Biodiversity.....</i>	36
<i>Forest Products from Thinning.....</i>	37
<i>Non-wood forest products</i>	37
<i>Cultural Sites</i>	37
<i>Waterways.....</i>	37
<i>Access.....</i>	37
<i>Forest Treatments.....</i>	37
<i>Noongar Work Crews</i>	38
FOREST ASSESSMENTS	40
<i>Rees Block (Collie)</i>	40
<i>Munro Block (Kirup)</i>	41
NOONGAR FOREST STANDARDS AND INDICATORS.....	43
<i>Indicator 6.4.d – The importance of forests to people.....</i>	43
<i>Indicator 1.2.b – the status of forest dwelling species at risk of not maintaining viable breeding populations, as determined by legislation or scientific assessment.</i>	43
<i>Indicator 1.3.a – Forest associated species at risk from isolation and loss of genetic variation, and conservation efforts for those species.</i>	43
<i>Indicator 3.1.a – scale and impact of agents and processes affecting forest health and vitality.</i>	44
<i>Indicator 3.1.b – Area of forest burnt by planned and unplanned fire.....</i>	44
<i>Indicator 6.4.a – area of forests to which Indigenous people have use and rights that protect their special values and are recognised through formal and informal management regimes.</i>	44
<i>Indicator 6.4.c – The extent to which Indigenous values are protected, maintained and enhanced through Indigenous participation in forest management.</i>	44
<i>Indicator 1.1.a – area of forest-by-forest type and tenure.</i>	44
<i>Indicator 1.3.a – Forest associated species at risk from isolation and loss of genetic variation, and conservation efforts for those species.</i>	45
<i>Indicator 1.1.d – fragmentation of forest cover.....</i>	45
<i>Indicator 1.2.a – forest dwelling species for which ecological information is available.</i>	45
<i>Indicator 1.2.c – Representative species from a range of habitats monitored at scales relevant to regional forest management.</i>	45
<i>Indicator 1.1.b Area of forest by growth stage.</i>	45

<i>Indicator 1.1.c – Area of forest in protected area categories.</i>	45
<i>Indicator 3.1.a – scale and impact of agents and processes affecting forest health and vitality.</i>	46
<i>Indicator 6.4.a – area of forests to which Indigenous people have use and rights that protect their special values and are recognised through formal and informal management regimes.</i>	46
<i>Indicator 6.4.c – The extent to which Indigenous values are protected, maintained and enhanced through Indigenous participation in forest management.</i>	46
<i>Indicator 4.1.a – Area of forest land managed primarily for protective functions.</i>	46
<i>Indicator 4.1.d – Management of the risks to water quantity from forests.</i>	46
<i>Indicator 4.1.e – Management of the risks to water quality in forests.</i>	47
<i>Indicator 6.4.a – area of forests to which Indigenous people have use and rights that protect their special values and are recognised through formal and informal management regimes.</i>	47
<i>Indicator 6.4.c – The extent to which Indigenous values are protected, maintained and enhanced through Indigenous participation in forest management.</i>	47
A MODEL FOR ACTIVE NOONGAR FOREST MANAGEMENT IN THE COLLIE REGION	48
<i>Vision</i>	48
<i>Cultural Leadership</i>	48
<i>Commercial Gain</i>	48
<i>Community Benefits</i>	48
<i>Conclusions</i>	50
SECTION FIVE – ADVICE & RECOMMENDATIONS	51
REFERENCES	52
APPENDIX ONE – LEGISLATION AND GUIDING DOCUMENTS	54
LEGISLATION	54
<i>Legislation and Guiding Principles</i>	54
CORPORATE SOCIAL RESPONSIBILITY	54
<i>Aboriginal Community Engagement</i>	54
<i>UN Declaration on the Rights of Indigenous People (UNDRIP)</i>	55

LIST OF FIGURES

FIGURE 1. SURVEY TEAM DURING DISCUSSION IN THE FIRST FIELD TRIP (AUGUST 2022)	13
FIGURE 2. PHOTOGRAPHS TAKEN OF DISCUSSIONS HELD DURING THE ON-COUNTRY ASSESSMENTS	39
FIGURE 3. TOP: THINNED FOREST; MIDDLE: UNTHINNED FOREST; BOTTOM: PHILLIP WINMAR EXAMINING ANTS NEST	42
FIGURE 4. SURVEY TEAM IN THE MUNRO BLOCK	49

LIST OF TABLES

TABLE 1. ARCHAEO-AUS DOCUMENT CONTROL	2
TABLE 2. DISTRIBUTION OF COPIES	2
TABLE 3. ASSESSMENT OF DIFFERENT FOREST TREATMENTS IN THE REES BLOCK (COLLIE)	40
TABLE 4. ASSESSMENT OF DIFFERENT FOREST TREATMENTS IN THE MUNRO BLOCK (KIRUP)	41
TABLE 5. NOONGAR FOREST STANDARDS AND INDICATORS	43

SECTION ONE – INTRODUCTION

SCOPE OF WORKS

The ‘South West Timber Hub’ is a Federal Government funded program that works with the timber industry in the South West of Western Australia to increase its productivity, efficiency, and processing capacity through innovation. This report is part of the South West Timber Hub’s wider objectives to deliver on the Western Australian Forest Industry Framework for Action 2019-2030, ‘The Djarlma Plan’ which focuses on four key pillars:

- ▶ Healthy forests
- ▶ Wood products
- ▶ Industry development
- ▶ Community

PROJECT AIM

Develop a framework for assessing Djarlma¹ concepts & forest management (including health of forests, use of timber, and fire), from a Traditional Owner’s perspective.

KEY OBJECTIVES

- 1) To determine if there are correlations between measurable forest attributes that describe the different forest treatments from a Western perspective and the Elder assessed Djarlma concepts.
- 2) To develop a matrix of indicators that can be used to assess different forest treatments incorporating Djarlma concepts.
- 3) Conduct assessments by recognised Elders in thinned, thinned and burnt and unthinned forests in the Collie area and determine if there is consistency in response to forest condition.
- 4) Develop suggested Djarlma Standards that align with internationally recognised certification scheme standards to benchmark the forestry industry against cultural values.
- 5) Document findings in a manner that would be suitable to be published in a peer reviewed journal of high standing.

CONSULTATIONS

The ethnographic consultations were undertaken as part of two On Country assessments of targeted forest blocks with Traditional Owners. The first assessment was conducted on the 30 August 2022 at the Rees Block, situated approximately 7 km north east of the Collie town centre, within the Collie River Valley. The second assessment was conducted on the 20 December 2022 along the Kirup

¹ *Djarlma* is a Noongar concept that articulates the interconnected ecological, spiritual, and commercial relationships between people, forests, and woodland. The concept is explained in Section 1 of this report under the heading ‘Djarlma’. However, the Noongar participants of this project said that Djarlma is not a term that they are familiar with and is not used in common parlance among the Collie Noongar community.

Ecological Thinning Demonstration Site within the Munro Block near the town of Kirup. Details of who took part in the consultations are documented in the Personnel Section of this report.

The Rees Block has examples of thinned, thinned and burned, burned only and unthinned forest immediately adjacent to one another. The Munro Block has examples of five different forest treatments within adjacent forest. The Munro example treatments are:

- Cell 1. No treatment
- Cell 2. Log sections cut to length, leaving bark and tops. Spray resprouts in year 2.
- Cell 3. Whole tree removal with concurrent chemical application to stumps.
- Cell 4. Trees felled and retained intact on site, no stump treatment.
- Cell 5. Manual thinning: notching and ringbarking.

DJARLMA

Djarlma is a Noongar concept that articulates the interconnected ecological, spiritual, and commercial relationships between people, forests, and woodland. By implementing the *Djarlma* Plan, using a holistic approach, engaging communities, and using traditional knowledge; the ultimate goal is to achieve new thinking and better outcomes for the forest industry. As stated in the Consultants Brief:

“When the great Waugal created the boodja (land), he ensured that there were wirrin or spirits to look after the land and all that it encompassed. Some places, such as the kaart (hills) and ngamar (waterholes), boya (rocks), bilya (rivers) and boorn (trees) were created as sacred sites and hold wirrin, both warra (bad) and kwop (good).”

Noongar believe that the spirits of their ancestors live in the forests. The ancestral spirits of their demanggar (grandparents) are there to give them their healing and their food. Everything in Noongar Boodja has a purpose; if the forests are not preserved and maintained then they will have no ancestral spirits to guide them and give them sustenance and healing, the forest spirits will go to sleep forever and Noongar will become sick in both mind and body.

Djarlma is about looking after wirrin, which ensures the spiritual health of the forests. For Noongar, the spirit is in the forest, the forest is a place of worship, the Mother place (wirrin / ngaank). The forest is not simply an asset but is life. Noongar identity and connection is drawn from the land (kadjan / kanya) and their totems dictate a holistic responsibility for animals, trees and places (borunga). The trees in the forest cannot be considered separately to their spiritual ecosystem.”

Courtesy of the South West Aboriginal Land and Sea Council and extended by Senior Noongar Custodians.

PERSONNEL

TRADITIONAL OWNERS

Phillip Ugle (Consultation 1 and 2)	Phillip Winmar (Consultation 1)	Lynette Winmar (Consultation 1)
Karlene Kelly (Consultation 1)	James Khan (Consultation 1)	Natasha Ugle (Consultation 2)
Joe Northover (Consultation 2)	Gail Wynne (Consultation 2)	

ARCHAE-AUS

Myles Mitchell (Consultation 1 and 2)	Jennifer Mitchell (Consultation 1)	Koa Jaensch (Consultation 1)
--	---------------------------------------	---------------------------------

SOUTH WEST TIMBER HUB AND WESPINE INDUSTRIES

Wendy Perdon: Project Manager – South West Timber Hub (Consultation 1 and 2)	Brad Barr: Resource Manager – Wespine Industries (Consultation 1 and 2)
---	---



Figure 1. Survey team during discussion in the first field trip (August 2022)

SECTION TWO –METHODS

DESKTOP RESEARCH METHODOLOGY

The desktop review methodology integrates relevant literature pertaining to the health and sustainability indicators of forests within the southwest of Australia, and the accounts of Traditional Owners who are the custodians of the lands and forests, with the globally recognised forest management indicators of the Montreal Process (see *Forest Value Indicators* within Section Three).

The integrated desktop review aims to create a holistic and comprehensive assessment of the social and environmental implications of forest management in a local setting, by reviewing international sustainable forest protocols.

‘More Than Human’ Methodological Approach

The research adopted an approach known as ‘more than human’ (sometimes called ‘multispecies’) ethnography. This form of methodological enquiry delves into the more than human world connection, as a way of mapping relations to Country between the tangible and intangible, human, and nonhuman aspects of the land (Country et al., 2019).

This method looks at Country as an incorporation of people, plants, animals, waterholes, weather, rocks and other elements that comprise the social and cultural landscape, placing importance on the connections of these elements to both each other, and the multiple spiritual and symbolic realms of Aboriginal knowledge systems. These connections relate to the laws, customs, movement, song, knowledge, relationships, histories, presents, futures and spirit beings of Country, that reflect Country as a place that is physical, spiritual and active. It can be talked to and can itself communicate and feel. It is embedded with stories, law, power, and kinship relations that connect its people, not just to each other, but to ancestors, place, animals, rocks, plants, stories and songs within the land and seas (Wright et al., 2012). By exploring this connection to Country, ethnographic exploration of place explores the connections to Country, family, and kin, recognising that family and kin can be people, animals, plants or land - one’s place is kin (Wooltorton et al. 2020).

The ‘more than human’ ethnographic approach explores this connection between human and nonhuman. The process defines and conceives the stories and knowledge systems of Country from an Indigenous perspective, by which the concept of ‘place’ is relationally defined and continually co-created by human and nonhuman agents (Wright et al. 2012). Seeking knowledge through this methodology accepts that stories, narratives and experiences of Country are co-authored by the land itself and both its human and nonhuman entities.

This approach requires male and female anthropologists to document gender-specific knowledge which may then be overlaid on cartographic maps to spatially manage the relationships between people and places. Rather than presenting a dualistic conception of ‘society’ and ‘nature’ or ‘subjects’ and ‘objects’, it poses a hybrid of ‘society/nature’ as a singular heterogenous assemblage where humans and nonhumans are inextricably linked (Nimmo, 2011).

In practice, this method allows for the stories and narratives of Country to be told through human agents, whilst being physically present in Country. This methodological approach allows for Indigenous-led, community-based place engagement to re-story a site through the cultural values, stories and narratives of people and Country.

Consultations Methodology

The ethnographic consultations were undertaken as part of two On Country assessments of targeted forest blocks with Traditional Owners. The first assessment was conducted on 30 August 2022 at the Rees Block, approximately 7 km north east of the Collie town centre, within the Collie River Valley. The second assessment was conducted on 20 December 2022 along the Kirup Ecological Thinning Demonstration site within the Munro Block near the town of Kirup.

The consultations recorded the perspectives of local Noongar knowledge holders about how they assess the health of forests. The qualitative field research was conducted on Country at locations selected by South West Timber Hub. The locations were selected to provide examples of different forest treatments within the same landforms. These locations allow participants to assess the results of different forest treatments and consider how healthy they think the different sections of forest are, and why. The goal of this approach is to understand the attributes and indicators that local Noongar people use to assess forest health.

The consultations were conducted using the informal cultural process of *yarning* (Kennedy et al., 2022). Yarning recognises that Noongar culture has an oral tradition of information sharing and knowledge keeping. Touchstones of the yarning process are the interweaving of past, present and future narratives; encouraging stories as a cultural lens through which to consider Noongar values and knowledge. Place-based yarning enables the transition of knowledge in a process of two-way learning, allowing the Traditional Owners to understand the current forestry practices and local forest treatments and to share their understanding of Noongar forestry practices accordingly (Wooltorton et al., 2020).

The consultations were conducted using informal questions delivered verbally (rather than structured questionnaires). Results were documented using hand-written field notes. Consultations used a combination of group discussion and one-on-one discussions. This information is combined with the results of the background research to identify how local Noongar standards align with internationally recognised certification scheme standards in order to benchmark the forestry industry against Noongar cultural values.

SECTION THREE – DESKTOP RESEARCH RESULTS

NOONGAR CULTURAL CONTEXT

The Collie area lies within the Gnaala Karla Booja Native Title Claim Area (WI2015/005), which is a subset of the broader South West Native Title Settlement (WC1998/058). GKB *boodjar* covers approximately 34,427 square kilometres and stretches broadly from south of Perth down the coast near Busselton. In the East, GKB Country carries on to north of Kojonup then north to Corrigin and back west to the coast south of Perth. The GKB people have carefully managed their lands and waters for tens of thousands of years and witnessed broad scale changes, from changing climate to the rising of the seas (until sea stabilization at current levels around 6000 years ago) to the invasion of European people.

Noongar people form a distinct cultural bloc now and into the distant past, based on shared linguistic and cultural traditions, a cohesive social structure and kinship network, shared regional identity, and a common geographical connection to the lands and waters that make up the southwest corner of the Australian continent. There are a range of social structures which further delineate Noongar people and connect them to particular parts of the Southwest region. This is articulated succinctly in the Noongar evidence provided to the Federal Court hearings Federal Court of Australia, 2006:38), during which the claimants noted that the southwest region:

was occupied and used by Aboriginal people who spoke dialects of a common language and who acknowledged and observed a common body of laws and customs. Those Aboriginal people recognized local and regional names within the broader society but shared a commonality of belief, language, custom and material culture, which distinguished them from neighbouring Aboriginal groups and societies. Responsibility for and control of, particular areas of land and waters, were exercised by sub-groups or families, but the laws and customs under which the sub-groups possessed those rights and interests were the laws and customs of the broader society.

Rainfall levels which define the Southwest Botanical Province form a distinctive geographic and environmental zone, they also define Noongar country. As defining features of Noongar country, the rivers, lakes, creeks, and all of their tributaries are fundamental to Noongar culture, and thus maintain a special significance. Spiritual life is fundamental to Noongar culture, and it is inextricably linked to the organisation of Noongar society and to the management of Boodjar (Country). The responsibility to look after Boodjar is deeply engrained in Noongar cosmology, which enshrines a set of governing principles for the management of land and water. Perhaps the most salient element of Noongar spiritual beliefs is the Waarkal:

The term ‘Noongar’ also sometimes spelled Nyungar, Nyoongar or other variations, is a common term used almost ubiquitously around the region for local Aboriginal people. The *kaip* ‘water’ and *bilya* ‘rivers’ of the South-West Coast drainage basin are fundamental to the economic, social, and spiritual lives of Noongar people (note; *kaip* and *bilya* may differ slightly between dialect groups, but

essentially these are the Noongar words for water and river). The rivers formed movement corridors and resource-rich landscape features integral to Noongar economy.

Fundamental to Noongar identity and culture is connection to Country. This concept articulates a series of rights and responsibilities that every Noongar person maintains to certain places, landscapes and regions. Perhaps the two most important aspects of connection to Country are

- 1) the responsibility to care for Country and
- 2) the right to speak for Country.

The responsibility to care for Country is something that Noongar people inherit from their ancestors and bequeath to their children. Upholding these responsibilities are fundamental to Noongar culture and identity, and at some level to people's reason for being. On this basis, being able to uphold these responsibilities is pivotal to Noongar people's sense of purpose and self-worth and therefore, well-being. Intertwined with the responsibilities that people maintain to Country are rights to make collective decisions affecting Country. The combination of these rights and responsibilities are the basis for contemporary Noongar custodianship. What this means in a practical sense, is that Noongar people expect to have a 'seat at the table' in decisions that affect their lands and waters. Put another way, Noongar people have a customary set of rights and responsibilities that require them to have real power in all decisions affecting their Country. As all Noongar people are now living within the modern economy of Australia, their time and input have costs associated with it.

LOCAL CULTURAL CONTEXT

The Collie region is home to an ancient, enduring and dynamic Aboriginal culture. Local Aboriginal people in Collie today identify as Noongar, sharing ties with the broader Noongar nation who occupy the entire south-west corner of the Australian continent. On a more local scale, people also identify as *Wiilmien*, a Noongar-dialect group whose traditional country incorporates the Collie area and stretches eastward to the wheatbelt towns of Williams, Narrogin and Wagin. Many people in Collie also identify as *Bilyagul Moort* – River People. This identity reflects the strong connection of Aboriginal people in the Collie region to the three rivers of the Leschenault Catchment – the Collie, Brunswick and Preston Rivers.

These three rivers are fundamental to the spiritual, social, and economic foundations of local Noongar culture now, and into the distant past. The rivers provided many vital resources for people to eat and drink and in this sense, they were and continue to be important economic providers for Bilyagul Moort, who still hunt and gather food and medicine around the rivers today. The rivers also bring people together as places to gather for social and recreational pursuits, now and in the past. As the Bilyagul Moort draw much of their identity from the rivers, they hold an important social, as well as economic function in local Noongar society.

During traditional times, the Bilyagul Moort relied on the rivers as travel routes between the coast and the hinterland, as part of intricate systems of seasonal movement that saw people gather in large numbers on the coast during summer months to make use of plentiful resources while undertaking social and ceremonial activities. During the winter months, they dispersed into smaller groups into the jarrah-marri forests of the inland region around Collie, where food sources were readily available.

These patterns of seasonal movement were a critical element in the complex systems of sustainable land management that enabled Noongar people to successfully occupy the south-west region for thousands of generations. Seasonal movement was based on a highly structured system that

enabled people to harvest resources as they became seasonally available, without over-exploiting any one species or location. The Noongar calendar is based on six seasons and the subtle changes between these seasons are closely aligned with the seasonal availability of particular plant and animal species. People knew when to move, not because of a particular day in the calendar, but on the basis of the subtle but predictable signs in the plants and animals.

NOONGAR RELATIONSHIPS WITH FORESTS

For Aboriginal people throughout Australia, the spiritual significance of the physical landscape is rooted in a shared set of creation beliefs commonly referred to as the Dreaming or Dreamtime. A key feature of this complex belief system is the understanding that during a time in the deep past, the world was transformed from a featureless plain by the activities of a great many ancestral beings. As these supernatural beings moved through landscape, their exploits created most of the land's distinctive features. As described by (Tonkinson, 1991):

Every Aboriginal group attribute a host of physical features in its territory to the creative acts of the Dreaming beings. These are forever imprinted on the landscape as visible signals of extra human powers and are immortalised in myths, songs and rituals, which are religions for meaning.

Furthermore:

“The land of the southwest is the land that Nyungar culture and cosmology spring from. We are of this land, and this land is of us. It has been that way for many tens of thousands of years. Our knowledge base and cultural identity is closely intertwined with the land, and our people – especially our Elders – still possess a vast pool of traditional knowledge.” Glenn Kelly, 1999, p.10

An extensive study with Noongar Elders that explored the impacts of harvesting of old-growth forests was conducted by Tim McCabe in 1998. **It should be clearly understood that this particular study presents Noongar views of the forestry industry prior to 1998 and may not necessarily apply to modern practices.** None the less, it is instructive in understanding more about how Noongar people responded to past forestry practices. The study revealed the devastating impact harvesting had on cultural values and forest health, and the frustration of the Traditional Custodians of the lands who felt they were being overlooked. Issues that emerged were far-reaching, including the erasure of archaeological signatures and cultural material, in turn reinforcing the western paradigm that forest usage by Aboriginal Noongars was minimal, limiting their ability to make claims to Country. The removal of spirits located in old trees and stumps, the loss of habitat for native species, especially red and white-tail black cockatoos, loss of flora biodiversity, and what was perceived by the respondents at the time as inadequate management of regrowth forests by western management practices were also raised (McCabe, 1998).

A central value of many of the Elders interviewed was the loss of the spirits that dwell within the trees and animals in old growth forests. Following death, an individual's spirit was 'caught' and placed into trees, stumps, and animals, and become beneficial to the Noongar people. The Elders stated that the maintenance

of the spiritual realm within forests was as much their responsibility as the physical health of Country (McCabe, 1998). “You can’t. You can’t. No – it’s (regrowth forest) not the same. It’s just different, you can feel it. I mean you can get that even out at that Pinjarra there they’ve done with regeneration etcetera it just doesn’t feel the same, it feels alienated. Plastic.” Clem Riley, Noongar Elder

According to one Elder interviewed, Ken Colbung, the controlling of Noongar landscapes with western management practices via largescale management actions was comparable to the past racial injustices and the continuing Noongar disempowerment and dependence on non-Noongar systems and values (McCabe, 1998). McCabe’s (1998) investigation was also largely focused on the endangered red and white-tailed black cockatoo populations in southwestern forests.

An issue that was raised in the literature was past forestry practices that restricted the availability of large tree hollows which provide nest sites for the cockatoos. Saunders and Ingram (Saunders & Ingram, 1995:105-118) state that modern management plans should ensure a wide distribution of trees with suitable hollows throughout the forest, rather than concentrations in small blocks or along road reserves. The current Silviculture Guidelines for Western Australian forestry do specifically aim to maintain trees with suitable hollows for nesting (Department of Parks and Wildlife, 2014). Nonetheless, the relationship between forestry activities, ecosystem health and Noongar culture is an important theme from the literature, as highlighted in the following quote:

“There’s no question about it. You start cutting things down and disrupting the environment, sites are lost, the flora and fauna which Aboriginal people have physical relationships with are disturbed, so in that context, it does have a bearing on the relationship.” Mike Hill, Noongar Elder

Lullfitz et al. (2021) case study on the long-term biodiversity conservation in the southwest of Australia relied on Aboriginal Traditional Owner participation to determine diversity within different landscapes throughout the region. The study found that management practices of old and new, fertile and infertile landscapes may result in better outcomes through a revived application of Noongar ecological knowledge in forest management. The enduring presence of the Noongar people throughout the southwest, honed specific management practices passed through oral lore and custom, which is solidified in the contemporary Elders of this generation. These fine-tuned requirements for specific differential treatments of a diverse landscape that includes both old, rocky, deeply weathered infertile soils and young, often disturbed fertile landscapes represents a wealth of untapped knowledge resource (Lullfitz et al., 2021:434).

“A propensity amongst forager societies to increase and/or maintain resource access through mimicking natural events, and to refine these activities over long periods, suggests the evolution through time of specific human behaviours adapted to, and based upon, ecological drivers within a local landscape.” (Lullfitz et al., 2021:434)

The study found that Noongar activities differed significantly between landscape types, with a high density of activity occurring at young sites adjacent to riverbeds. Older granite or rocky sites; however, were featured heavily in creation stories and often identified with traditional names. The

younger sites identified in the paper, including near river or creek beds in heavily disturbed areas, often had more historical associations such as campsites (Lullfitz et al., 2021).

The Elders also spoke extensively on traditional burning practices that were used to shape these unique landscapes. Reasons for burning included clearing of vegetation for pest control at campsites, ease of access for walking through Country, resource protection, encouragement of grass to attract game, encouraging growth of other resources and maintaining the health of the landscape. The Elders spoke of green branches being used to sweep and beat the fire, usually in family groups under the direction of an older adult, arranged in a circular or linear manner along the fire edge (Lullfitz et al., 2021). At least six of the Elders recounted that both adults and children were barefoot, indicating that fires were very low intensity.

Cool burn practices, which are generally performed to clear undergrowth, burn at a low intensity and promote the germination of seed banks into the soil. The plant species that are the first to re-establish after a cool burn tend to be those that have the highest food value to both humans and animals (Kelly, 1999). The relationship between the Country and Aboriginal people is seen as a reciprocal one. The Country takes care of the people, who in turn, tends to their needs. This is the way that the forests and plains have thrived for thousands of years prior to European occupation (Kelly, 1999).

INDIGENOUS FOREST MANAGEMENT

Forest Gardening Management Strategies (Djaara Balaki Wuka, 2022) is a management plan implemented in Central Victoria designed to use traditional Aboriginal practices to address the challenges facing native forests in the region. The strategy plan was born out of a sense of frustration by the Djaara people of Central Victoria who, in the face of rising mining and agricultural industries in the area, felt powerless to enact their rights to care for their Country.

The strategy addresses the natural healing of Country, addressing remediation and restoration in partnership with other land managers, actively working with those who have harmed the land in the past, and exploring and developing decision-making and prioritisation processes to help make collective decisions about the work done on Country and how to manage Country by others (Djaara Balaki Wuka, 2022). Enactment of the Forest Gardening strategy allows a space for the rehabilitation of native forests that align with traditional Djaara practices and allows for the sharing of cultural knowledge and practices for future generations of Djaara people (Djaara Balaki Wuka, 2022).

The term 'Forest Gardening' was chosen for the strategy to represent the methodological approach of Aboriginal land management practices. 'Garden' evokes the idea of human interaction and intervention. A garden requires adaptation to human needs and wants, and in return, the gardener tends to the needs of the garden when it is unhealthy (Djaara Balaki Wuka, 2022). Gardening, in the context of native forests, infers a level of management maintained by Aboriginal people that required and continues to require constant upkeep. The Djaara people have positioned themselves as the gardeners of this landscape (Djaara Balaki Wuka, 2022). The project focuses on Aboriginal-led management plans that provide economic opportunities, partnerships supporting cultural governance, and the development of co-capacity funding models that reduce transaction costs (Djaara Balaki Wuka, 2022). It was imperative to the Djaara people that through this management strategy, they were presented not only as Traditional Owners of the land, but as contemporary and future managers of their Country.

“We sit and listen to Country – the right time, the seasons, right plants, right way, practice – all these things rely on sitting with and listening to Country. Listening to our Ancestors that are present in this landscape and what they are telling us Country needs. Country presents opportunities to us – it is the connection of listening to Country that makes us good managers; it is about reading and our relationship with the land, and the flow.” A Galk-galk Dhelkunya Wartaka member and Traditional Owner

The Forest Gardening Management Strategies report outlines a series of practical applications of forest gardening strategies, which included the following:

Cultural Thinning

A method of selectively removing trees to reduce stocking density and increase tree growth rates and future timber availability. The process aims to improve ecosystem function, forest structure and habitat diversity, for forest health, along with allowing various plants and animals to thrive in a less dense tree environment.

Revegetation and Rehabilitation

A process of putting care that has been removed through processes of colonisation back into the forest. This strategy is based on a mutual healing between people and Country. Revegetation includes creating habitats for animals that have been forced to find shelter in invasive plants, improved soil health, improved water retention, enhanced biodiversity and variation of plants within the cultural landscapes.

Regenerative Practice and Partnerships

Working with private agricultural land holders and other stakeholders to create opportunities for the Dja Dja Wurrung community, including employment, education, and knowledge sharing and youth teaching. There is a focus on the management of medicinal and edible plants and animals through subsistence practices.

Djandak Wi or ‘Country Fire’

A key tool in the Djaara Forest Gardening plan. The practice is both spiritually and environmentally significant, with uses in ceremonial and landscape management. Low, cool fires in configured mosaic patterns during seasonal temporal periods is a principle technique of landscape intervention and healing. ‘Right fire, right time’ is a process of diminishing colonisation practices and improving forest canopies and grassy understories.

Gatjin (water) Management Processes

Centred around the spiritual importance of water, and its role as an integral part of land management. Seasonal flooding in the region helps the strengthening of species and seed dispersal.

SUMMARY: ABORIGINAL FOREST VALUES

An overarching theme that emerged through the background research is an emphasis on the maintenance of Country and health through traditional Aboriginal practices. The spiritual and cultural landscape of the southwest is the result of a carefully managed ecosystem, curated by Aboriginal Noongar groups over tens of thousands of years. Understanding the environmental needs of the Country relies on a spiritual and cultural understanding of the land through management practices based on a wealth of generational Aboriginal knowledge and the enduring practice of listening to Country.

“To look at a tree, to me it’s like a human being, it’s spiritual. How can you tell these white people? All they can see is dollars in their head. See – what I can’t understand with the forest department, they don’t listen to the people who originally come from the bush, who grew up in the bush, or looked after that bush. They don’t listen to the Aboriginal people, they’ve been looking after this bush for over 40,000 years.” Sully Humes, Noongar Elder

FOREST VALUE INDICATORS

An objective of the project is to create a matrix of indicators that can be used to assess different forests for Djarlma spiritual and ecological values. There are a range of conceptual challenges which are faced when integrating scientific and Aboriginal worldview.

Australia’s Sustainable Forest Management Framework of Criteria and Indicators 2008 – Policy Guidelines detail seven criteria and 44 indicators based on the international Montreal Process. The Montreal Process was a 1992 initiative that called for the sustainable management of forests. It was further developed in Montreal in 1995 and now acts as a framework of criteria and indicators for the sustainable management of forests. Australia’s *State of the Forests Report* (SOFR) is the national report on the status of all of Australia’s forests. Australia’s Sustainable Forest Management Framework of Criteria and Indicators has been used as a benchmark to cross-reference Djarlma indicators against industry standards (Department of Agriculture, 2008).

Biodiversity

Criterion 1 – conservation of biological diversity

Maintaining biological diversity within native and old growth forests enables ecosystems to respond to external influences, recover after disturbances and natural disasters and continue to maintain essential ecological processes to keep the forest healthy. Human activities can impact adversely on the diversity of the forest by altering habitat, introducing invasive species, or reducing the ranges of native species. Supporting diversity of forest ecosystems, their ability to function, reproduce and remain productive in a changing landscape can be measured through the following indicators.

Indicator 1.1.a – area of forest by forest type and tenure

This indicator tracks forest by forest type over time as a broad measure of the extent to which forest ecosystems and their diversity are being maintained. Aids understanding of how different land management regimes may impact on forest biodiversity.

Indicator 1.1.b Area of forest by growth stage

This indicator manages changes in area of forest by growth stage to reflect how ecological processes and species associated with those processes change as forests grow. Age and size of trees is important in maintaining forest biodiversity.

Indicator 1.1.c – Area of forest in protected area categories

This indicator measures area and proportion of forest ecosystems reserved through formal and informal processes as a measure of the emphasis placed by society on the preservation of representative ecosystems as a strategy to conserve biodiversity.

This indicator relies on the cultural and social emphasis on the preservation of forest ecosystems. It allows management processes to monitor the social impacts of degrading biodiversity through formal and informal methods, to gauge forest biodiversity through the people who live near or within forest boundaries.

Indicator 1.2.b – the status of forest dwelling species at risk of not maintaining viable breeding populations, as determined by legislation or scientific assessment

This indicator observes the conservation status of nationally listed threatened forest dwelling species. Documentation over time allows changes to species conservation status indicating the extent to which forest species biodiversity is being maintained.

This indicator is also relevant for healthy forest marker species. It allows the management of forest biodiversity through documentation of forest dwelling species while also monitoring native and endangered species through the lens of conservation.

Indicator 1.3.a – Forest associated species at risk from isolation and loss of genetic variation, and conservation efforts for those species.

This indicator assesses risks to loss of forest genetic variation and formal measures designed to mitigate this risk. A loss of genetic diversity in species can result in a decreased ability to adapt to future environmental change, and thus higher risk of extinction.

Loss of genetic diversity can occur within forests for a number of reasons, including replanted and un-thinned forests which result in reduced biodiversity of understorey and seedlings as dense canopies dominate light resources. These factors can lead to the creation of a monoculture within forest environments.

Healthy Forest Marker Species-Birds, Orchids, Echidna's

Criterion 1 – conservation of biological diversity

Native forests globally support a substantial proportion of the planet's biological diversity and terrestrial species. Terrestrial species populations can assist in the indication of forest biodiversity and health through the following indicators.

Indicator 1.1.d – fragmentation of forest cover

This indicator measures the loss of forest cover and the spatial configuration of that loss. Fragmentation can impact on forest dwelling species and gene pools through changes in the connectivity of populations and the loss of species genetic variability.

This indicator can relate specifically to the concerns of animal species raised by the Traditional Owners, particularly red and white-tail black cockatoos. Cockatoos need specific distributions of large nesting trees; often small remnant tree patches and road reserves are not enough to sustain healthy populations.

Indicator 1.2.a – forest dwelling species for which ecological information is available

This indicator measures the level of information available to manage forest dwelling species and track changes in this knowledge over time. The amount of habitat, disturbance and life history information available to make management decision indicated the capacity to assess risk to species and to implement conservation strategies.

This indicator relies on the notion that specific levels of information regarding species concentrations are needed to accurately plan management strategies tailored to individual flora and fauna.

Indicator 1.2.c – Representative species from a range of habitats monitored at scales relevant to regional forest management

This indicator provides broad habitat, population, and range information for representative forest dwelling flora and fauna. Evidence of changing ranges or densities of forest dwelling species can be used to guide forest management activities so that they are consistent with maintenance of forest biodiversity.

Water availability

Criterion 4 – Conservation and maintenance of soil and water resources

Forest landscapes play a vital role in the regulation of surface and ground water flow, and soil and water health are essential in the biodiversity, health, and productivity of the forest ecosystem. The monitoring of water systems within the forest helps to maintain the overall health of the forest from changes in chemical, physical, and biological characteristics that may impact ecosystems. The following indicators relate to the management of water resources within the forest.

Indicator 4.1.a – Area of forest land managed primarily for protective functions

This indicator dictates that priority is given to protecting soil and hydrological functions providing an indication of the emphasis being placed by society on the conservation of these values. Includes some areas managed to protect soil and water by excluding incompatible activities.

This indicator relates to the social responsibilities of water and soil functions to those directly impacted by forest water resources. It measures the emphasis being placed on society and assessing incompatible human activities to protect water resources.

Indicator 4.1.d – Management of the risks to water quantity from forests

This indicator measures the extent to which the risk to water quantity has been explicitly identified and addressed in forest management. Water quantity is important for ecosystem health (riparian habitats, fire refugia) and water supply for human use.

Indicator 4.1.e – Management of the risks to water quality in forests

This indicator measures the extent to which the risk to water quality has been explicitly identified and addressed in forest management. Water quality is important for forest ecosystem health and water supply for human use.

Indicators 4.1.d and 4.1.e relate to the quantity and quality of water throughout the forest. Both of these are important in assessing healthy water and forest management processes, as negative impacts to both the amount, and the quality of water can be detrimental to native wildlife and humans.

Cultural sites

Criterion 6 – Maintenance and enhancement of long term multiple socio-economic benefits to meet the needs of societies

Forests provide a wide range of social, cultural, and economic needs for millions of people who live near or within forest landscapes. Some of the people most impacted by changes to forest ecosystems are Indigenous people who have depended on, and managed forests for thousands of years. While there are no indicators that relate directly to the management and protection of cultural sites, the following indicators address the cultural and social needs of forests on Indigenous communities.

Indicator 6.4.a – area of forests to which Indigenous people have use and rights that protect their special values and are recognised through formal and informal management regimes.

This indicator measures the degree to which land is placed under appropriate tenure classification or management regimes to protect Indigenous peoples' values in forests. An acceptable level of accountability for the protection of Indigenous peoples' cultural, religious, social, and spiritual needs and values is an essential part of forest management.

This indicator relates to Aboriginal groups rights to manage and care for their Country, based on cultural values. It assigns importance to the needs associated with this right, particularly relating to spiritual and religious values.

Indicator 6.4.c – The extent to which Indigenous values are protected, maintained and enhanced through Indigenous participation in forest management.

This indicator measures the extent to which Indigenous people participate in forest management. Active participation in forest management reflects the relationship between people and the land, and the integration of Indigenous peoples values with forest management practice, policy and decision making.

Active participation in land and forest management is represented through this indicator, particularly in areas of specific cultural significance. It refers to both an active and passive role in processes, and a seat at the table for Aboriginal communities.

Fuel Load

Criterion 3 – Maintenance of ecosystem health and vitality

The health and vitality of a forest system is directly dependant on the strength and abilities of the forest ecosystems to recover and adapt from dangers and disturbances, both natural and human made. Stress events are a natural part of any ecosystem, but strengthening a forest's ability to deal with changing conditions and human impacts can increase the longevity and health of forests in a changing future.

This criterion is about changing management practices to suit the needs of specific ecosystems, the following indicators relate to this.

Indicator 3.1.a – scale and impact of agents and processes affecting forest health and vitality

This indicator identifies the scale and impact on forest health of a variety of processes and agents, both natural and human-induced. Through the regular collection of this information, significant changes to the health and vitality of forest ecosystems can be monitored and measured.

This indicator focuses on natural and human-induced agents in forest management, and can therefore be related to cultural burn practices to manage forest fuel loads. Monitoring of fuel can help human agents to mitigate out of control burns and changing climate pressures in the future.

Indicator 3.1.b – Area of forest burnt by planned and unplanned fire

This indicator provides an understanding of the impact of fire on forests through the reporting of planned and unplanned fire. Fire is an important part of many forest ecosystems in Australia and may have either a positive or negative impact of forest health and vitality.

This indicator relates to the concept of ‘planned fire’ as a tool for forest management. It acknowledges that burn practices are an important aspect of Australian forests and may be a vital part of management practices.

Other Relevant Indicators

Indicator 6.2.b – Investment in research, development, extension, and use of new and improved technologies

This indicator relates to the investment in, and adoption of, new or improved technologies in forest management and in forest-based industries. Quantifies the level of research and development. Significant investment in research, development and new technologies result in continual improvements to forest management practices.

This indicator relates to the research and development of technologies that can impact the way forest ecosystems are managed in the future. Research into Aboriginal techniques and processes, particular for fire management and prescribed burns can contribute to continual improvements in forest management practices.

Indicator 6.4.d – The importance of forests to people

This indicator relates to the range of attitudinal values that communities and individuals place on their forests. The importance of forests to society is exemplified through the value that people place on biodiversity, clean air and water, social equity or simply the knowledge that Australia’s forests exist.

This indicator relates to the importance of forest to people in society. It relates to Indigenous and non-Indigenous attitudes towards the natural wildlife, and the acknowledges the importance of aesthetic values of forest maintenance for the people who continue to enjoy them.

INTERNATIONAL REVIEW

The State of Canada’s Forests – Annual Report 2022

Canada is a Boreal country, with more than 75% of Canada’s 362 million hectares of forest within the boreal zone. Canada’s boreal forests make up approximately 28% of the country, with two thirds of the forests comprising spruce and poplar. Despite this, Canadian forests are home to approximately 140 different native tree species, as well as a wide variety of plants, insects, fungi, birds, mosses, lichens, and more, contributing to an incredibly complex and biodiverse ecosystem.

In 2017, Natural Resources Canada along with Indigenous government representatives, Elders, and a range of land users, established the Indigenous Circle of Experts with the aim to define new Indigenous-led conservation initiatives alongside forest management strategies. These are known as Indigenous Protected and Conserved Areas (IPCAs). The key aims and objectives of IPCAs are:

- ▶ To promote and inspire Indigenous leadership to make decisions for land and water.
- ▶ Recognise and address the consequence of colonisation in terms of parks management and protected areas.
- ▶ Fill the gaps in conservation goals, such as the need to advance reconciliation actions and create collaboration, respect, and sharing across Indigenous and western cultures.

- ▶ Contribute to advanced conservation efforts from an Indigenous perspective and restore Indigenous knowledge systems that have been historically disregarded and criminalised.

Key indicators

Biodiversity, Forested areas and Forest Regeneration

Canada's forests are home to approximately 140 native tree species and 426 bird species that breed within the forest habitats. Forest characteristics such as age, composition, and structure influence what species thrive in Canada's forests. The forests present a unique biodiversity problem given the high number of species and the vastness of the territory. Measuring biodiversity indicators focuses on targeted species groups that rely on particular habitat conditions as an indicator of species diversity. Partnerships between Indigenous monitoring programs are growing more common throughout Canada, allowing research efforts to gain new perspectives on forest health and biodiversity through "two-eyed seeing", the merging of western science and ancient Indigenous practices.

Forested areas are closely monitored to sustainable management targets which help support green economies and a transition to carbon-neutral throughout Canada. A key indicator of this is forested area and regeneration. In 2020, 426,000 hectares of provincial forest lands in Canada were regenerated. Despite much of the regeneration practices focused on maintaining sustainable wood harvest production, regeneration of cleared land ensures that forests continue to grow and maintain ecosystems alongside logging practices. The benefits of regeneration include carbon storage, regulating water quality and providing habitat. Aside from cleared areas of forest, and areas set aside for the logging industry, the remaining native forest area is expected to remain generally stable. However, despite natural increases and decreases in forest areas, the most concerning disturbance patterns relate to climate change.

One of the ways the Canadian Forestry Department manages forest disturbances is through linking genetic data at the organism level with forestry traits, such as growth, drought tolerance, and insect resistance. This provides a way to identify genes related to resilient traits. By linking this data with forest habitat features they can reveal aspects of the environment that prompt the evolution of individual organisms, define range boundaries, or influence areas where certain species grow and thrive. This might look like:

- ▶ Selecting and planting tree seeds best adapted to thrive in current or projected future climates.
- ▶ Favouring tree genetic sources that show natural resilience to fluctuations in abiotic and biotic disturbances.
- ▶ Better understanding of the potential impacts of exotic or native species of insects or diseases, to better predict their disturbance risk and to optimise insect control.

Assessing biodiversity and forest disturbances also means management of forest diseases. Forest diseases are a natural component of healthy forest ecosystems, and they can profoundly affect productivity, diversity, structure, succession, and nutrient and carbon cycling. Climate changes and invasive species can profoundly affect the health of Canadian forest systems. Management practices, including genetic testing of native species, can help mitigate the risks of disease.

Forest Fires and Wood Volume Management

In 2021, Canada experienced about 6,500 forest fires that burnt approximately 4.3 million hectares of land. Record temperature and extreme weather conditions fuelled a severe fire season nationwide. Wildfires in Canada are a natural part of the forest environment and are often important for maintaining the health and diversity of the forest. Canada's management indicators

for fires are about improving predictions and controlling wildfires, and managing both the positive and negative effects so that individuals can co-exist with natural fire processes. Wildfire management is therefore a vital component of both sustainable forest management and emergency management in Canada.

Another key factor in Canadian wildfire management is that emergency evacuation and property loss disproportionately impact Indigenous communities across the country. Without proper wildfire management, some communities are evacuated from their homes and properties on an annual basis, sometimes several times a season. Indicators measuring wildfires within a changing climate show long term trends for Canadian fire seasons starting earlier and lasting longer. Canada's response has been to improve provincial and territorial fire management agencies who, along with Natural Resources Canada, are working to mitigate fire risks through strategic investments in prevention and mitigation, increased firefighting resources and enhanced intelligence and decision support.

Wood volume in the past referred primarily to an estimated 50 billion cubic metres of wood, focused on the 'merchantable' volumes of trees, or the part of the tree or stem that can be milled into conventional forest products. This method provided a poor indicator of the wood and fuel volumes of the forest as a whole and largely ignored non-timber forest products, biodiversity, and carbon storage. Wood volume, along with assisting in fire management, is also an important indicator for managing carbon stocks in forests and determining overall productivity. By calculating the biomass and estimated carbon storage of Canadian forests, general trends in wood volume can help predict fire behaviour and frequency.

Forest communities

More than 23 million people, about two thirds of Canada's population, live in or near forests. According to the 2016 census, over 1.1 million First Nations, Inuit and Metis people live in or near forests and represent nearly 12,000 forest sector employees. Since colonisation, conservation actions in Canada's protected areas have been informed by non-Indigenous worldviews, viewing the natural environment as one with limited contact by humans. This approach continues to impact Indigenous peoples, who face complex socio-economic issues in Canada. Indigenous health, livelihoods, and well-being are intrinsically linked to the health of nature, changes were needed within Canadian forest management strategies that would restore and protect nature in ways that would also strengthen the health and well-being of Indigenous peoples. This indicator focuses primarily on strengthening the economic and health benefits of the forest, rather than preserving the cultural significance on Indigenous communities. It also notes that Canada's forest-reliant communities continue to be affected by climate change and natural disturbances, increasing the pressures of living in forest-based communities.

Sustainable Management of New Zealand's Forests: New Zealand's Third Country Report on the Montreal Process Criteria and Indicators

New Zealand's indigenous forests are characterised by a high degree of endemism. Owing to the island's isolation, many of the species exist in a delicate ecosystem. Human settlement and development introduced a large number of exotic plant and animal species that has had a catastrophic impact on New Zealand's native flora and fauna, and the populations of people who depend on them. Over 70% of indigenous forests in New Zealand are protected by legislation or covenant and are managed for the protection of indigenous biodiversity by the Department of Conservation, The Queen Elizabeth II National Trust and the Ngā Whenua Rāhui Fund. The latter is a

contestable fund providing protection for indigenous ecosystems of Māori land. The area of publicly owned indigenous forest protected by legislation has increased by 3.7% since 2006.

New Zealand has implemented key changes in forest biodiversity management since 2008, these changes include:

- ▶ Use of satellite imagery, which continues to improve resource data from the forest estate.
- ▶ Development of a National Biodiversity Monitoring and Reporting Programme to assess the ecological integrity of public conservation lands.
- ▶ Application of the New Zealand Threat Classification System, which indicates that 12 threatened taxa have improved in status; however, the status of 59 taxa has worsened.
- ▶ New technologies for reducing and eradicating mammalian pests and preventing their reinvasion of sensitive habitats, which are creating opportunities to reintroduce engendered fauna and flora to formerly occupied areas.
- ▶ Enhancement of efforts to understand genetic diversity of iconic species.

The management processes implemented and outlined in this report focus heavily on the mitigation of invasive species to manage indigenous plants and animals.

Management of invasive species

New Zealand is an archipelago in the southwest Pacific with a long isolation from major landmasses and a strongly endemic indigenous biota. It was one of the last places on earth to be settled by humans and remained bird dominant for thousands of years prior. This also means that, unlike Australia, the slow-growing evergreen forests have had no major influence from natural fire. The introduction of terrestrial mammals into this predominantly bird concentrated environment has caused devastating consequences for native fauna. Factors impacting this include competition for flowering and fruiting flora, larger hole and ground nesting birds that are susceptible to predation, and habitat destruction.

There is also considerable damage to forest biodiversity from larger terrestrial animal species such as deer, goats, and pigs. These invasive species cause major damage to forest understories and impede regeneration efforts. While Australian brushtail possums cause widespread damage to canopies. Throughout the management of these pests New Zealand's government have invested in developing increasingly sophisticated technologies for reducing and eradicating mammalian pests and preventing their reinvasion of sensitive habitat. This has led to a number of initiatives to reintroduce iconic indigenous fauna to areas they formerly occupied, including islands segregated from invasive species. Many of these controls include intensive, site based multi-pest control, along with the development of predator-proof fencing that can exclude a full range of pest mammals, encourage an increasing number of community-led projects aimed at restoring forested habitats to their former health and vitality.

Overall, the loss of indigenous biodiversity and increased invasive species are changing ecosystem functions. As forest edge habitats are more prone to summer, damage from severe winds, and invasion by non-native flora and fauna. Increasingly fragmented and cleared land creates more forest edge communities, thus reducing the resilience and ability to fight invasive species. Invasive weeds introduced at forest edges have the potential to hinder the entire forest ecosystem if not controlled. Reduction of forest edge through regeneration of cleared land is a clear strategy for mitigating these environmental risks.

Annual harvest of non-wood forest products

While much of the non-wood forestry product's industry in New Zealand is related to hunting game, primarily possum. There is a small industry based on the use of Indigenous plant extracts for skincare and other medicinal purposes. Most of this industry is based on Māori traditional practice and Indigenous enterprise. There are several native plant species utilised in traditional Māori practice that are contributing to the current non-wood forest product industries, including:

- ▶ Karamū – The leaves of which are boiled down for an extract that is good for the urinary system.
- ▶ Koromiko – The leaf ends are boiled down as a tonic for dysentery and diarrhoea.
- ▶ Makomako/wineberry – The leaves make a tea that is soothing and cleansing for sore and dusty eyes.
- ▶ Mānuka/tea tree – Used to soothe burns (a sedative) and treat fevers and colds.

Elements from these plants have been collected for generations, usually small quantities of these extracts continue to be collected for the private use of individuals and families. However, the medicinal properties of these endemic plant species have attracted considerable interest over the past 20 years from both the research community, and the global health sector. As the demand for natural health and cosmetic products has increased, small Indigenous businesses are beginning to see more international interest. Māori have continued to be involved in several commercial ventures developed around natural supplements, antibacterial oils and health remedies. The New Zealand Forest management plan considers the collection of these plants for both industry and private use to maintain and preserve their availability for years to come.

Honey production is one of the long-standing uses of the forest estate. Maintaining nectar and pollen sources available within the forest is critical for building hive strength and increasing populations. New Zealand honey is also a global industry, with a number of monofloral honey types deriving from their forests, including Mānuka, rātā, rewarewa, and tāwari. Harvesting honey does have the potential to affect forest ecosystems in terms of availability of nectar and pollen for indigenous birds and insects. Limited research has been undertaken on this, and beekeepers and advised to use their own initiative.

SECTION FOUR –RESULTS

ON COUNTRY CONSULTATIONS

Current forestry industry approaches to forest management are based on a Western scientific knowledge base. For Noongar people, their understanding of the forest is based through culturally derived ways of knowing and being, which do not always align with scientific paradigms. The following discussion is not intended to be prescriptive, but as a guide to inform future engagement with Noongar people and values within the forestry industry. The results of the consultations have been organised thematically to bring together the threads of various conversations that occurred through yarning over the two days.

Use of the Forest

Throughout the consultation it was evident that the practical use of the forest and its resources is inextricably intertwined with the Noongar spiritual values of the forest. A spiritually healthy forest is one which functions in a way that supports the health of its plants, animals, and the Noongar people. The utilitarian use of plants and animals is intrinsically connected to Noongar custodianship of Country and Noongar spirituality.

The presence of kangaroos is an example of this. Kangaroos were a key resource for Noongar people and are a valued source of meat today. The ability for the kangaroos to live within the forest is dependent on a variety of factors, including certain plant species and grasses being present, there being enough space for kangaroos to move, with enough places for them to also shelter. Forests were actively managed by Noongar people to ensure that kangaroos had sufficient habitat. This included practices such as cultural burning and forest thinning. Kangaroos are also spiritually and culturally significant as totemic animals and/or are linked to the Ngitting or Dreaming. Therefore, a healthy kangaroo population can be an indicator of forest health.

Noongar identity and connection is drawn from the land (kadjan / kanya) and their totems dictate a holistic responsibility for animals, trees and places (borunga). The trees in the forest cannot be considered separately to their spiritual ecosystem - Courtesy of the South West Aboriginal Land and Sea Council and extended by Senior Noongar Custodians.

This concept can be usefully understood through the recognition that lots of bush tucker and bush medicine indicates good biodiversity. The inverse is of course also true. Accordingly, strong biodiversity provides good food, medicinal and other resources for Noongar people.

Healthy Forest

When assessing the spiritual and cultural health of the forest Phillip Ugle stated that ‘*the main thing that we look for is life*’. James Khan shared that ‘*we can tell you whether that piece of bush is lively or dead without experimenting*’.

The presence of certain plants and animals act as indicator species for the Noongar understanding of the health of a forest. An intimate local knowledge is required to understand how these indicators may vary between forest environments. Birds were highlighted as a key indicator group, allowing Noongar people to quickly assess whether that piece of forest had a ‘good atmosphere’ through bird noise and species. Echidnas and kangaroos were also highlighted as signs of a healthy forest. The

Elders observed evidence of echidnas in the Rees Block which were taken as an indicator of good forest health, along with very active ants; however, they cautioned that echidna digging can look very similar to that of wild pigs, which is not a good indicator.

Orchids were noted as a good indicator species. Mr Ugle cited orchids as good gauges for forest health at the Rees Block. During a separate consultation, Gail Wynne pointed to the spider orchids as important indicators of forest health. She said they generally grow where the bush is open with plenty of light. Ms Wynne used this as an example of why she advocates for thinned forest, to allow more light into the forest floor.

Many native orchids have unique associations with symbiotic fungi and pollinating insects and accordingly, are highly sensitive to changes in forest conditions (Brundrett & Tedersoo, 2018). If there are no orchids present where they once grew, this could indicate health issues with the mycorrhizal fungi. Orchids relationship with fungi can act as an indicator for the non-visible health of the ecosystem. Some of the orchids were traditionally eaten, particularly the tuber root systems.

Mr Ugle identified what he called 'bush potatoes' at the Rees Block. 'Djubak' or 'Kara' are Noongar names for orchids with an edible tuber. *Djubak* does not necessarily refer to a single species, the term refers to several orchids with edible tubers.² Mr Ugle specifically identified these edible orchids as an indicator of good forest health. He spoke about how these foods were traditionally harvested by Noongar women, particularly older women.

It's good to see stuff like this (Djubak or 'bush potato' referring to orchids with edible tuber). It's a very good sign because the tucker is coming back. - Phillip Ugle

Maintaining a healthy mix of jarrah and marri is seen as important indicator of forest health because of their different uses. Jarrah trees have a fungus that Noongar people eat. Whereas the fungus that grows on marri trees cannot be eaten. Marri trees; however, provide medicine for Noongar people.

Another plant species identified as important for forest biodiversity is snottygobble (*Persoonia longifolia*) which is a source of food and medicine for Noongar people. It's not only the presence of key plants like snottygobble in the forest that are important indicators for Noongars, but the behaviour of the plants. For example, Joe Northover noted that the Snottygobble plants in the Munro Block had already finished flowering in mid-December which is earlier than usual. Observations like this are part of the Noongar approach to reading Country.

The snottygobbles should still be flowering. – Joe Northover

Mr Ugle uses the crowns of the trees to assess forest health, stating that crowns with lots of seed and foliage are indicators of good health. Whereas brown canopies are an indicator of unhealthy bush. He observed the crowns of trees in the thinned section of the Rees Block which had ample seed and green foliage, in contrast to the unthinned bush only 100 m away, viewed on the same day

² <https://www.kooyarwongi.com.au/kambarang-always-arrives-with-a-bang/>

in the same landform, which had very few seeds in the canopy. He interpreted this as indicating that the thinned bush was healthier.

Ensuring that there are plenty of ‘old wrinkly trees’ in the forest is considered important for Noongar people because they are habitat trees for many animals such as possums and birds.

Another healthy forest indicator raised by Mr Ugle is ants thriving 2-3 years after a burn.

Fire

For Noongar people, the use of fire is a cultural practice. Smoke and fire are intrinsic parts of their forestry practices and an integral part of Caring for Country. There was a consensus with the Traditional Owners that the use of fire has been historically mismanaged by non-Indigenous forestry management-controlled burns (CALM or DBCA). The group spoke about the traditional use of fire to manage forest ecosystems. Culturally there are a range of rules that are applied to the use of fire and land management which are adapted to the local context. The use of fire varies depending on the local ecosystem.

I'd like to see burning, Aboriginal way through here. – Gail Wynne

Some fundamental tenets of Noongar burning practices that were raised during this consultation are outlined here and discussed in further detail below:

1. **Little and often** - Noongar burns were done regularly (every 2-3 years) using a patchwork mosaic to burn small sections of bush rather than large areas.
2. **Burning seasonally** – Noongars burnt according to the six seasons. Burning would only happen during the cooler seasons, when there is heavy dew at night and in the mornings to help control the extent of the burn and the heat of the burn. It is important to note that the six seasons do not run according to specific dates like a western calendar, but instead are based on subtle changes in the behaviour of plants and animals that can be observed in the bush. Burning according to the six seasons requires knowledgeable Noongar people to ‘read’ the signs of seasonal changes in the bush.
3. **Labour intensive** - Traditional burning practices require lots of people to manage the fire, not only to keep it from spreading into the wrong areas, but to continually relight the fire and keep it burning. If the fire is able to burn through a large area of bush without the need for continual relighting, then it is likely that the burn is being conducted during the wrong conditions (ie. bush is too dry, weather is too hot) and this will result in the fire burning too hot, which in turn has negative implications for biodiversity and overall forest health.

Regularity is an important tenet of Noongar burning practices. The Noongars suggest that burns should occur about every 2-3 years, in a patchwork mosaic, this ensures the health of the forest and promotes a productive environment for Noongar people to utilise:

It's an ongoing job. Old Noongars used to maintain them [forests] constantly [through regular use of fire]. Gail Wynne

That's how we utilise the bush to help us. – Phillip Ugle Snr.

Burning according to the six seasons is critical for Noongar burning practices. James Khan shared that they would burn in spring *'when there is dew at night and dew in the morning'*. Phillip Ugle added that *'Burning off in spring reduces the smoke from the burn. You don't burn off at the end of the summer, burns too hot and too much smoke'*. He stated that they would schedule a couple of years between burns. *'Just like marron in a river, you didn't let people clean it out. You leave it and came back to that part of the river later...the year after burning it, it becomes a good hunting place'*. Mr Ugle made the point that the six seasons can only be observed in the bush because it is based on observations of plant and animal behaviour. For example, the timing of certain species going into flower, or the behaviour of certain insects in response to subtle climatic shifts in season.

A critical point that was raised about burning regimes is that an effective burn is unavoidably labour intensive because it requires people to be actively involved in keeping the fire alight as well as dampening it by hand. Traditional burns were undertaken by large family groups. People were barefoot and used branches of green foliage to dampen fire fronts and maintain control. They were also continually engaged in relighting sections to keep it burning. This is due to the timing of the burn during early spring when there was enough moisture to control the fire.

The Noongar participants of this assessment made it clear that if a fire can burn through a large section of bush without people aiding it through relighting, then it will burn too hot and be ineffective. They stated that if the fire burns too hot, then it will burn too much seed and the bush will ultimately be worse off. The key point is that prescribed burns should be labour intensive, but it is ultimately worth it for the results. As Mr Ugle described it:

We are putting more work on these people [forestry industry], but it will be worth it in the end because it will be a better result. - Phillip Ugle Snr.

It's not for ourselves, it's for the land. - Phillip Ugle Snr.

Smoke plays an important role in spiritual and cultural life of Noongar people and can often have a ceremonial purpose. Mr Khan shared that *'smoke cleanses us. Stops you being tormented'*, referring to smoking ceremonies that cleanse people and places of bad spirits. The difficulty for Noongar Elders to access wood for cultural, social and spiritual purposes was raised, with land access issues at the forefront of the discussion. The group agree that the fuel load in forests around Collie is too high. Mr Ugle suggested that they *'get local people to go in and cut it all up before you burn, because it burns too quick'*. Allowing Noongar people to collect wood was viewed as a win-win situation, dually strengthening cultural practices and reducing the fuel load in forests.

Smoke Cleanses us. Stops you being tormented [by spirits]. – James Khan

If I had access to these areas, I would clean up the fallen logs for firewood. Keeps the fuel load down. – Phillip Ugle Snr

Spirituality

Aboriginal people are very spiritual and this land is very spiritual. [...] In Aboriginal culture, there is a spirit in everything. The wind, the ground, the trees. And we listen to it. – Gail Wynne

I feel it [spiritual health]. Then I talk to them [spirits] and I listen to them on the wind. – Joe Northover

The on-Country discussions in this project demonstrated that Noongar spirituality is embedded within all aspects of the natural world. The spirits are present in Country regardless of the presence of Noongar people. However, interpreting the state of the spirits at any given time and place, requires the presence of Noongar people to interpret the signs provided by spirits. This is the practice of listening to Country.

When you hear all those birds and the kangaroos, the wirrin (spirits) is strong, is good. – Joe Northover

Noongars listen to the birds and the wind, voices of spirits. – Phillip Ugle Snr.

Noongar spirituality is not static. It is based on ongoing interactions between Noongar people and the spirit world. In some cases, the spirits communicate specific information to Noongar people.

For every action, there is a reaction. Listen to the Chitty Chitty (Willy Wagtail). Spirits talking. – Joe Northover

We know when death comes. A certain bird will tell us. We wait for the phone to ring then. Bad news. – Phillip Ugle Snr.

When we see certain totem animals, we know that there is news about that side of the family. – Joe Northover

Directives for the maintenance of spiritual health in the forest is difficult to articulate in a written document and the Elders were reticent to provide any prescriptive advice in this matter. However,

broadly speaking, the health of the bush is integral to spiritual health. The ongoing interactions between Noongar people and the spirits also underpin spiritual health in the forest, although this concept is not clear-cut and should not be seen as prescriptive. That is, the presence of Noongar people in a particular area of forest does not guarantee spiritual health. Similarly, healthy forest does not guarantee spiritual health. The intersections of forest health, Noongar presence on Country and the spiritual health of the forest are dynamic, nuanced and complex. While there are salient aspects to Noongar spirituality, there are also different traditions and beliefs between individuals and families and a 'one size fits all' approach is not appropriate.

We don't give it [spirituality], they [the spirits] give it to us. Its not [based on] whether we [Noongar people] are here or not. – Joe Northover

For it [forest] to be spiritually healthy, it needs to be all cleaned up [well maintained, thinned and burnt]. And we need Noongars back on Country. – Gail Wynne

Aboriginal people need to be back on Country because there is something between Aboriginal people and the bush. Because their spirit is connected to the bush. – Gail Wynne

For many Noongar people, practising spirituality in the forest is directly related to personal wellbeing and in many cases, healing.

When I'm sick, I come back here [the forest]. This is where I get better. – Joe Northover

A key point about Noongar spirituality for this report is that it requires Noongar people to be on Country in order to listen to Country.

Biodiversity

The mechanically thinned areas of forest were seen by the group to have a greater diversity of flora. The thinning of trees and removal of wood meant that sunlight is able to filter down to the lower levels of the forest. The group agreed that in their view the thinned areas were healthier forest.

The group spoke about mining revegetation that had occurred in the forests near Collie, which had resulted in what they see as unhealthy forest. Mr Ugle spoke about the jarrah and redgum trees clumping together in the rehabilitated areas. He also shared that the 'clumped together' plants are competing against one another and are not allowing space for the small vegetation to grow, reducing biodiversity. This 'clumping' can be seen as a result of the plants being in one growth stage, rather than a diversity of ages found within a natural forest environment. The revegetated areas were seen to have reduced species and structural diversity, which would affect the resilience of the forest to adverse environmental events. Mr Ugle stated that the reforestation attempts also meant that the 'clumped together' trees 'will burn at a red hot heat'. The more intense the fire, the more likely that it will result in the destruction of forests and out of control bush fires.

Forest Products from Thinning

The Noongar elders highlighted their desire for the products of forest thinning to be utilised for the community. Two key products they suggested is 1) firewood collected from felled logs to reduce fuel load, and 2) mulch to be used on gardens etcetera.

Better to use the timber than to leave it to rot. – Gail Wynne

Non-wood forest products

For the Traditional Owners, timber is just one resource that is available within forests. The group shared intimate knowledge about the medicinal uses of a variety of flora. They spoke about the use of Indigenous plant knowledge to make modern products, using a gin that is made with a native onion as an example. They viewed their Indigenous Knowledge (IK) of flora as sacred. They shared concerns about the appropriation of their IK for commercial gain and wanted to ensure that they retained intellectual property rights.

Cultural Sites

During the consultation it was noted that cultural heritage sites can be located throughout the forests on Noongar boodjar. The location of cultural heritage may not be known, and it was therefore noted as important that the forestry industry work together with Local Traditional Owners to identify and protect heritage sites.

Waterways

Waterways form vital elements of the cultural landscape for Noongar people. Traditionally waterways would have been used as a source of key food and water resources and as movement corridors or *bidi's*. The *kaip* 'water' and *bilya* 'rivers' of the South-West Coast drainage basin are fundamental to the economic, social, and spiritual lives of Noongar people (note; *kaip* and *bilya* may differ slightly between dialect groups, but essentially these are the Noongar words for water and river). The rivers formed movement corridors and resource-rich landscape features integral to Noongar economy. During the consultations the group discussed the degradation of the waterways through their Country. Phil Ugle spoke about the loss of marron in recent years, which indicated that the general health of the *bilyas* were suffering.

Access

For Noongars, an important factor in maintaining forest health, is access for Noongar people. Fences are an obvious impediment to Noongar people accessing forest. The Noongars see fences as negatively impacting healthy forest ecosystems. The breaking up of forests into private leases and landholdings has worked to alienate Noongar people from their Country, with access protocols and land owner obligations often overly bureaucratic and inflexible.

Forest Treatments

The group were very clear that they see 'thinned' bush as healthier than unthinned. There were several reasons for this.

Firstly, thinned bush burns slowly, which is considered a good thing by Noongar people. Whereas unthinned bush burns very hot, which Noongars believe is not conducive to healthy forests. Phillip Ugle described thinned bush as "clean" because it slows the fires down.

Thinning is good for us. For hunting and for camping. – Joe Northover

Secondly, Noongars favour thinned bush for hunting. They explained that they cannot hunt at all in unthinned bush. The men described the process for hunting which is conducted in much the same way today as it was done traditionally but using guns instead of spears. Hunting is conducted in groups. The young men walk through the bush with the wind at their backs to ‘flush’ the kangaroos out. Meanwhile the old men wait downwind ready to shoot them when they come through the bush. This technique requires thinned forest where people can move freely and the animals are clearly visible.

The Noongar participants stated that thinned bush (like that observed close to powerlines) is similar to “the old way” because it has been thinned. They made it clear that traditional Noongar forest management used thinning techniques to manage bush, mainly through the use of fire. As a counter example, they cited areas of rehabilitated forest after mining in which the trees are too thick. When a fire goes through it burns too hot and “kills everything”, severely impacting biodiversity.

Mr Ugle is comfortable with the use of herbicides such as glyphosates to control regrowth, provided that they do not get into the waterways.

Noongar Work Crews

The Noongar participants were very keen that Noongar work crews be engaged to undertake forest management. The model that they put forward is to have Elders groups together with young people at a ratio of about one Elder to every five young people. This would ensure strong cultural leadership among the works crews and would maintain transmission of knowledge across generations. The importance of effective supervisors for the works groups was highlighted as critical to their success. This role may be fulfilled by an Elder or may be a separate individual. It would also be beneficial to have an experienced forester on the team. The group recommend a strong emphasis on practical and on-ground training, as opposed to theoretical, classroom based training.

With Noongar workers you gotta train them on Country. – Natasha Ugle

The recommended approach is to use Noongar land management techniques that are based on providing for people, while caring for Country. In Noongar culture, the two goals are inter-related. For example, the Noongars propose controlling the numbers of kangaroos and feral animals by engaging Noongar work crews to hunt them and distribute the meat to community. Similarly, they advocate for controlling fuel loads by collecting firewood to distribute to community and mulching regrowth, also to distribute to community.

Furthermore, the group advocate for Noongar work crews harvesting niche forest products (such as tea tree oil and boronia oil) for commercial production. A focus of the Noongar approach would be on monitoring, maintaining and promoting the populations of these species within the forest.

Figure 2. Photographs taken of discussions held during the on-Country assessments



FOREST ASSESSMENTS

Rees Block (Collie)

Summary of the assessment outcomes for thinned, thinned and burnt, and un-thinned forests in the Collie area, used to determine if there is consistency in responses to forest condition.

Table 3. Assessment of different forest treatments in the Rees Block (Collie)

Type of Treatment	Trees / Hectare	Basal area / Hectare (m ² /ha)	Average Diameter (cm)	Result of Noongar Forest Health Assessment	Reasons for Assessment Result
Thinned & burnt	240	14.7	35.3	Excellent	<ul style="list-style-type: none"> • Range and variety of flora, especially on the ground level. • Better light levels through the canopy. • Lower fuel load-lower susceptibility to 'out of control' fire. • Habitat for animals and movement space. • High Biodiversity. • Very useable for people.
Un-thinned	917	25.8	20.3	Poor	<ul style="list-style-type: none"> • High fuel load (fire risk). • High percentage of ground cover/leaf litter (reduces biodiversity and fauna habitat). • Dominant tree species-reduced biodiversity. • Inability for people to use the forest due to density of vegetation.

Thinned and Burnt

The Traditional Owners agreed that the mechanically thinned and burnt forest was more aligned with their understanding of a spiritually and ecologically healthy forest. The reasons provided included:

- ▶ Range and variety of flora, especially on the ground level.
- ▶ Better light levels through the canopy.
- ▶ Lower fuel load-lower susceptibility to 'out of control' fire.
- ▶ Habitat for animals and movement space.
- ▶ Very useable for people

Un-thinned and Un-burnt

- ▶ High fuel load (fire risk)
- ▶ High percentage of ground cover/leaf litter (reduces biodiversity and fauna habitat)
- ▶ Dominant tree species-reduced biodiversity
- ▶ Inability for people to use the forest due to density of vegetation.

Munro Block (Kirup)

This section provides the results of the Noongar participants assessments of the different forest treatments in the forest demonstration site along the Kirup Ecological Thinning Demonstration Site.

Table 4. Assessment of different forest treatments in the Munro Block (Kirup)

Forest Cell Number	Type of Treatment	Result of Noongar Forest Health Assessment	Reasons for Assessment Result
Cell 1	No treatment	Poor	<ul style="list-style-type: none"> • Too thick. • High fuel load. • High percentage of ground cover/leaf litter (reduces biodiversity and fauna habitat). • Inability for people to use the forest due to density of vegetation.
Cell 2	Log sections cut to length, leaving bark and tops. Spray resprouts in year 2.	Very poor	<ul style="list-style-type: none"> • High fuel load. • Messy. • Inability for people to use the forest. • Unhappy forest
Cell 3	Whole tree removal with concurrent chemical application to stumps.	Excellent	<ul style="list-style-type: none"> • Low fuel load • High forest canopy • Easy movement for animals • Very useable for people
Cell 4	Trees felled and retained intact on site, no stump treatment.	Very poor	<ul style="list-style-type: none"> • High fuel load. • Saplings drinking too much water.
Cell 5	Manual thinning: notching and ringbarking.	Good (but not quite as good as cell 3)	<ul style="list-style-type: none"> • Low fuel load • High forest canopy • Easy movement for animals • Useable for people

Figure 3. Top: Thinned forest; Middle: Unthinned forest; Bottom: Phillip Winmar examining ants nest



NOONGAR FOREST STANDARDS AND INDICATORS

Suggested Noongar Standards and indicators that align with internationally recognised certification scheme standard to benchmark the forestry industry against cultural values.

Table 5. Noongar forest standards and indicators

Noongar Standards	Noongar Indicators	Relevant Montreal indicators
<p>Forest is suitable for use by Noongar people practicing cultural activities.</p>	<ul style="list-style-type: none"> • Tree density and understory is open enough for people to easily move through the forest*. • Understory is open enough* to hunt kangaroos and other game. • Understory is open enough* to find and collect bush resources (such as plant foods and medicine). • Forest has healthy populations of fauna to hunt (eg. kangaroos). • Forest has adequate floristic biodiversity to support Noongar foraging. • Forest has roughly equal mix of jarrah and marri species. • Forest is open enough* to accommodate people camping. • Forest is accessible to Noongar people (without fences, trespassing restrictions etc). <p>* Example of appropriate density is 240 trees/Hectare and basal area of 14,7m²/Hectare</p>	<p>Indicator 6.4.d – The importance of forests to people.</p> <p><i>This indicator relates to the range of attitudinal values that communities and individuals place on their forests. The importance of forests to society is exemplified through the value that people place on biodiversity, clean air and water, social equity or simply the knowledge that Australia’s forests exist.</i></p>
<p>Forest is maintained to a standard that supports Noongar forest health indicators.</p>	<ul style="list-style-type: none"> • Active bird populations. • Presence of orchids. • Active ant populations. • Active echidna populations. • Active kangaroo populations. • Healthy mix of jarrah and marri trees. • Crowns of trees have lots of foliage and seeds (during season). • Suitable numbers of ‘old wrinkly trees’ (habitat trees for nesting animals). 	<p>Indicator 1.2.b – the status of forest dwelling species at risk of not maintaining viable breeding populations, as determined by legislation or scientific assessment.</p> <p><i>This indicator observes the conservation status of nationally listed threatened forest dwelling species. Documentation over time allows changes to species conservation status indicating the extent to which forest species biodiversity is being maintained.</i></p> <p>Indicator 1.3.a – Forest associated species at risk from isolation and loss of genetic variation, and conservation efforts for those species.</p> <p><i>This indicator assesses risks to loss of forest genetic variation and formal measures designed to mitigate this risk. A loss of genetic diversity in species can result in a decreased ability to adapt to future environmental change, and thus higher risk of extinction.</i></p>

Noongar Standards	Noongar Indicators	Relevant Montreal indicators
<p>Fire is managed through Noongar traditional Burning Practices.</p>	<ul style="list-style-type: none"> • Prescribed burning is conducted according to six seasons. • Prescribed burning is conducted during cool months when there is heavy dew overnight*. • Prescribed burning is labour intensive and requires regular relighting to keep alight. • Prescribed burning is conducted every 2-3 years in small areas and patchwork mosaic. • Low Fuel load allowing for cool burns. • Low fuel load provides ability to slow down out of control bushfires. <p>* This cool weather approach was put forward by Noongar participants of this assessment in the Collie area. However, there is also documented evidence from other regions of traditional burning practices at other times of the year.</p>	<p>Indicator 3.1.a – scale and impact of agents and processes affecting forest health and vitality.</p> <p><i>This indicator identifies the scale and impact on forest health of a variety of processes and agents, both natural and human-induced. Through the regular collection of this information, significant changes to the health and vitality of forest ecosystems can be monitored and measured.</i></p> <p>Indicator 3.1.b – Area of forest burnt by planned and unplanned fire.</p> <p><i>This indicator provides an understanding of the impact of fire on forests through the reporting of planned and unplanned fire. Fire is an important part of many forest ecosystems in Australia and may have either a positive or negative impact of forest health and vitality.</i></p>
<p>Forest is kept spiritually active by maintaining forest health and supporting Noongar people to spend time on Country.</p>	<ul style="list-style-type: none"> • Noongar people are on Country regularly. • Noongar people spend time actively listening to Country. • Noongar people are leaders in managing Country. • Noongar people are actively involved in caring for Country. • Noongar people are empowered to provide leadership over spiritual matters in the forest. • Noongar people are empowered to start businesses that embed traditional practices in forestry 	<p>Indicator 6.4.a – area of forests to which Indigenous people have use and rights that protect their special values and are recognised through formal and informal management regimes.</p> <p><i>This indicator measures the degree to which land is placed under appropriate tenure classification or management regimes to protect Indigenous peoples' values in forests. An acceptable level of accountability for the protection of Indigenous peoples' cultural, religious, social, and spiritual needs and values is an essential part of forest management.</i></p> <p>Indicator 6.4.c – The extent to which Indigenous values are protected, maintained and enhanced through Indigenous participation in forest management.</p> <p><i>This indicator measures the extent to which Indigenous people participate in forest management. Active participation in forest management reflects the relationship between people and the land, and the integration of Indigenous peoples values with forest management practice, policy and decision making.</i></p>
<p>Forest biodiversity is monitored and maintained through Noongar people engaging in hunting, gathering, foraging and practicing traditional burning techniques.</p>	<ul style="list-style-type: none"> • A wide variety of animals are available and plentiful for Noongar people to hunt. • A wide variety of plant food and medicine species are available 	<p>Indicator 1.1.a – area of forest-by-forest type and tenure.</p> <p><i>This indicator tracks forest by forest type over time as a broad measure of the extent to which forest ecosystems and their diversity are being maintained. Aids</i></p>

Noongar Standards	Noongar Indicators	Relevant Montreal indicators
	<p>and plentiful for Noongar people to gather.</p> <ul style="list-style-type: none"> • Forest is thinned adequately to allow diverse understory and easy movement of large animals (eg. kangaroos). • Marri and jarrah trees are both prevalent throughout the forest. 	<p><i>understanding of how different land management regimes may impact on forest biodiversity.</i></p> <p>Indicator 1.3.a – Forest associated species at risk from isolation and loss of genetic variation, and conservation efforts for those species.</p> <p><i>This indicator assesses risks to loss of forest genetic variation and formal measures designed to mitigate this risk. A loss of genetic diversity in species can result in a decreased ability to adapt to future environmental change, and thus higher risk of extinction.</i></p> <p>Indicator 1.1.d – fragmentation of forest cover.</p> <p><i>This indicator measures the loss of forest cover and the spatial configuration of that loss. Fragmentation can impact on forest dwelling species and gene pools through changes in the connectivity of populations and the loss of species genetic variability.</i></p> <p>Indicator 1.2.a – forest dwelling species for which ecological information is available.</p> <p><i>This indicator measures the level of information available to manage forest dwelling species and track changes in this knowledge over time. The amount of habitat, disturbance and life history information available to make management decision indicated the capacity to assess risk to species and to implement conservation strategies.</i></p> <p>Indicator 1.2.c – Representative species from a range of habitats monitored at scales relevant to regional forest management.</p> <p><i>This indicator provides broad habitat, population, and range information for representative forest dwelling flora and fauna. Evidence of changing ranges or densities of forest dwelling species can be used to guide forest management activities so that they are consistent with maintenance of forest biodiversity.</i></p>
<p>Actions to maintain forest health are aligned with needs of local community to minimize waste of energy and forest products.</p>	<ul style="list-style-type: none"> • Forest thinning and fuel reduction activities provide firewood for local communities. • Forest thinning and fuel reduction activities provide mulch for local communities. • Noongar people are engaged in for profit pursuits to utilize forest products (eg. tee tree oil, boronia oil). • Economic development? 	<p>Indicator 1.1.b Area of forest by growth stage.</p> <p><i>This indicator manages changes in area of forest by growth stage to reflect how ecological processes and species associated with those processes change as forests grow. Age and size of trees is important in maintaining forest biodiversity.</i></p> <p>Indicator 1.1.c – Area of forest in protected area categories.</p> <p><i>This indicator measures area and proportion of forest ecosystems reserved through formal and informal processes as a measure of the emphasis placed by society on the preservation of representative ecosystems as a strategy to conserve biodiversity.</i></p>

Noongar Standards	Noongar Indicators	Relevant Montreal indicators
<p>Cultural Sites are protected from damage and regularly maintained by Noongar people.</p>	<ul style="list-style-type: none"> • Noongar people are professionally engaged to maintain cultural places within the forest. • Noongar people are leaders in the protection of cultural places from damage. • Noongar people are empowered and supported to regularly visit cultural places in the forest. 	<p>Indicator 3.1.a – scale and impact of agents and processes affecting forest health and vitality.</p> <p><i>This indicator identifies the scale and impact on forest health of a variety of processes and agents, both natural and human-induced. Through the regular collection of this information, significant changes to the health and vitality of forest ecosystems can be monitored and measured.</i></p> <p>Indicator 6.4.a – area of forests to which Indigenous people have use and rights that protect their special values and are recognised through formal and informal management regimes.</p> <p><i>This indicator measures the degree to which land is placed under appropriate tenure classification or management regimes to protect Indigenous peoples’ values in forests. An acceptable level of accountability for the protection of Indigenous peoples’ cultural, religious, social, and spiritual needs and values is an essential part of forest management.</i></p> <p>Indicator 6.4.c – The extent to which Indigenous values are protected, maintained and enhanced through Indigenous participation in forest management.</p> <p><i>This indicator measures the extent to which Indigenous people participate in forest management. Active participation in forest management reflects the relationship between people and the land, and the integration of Indigenous peoples values with forest management practice, policy and decision making.</i></p>
<p>Waterways are healthy enough to support the needs of plants, animals and people.</p>	<ul style="list-style-type: none"> • Freshwater sources are healthy enough for people to drink. • Water sources are clean enough for people to swim in. • Freshwater sources support healthy marron populations for Noongars to hunt. • Forest thinning may be useful in promoting water flow into freshwater sources 	<p>Indicator 4.1.a – Area of forest land managed primarily for protective functions.</p> <p><i>This indicator dictates that priority is given to protecting soil and hydrological functions providing an indication of the emphasis being placed by society on the conservation of these values. Includes some areas managed to protect soil and water by excluding incompatible activities.</i></p> <p>Indicator 4.1.d – Management of the risks to water quantity from forests.</p> <p><i>This indicator measures the extent to which the risk to water quantity has been explicitly identified and addressed in forest management. Water quantity is important for ecosystem health and water supply for human use.</i></p>

Noongar Standards	Noongar Indicators	Relevant Montreal indicators
		<p>Indicator 4.1.e – Management of the risks to water quality in forests.</p> <p><i>This indicator measures the extent to which the risk to water quality has been explicitly identified and addressed in forest management. Water quality is important for forest ecosystem health and water supply for human use.</i></p>
Noongar people have access to forests to practice cultural activities and care for Country.	<ul style="list-style-type: none"> • Fences around forests are minimized. • Keys are available for Noongar people to access locked gates. • Land managers encourage Noongar people to access forests for cultural activities. 	<p>Indicator 6.4.a – area of forests to which Indigenous people have use and rights that protect their special values and are recognised through formal and informal management regimes.</p> <p><i>This indicator measures the degree to which land is placed under appropriate tenure classification or management regimes to protect Indigenous peoples' values in forests. An acceptable level of accountability for the protection of Indigenous peoples' cultural, religious, social, and spiritual needs and values is an essential part of forest management.</i></p>
Teams of local Noongar people are employed under the leadership of Elders to actively manage the ecological and spiritual health of forests for commercial gain and for the direct benefit of local communities.	<ul style="list-style-type: none"> • Noongar cultural governance structures are used to oversee Noongar workers. • Noongar work teams are comprised of appropriate ratios of Elders and younger people. • Noongar workers are trained on Country with practical and hands-on training methods. 	<p>Indicator 6.4.c – The extent to which Indigenous values are protected, maintained and enhanced through Indigenous participation in forest management.</p> <p><i>This indicator measures the extent to which Indigenous people participate in forest management. Active participation in forest management reflects the relationship between people and the land, and the integration of Indigenous peoples values with forest management practice, policy and decision making.</i></p>

A MODEL FOR ACTIVE NOONGAR FOREST MANAGEMENT IN THE COLLIE REGION

In the course of the two day on-Country consultation, the Noongar participants outlined a model for how they see Noongar standards for Forest Management being delivered in the Collie region. The model is based on Noongar work crews being employed to actively manage the forest.

Vision

Teams of local Noongar people are employed under the leadership of Elders to actively manage the ecological and spiritual health of forests for commercial gain and for the direct benefit of local communities.

Cultural Leadership

The teams comprise a mix of Elders with younger fit and able individuals at a ratio of approximately one Elder to every five younger people. This mix of personnel ensures that cultural leadership and appropriate traditional knowledge are embedded in the on-Country work teams. Spiritual health of Country is inherently addressed in the daily work flow. Elders provide leadership to help motivate and support team members to achieve good results.

A Circle of Elders meet periodically to provide strategic direction for the work teams. Elders are also engaged in the recruitment process to ensure that cultural considerations are taken into account when the teams are being put together.

Commercial Gain

The model needs to be commercially viable to be sustainable. This will require the works teams to integrate with the commercial goals and practices of the forestry industry. At the same time, the forestry industry needs to integrate its operations with Noongar values and practices through two-way knowledge exchange and working together. The model will also need to develop new avenues for commercial gain.

Community Benefits

Fundamental to the proposed Noongar model for forest management is linking forest products to the needs of local communities. Examples of this have been included in the results section of this report, such as reducing fuel loads at the same time as providing firewood and mulch for local communities. Or controlling populations of kangaroos and feral species such as pigs, through hunting programs that use the meat and animal products for local communities and/or commercial gain, rather than pure culling programs. Collection of bush tucker and bush medicine species to distribute to local Noongar families, can be used as a method for monitoring and evaluation of biodiversity and ecological health.

Figure 4. Survey team in the Munro Block



Conclusions

An unavoidable core tenet of Djarlma in practice, which was borne out of the background research and fieldwork results, is the critical importance of *listening to Country*. This concept is one that is often difficult for Western scientific approaches to integrate because it relies on the theoretical tenets of the *more-than-human* approach to understanding the ever-present interactions between people, plants, animals, weather, rocks, water, spirits and the all-encompassing Aboriginal concept of Country. In this conception, Country is a sentient being that can be talked to and can itself communicate and feel.

Where the Western approach of developing a series of standards and indicators to assess forest health has some utility for Djarlma concepts, it falls short of the dynamic Aboriginal approach of *listening to Country*. This is not to say that there is no utility in trying to integrate the two approaches by developing indicators and standards for forest management based on Aboriginal perspectives. **There are indeed several correlations between measurable forest attributes within the Aboriginal and Western perspectives.** Furthermore, this research indicates that there is strong consistency in the response between individual Noongar participants to various indicators of forest health. This consistency makes it easier to develop Noongar standards and indicators for healthy forests. However, the ultimate goal of maintaining healthy forests based on Djarlma concepts, cannot be realised without the active and ongoing engagement of Noongar people in forest management.

This key finding presents an opportunity for the forestry industry to achieve the aims of the Djarlma Plan through the active and ongoing engagement of Aboriginal people in forest management. The results of on-Country consultations outline a model for this engagement in the Collie region through Noongar work teams. The model outlines a culturally defined process for integrating traditional knowledge into on ground works programs. **Critical to this model is a cultural governance system that brings Noongar Elders and younger generations together on Country.** The model could be particularly effective if the teams also integrate experienced forestry Elders to also impart some of their knowledge to younger generations. This would entail two-way knowledge exchanges between Noongar knowledge and forestry knowledge. The model presents an opportunity to trial a wholistic approach that aims to integrate the ecological, spiritual, and commercial relationships between people and Country to achieve new thinking and better outcomes for the forestry industry and local communities.

SECTION FIVE – ADVICE & RECOMMENDATIONS

There is a single recommendation as a result of this report:

1. It is recommended that South West Timber Hub and their project partners seek to implement the tenets of the Djarlma Plan in the Collie region, through the active and ongoing professional engagement of local Noongar work teams in forest management. A model for undertaking this recommendation is provided in this report.

REFERENCES

- Brundrett, M., & Tedersoo, L. (2018). *The Root Causes of Plant Diversity Hotspots in Western Australia*. New Phytologist.
- Country, B., Suchet-Pearson, S., Wright, S., Lloyd, K., Tofa, M., Sweeney, J., Burarrwanga, L., Ganambarr, R., Ganambarr-Stubbs, M., Ganambarr, B., & Maymuru, D. (2019). Engaging response-abilities as situated co-becoming. *Environment and Planning D: Society and Space* 37(4), 682–702, 37(4), 682–702.
- Department of Agriculture, F. and F. (2008). *Australia's Sustainable Forest Management Framework of Criteria and Indicators 2008*.
- Department of Parks and Wildlife. (2014). *Silviculture Guideline for Jarrah Forest. Sustainable Forest Management Series, FEM Guideline 1*.
- Djaara Balaki Wuka. (2022). *Galk-galk Dhelkunya: Forest Gardening Strategy 2022 - 2034*.
- Federal Court of Australia. (2006). *Bennell v State of Western Australia*. FCA 1243.
- Joint Standing Committee on Northern Australia. (2021). *AWayForward*.
- Kelly, G. (1999). Karla Wongi: Fire Talk. *Landscape*, 14(2), 48–53.
- Kemp, D., & Owen, J. R. (2014). Free prior and informed consent', social complexity and the mining industry: Establishing a knowledge base. *Resources Policy*, 91–100.
- Kennedy, M., Maddox, R., Booth, K., Maidment, S., Chamberlain, C., & Bessarab, D. (2022). Decolonising qualitative research with respectful, reciprocal, and responsible research practice: a narrative review of the application of Yarning method in qualitative Aboriginal and Torres Strait Islander health research. In *International Journal for Equity in Health* (Vol. 21, Issue 1). BioMed Central Ltd. <https://doi.org/10.1186/s12939-022-01738-w>
- Lullfitz, A., Pettersen, C., Reynolds, R. (Doc), Eades, A., Dean, A., Knapp, L., Woods, E., Woods, T., Eades, E., Yorkshire-Selby, G., Woods, S., Dortch, J., Guilfoyle, D., & Hopper, S. D. (2021). The Noongar of south-western Australia: a case study of long-term biodiversity conservation in a matrix of old and young landscapes. *Biological Journal of the Linnean Society*, 133, 432–448.
- McCabe, T. (1998). *Noongar Views on Logging Old Growth Forests*.
- Nimmo, R. (2011). Methodological Innovations Online (2011) 6(3) 108-119 Correspondence: School of Social Sciences, University of Manchester, Oxford Road, Manchester, M13 9PL. Richie.Nimmo@manchester.ac.uk ISSN: 1748-0612 online DOI: 10.4256/mio.2011.010 Actor-network theory and methodology: social research in a more-than-human world. *Methodological Innovations Online*, 6(3), 108–119.
- Parliament of the Commonwealth of Australia. (2021). *A Way Forward: Final report into destruction of Indigenous heritage sites at Juukan Gorge*.
- Saunders, D., & Ingram, J. (1995). *Birds of southwestern Australia: an atlas of changes in distribution and abundance of the Wheatbelt fauna*. Chipping Norton: Surrey Beatty.
- Tonkinson, R. (1966). *Social structure and acculturation of Aborigines in the Western Desert*. University of Western Australia.

- United Nations. (2008). *United Nations Declaration on the Rights of Indigenous Peoples*. United Nations.
- Wooltorton, S., Collard, L., Horwitz, P., Poelina, A., & Palmer, D. (2020). Sharing a place-based indigenous methodology and learnings. *Environmental Education Research*, 26(7), 917–934. <https://doi.org/10.1080/13504622.2020.1773407>
- Wright, S., Lloyd, K., Suchet-Pearson, S., Burarrwanga, L., Tofa, M., & Country, B. (2012). Telling stories in, through and with Country: engaging with Indigenous and more-than-human methodologies at Bawaka, NE Australia. *Journal of Cultural Geography*, 29(1), 39–60.

APPENDIX ONE – LEGISLATION AND GUIDING DOCUMENTS

LEGISLATION

Legislation and Guiding Principles

The following section summarises the relevant legislation and guiding principles that may relate to the project.

WA Aboriginal Heritage Acts

The *Aboriginal Cultural Heritage Bill 2021* passed Western Australia’s State Parliament and received Royal Assent on 22 December 2021, effectively giving Western Australia new Aboriginal heritage legislation, the *Aboriginal Cultural Heritage Act 2021* (ACH Act). The ACH Act will replace the *Aboriginal Heritage Act 1972* (the AHA), but before the ACH Act comes into operation there will be a transitional period during which the regulations, statutory guidelines and operational policies will be developed to ensure the ACH Act will have its intended effects. The transitional period will allow for the new Aboriginal cultural heritage management system to be fully established and to enable parties to prepare for the new system. According to the DPLH website³, the new Act will come into effect after June 2023 and after this time, no section 18 applications will be accepted; however, the ACMC will continue to meet after June (until 12 December 2023) to complete the applications received prior to July 2023.

In terms of broader recognition of Aboriginal rights, the Commonwealth *Native Title Act 1993* (the NTA) recognises the traditional rights and interests to land and waters of Aboriginal and Torres Strait Islander people. Under the NTA, native title claimants can make an application to the Federal Court to have their native title recognised by Australian law. The NTA was extensively amended in 1998, with further amendments occurring in 2007, and again in 2009. Under the future act provisions of the *Native Title Act 1993*, native title holders and registered native title claimants are entitled to certain procedural rights, including a right to be notified of the proposed future act, or a right to object to the act, the opportunity to comment, the right to be consulted, the right to negotiate or the same rights as an ordinary title holder (freeholder).

The Burra Charter

The Burra Charter (Australia ICOMOS Charter for Places of Cultural Significance) is the foundation stone document for conserving Australia’s cultural heritage. The Charter encapsulates two important aspects in conserving heritage places. First, it establishes the best practice principles and processes for understanding and assessing a place’s significance, as well as developing and implementing a conservation plan. Second, the Charter defines and explains the four primary cultural values that may be ascribed to any place: aesthetic, historic, social or spiritual and scientific. These values are essential as they delineate the types and quality of information needed to accurately determine a heritage place’s significance.

CORPORATE SOCIAL RESPONSIBILITY

Aboriginal Community Engagement

Hon Warren Entsch MP (Chair) stated in the Foreword of the *Never Again Interim Report*, following the Juukan disaster, that corporate Australia ‘can no longer ignore the link between its social licence to operate and responsible engagement with Indigenous Australia’ Owners’ (Joint Standing

³ <https://www.wa.gov.au/system/files/2022-10/ACMC-2023-Meeting-Dates.pdf>

Committee on Northern Australia, 2020). One of the key lessons learnt by Rio Tinto has been the recognition that they put their social licence to operate in jeopardy by focussing on commercial gain ahead of ‘meaningful engagement with Traditional Owners’ (Joint Standing Committee on Northern Australia, 2020: 7). According to Recommendation 6.91 of the later *Way Forward Report* (Parliament of the Commonwealth of Australia, 2021):

These actions remind corporations that their social licence to operate and corporate ethical positions will affect how they are able to do business in the future – it will effect their investment prospects and return on investment. The same principles apply to other industries, particularly in the context of a transition to renewables, opening the way for them to learn from the mistakes of the mining boom and pay respect to the living heritage of Aboriginal and Torres Islander peoples.

The idea of ‘meaningful engagement’ is encapsulated by the United Nations Declaration on the Rights of Indigenous Peoples, which was signed by Australia in 2007 (United Nations, 2008). Effective engagement with Aboriginal peoples can be underpinned by six inter-related principles:

- ▶ Acknowledging and understanding of the individual aspirations and unique circumstances of different people and groups.
- ▶ Building trust.
- ▶ Maintaining a respectful manner, that acknowledges the need for reciprocity.
- ▶ Effective communication.
- ▶ Ensuring informed consent.
- ▶ Sustaining the relationship.

UN Declaration on the Rights of Indigenous People (UNDRIP)

The UN Declaration on the Rights of Indigenous People (UNDRIP) sets out the rights of Indigenous people around the world to set and pursue their own priorities for development, and to maintain and control their cultural heritage (United Nations, 2008) The key provisions relevant to mineral development in the Australian Context include Indigenous people having the right to:

- ▶ practice and revitalise their cultural traditions and customs, and states shall provide redress for cultural property taken without free, prior and informed consent (Article 11)
- ▶ practice their spiritual and religious traditions, customs and ceremonies, maintain sites, control ceremonial objects and repatriate human remains, and states shall seek to enable the access and/or repatriation of ceremonial objects and human remains (Article 12)
- ▶ maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions and intellectual property over such heritage, knowledge and culture, and states shall, in conjunction with Indigenous peoples, take effective measures to recognize and protect the exercise of these rights (Article 31)

- ▶ determine and develop priorities and strategies for the development or use of their lands or territories and other resources, and states shall consult and cooperate with Indigenous peoples in order to obtain their free and informed consent before the approval of any project affecting their lands, territories and resources, provide effective mechanisms for redress for any adverse impact from such activities (Article 32)

A core principle of UNDRIP is the right of Indigenous people to make decisions about development proposals that have the potential to impact their land and culture from an informed position that is free from coercion, intimidation, or manipulation (Joint Standing Committee on Northern Australia, 2021)). In order to uphold these principles, Free and Prior Informed Consent (FPIC) has been recognised as the best practice approach for engaging with Indigenous people when seeking consent for projects or activities that affect Indigenous people's culture or country (Kemp & Owen, 2014).

While the UNDRIP has not been formally adopted into Australian law, there has been an increasing recognition within industry of the importance of FPIC in building meaningful relationships with Traditional Owners and maintaining a social licence to operate.

Free Prior and Informed Consent (FPIC)

In relation to cultural heritage and development, the UNDRIP means that Indigenous communities have a right to know, and make decisions about, projects that affect them and their heritage. The principles of Free, Prior and Informed Consent (FPIC) for Indigenous persons or communities in relation to development projects are a best practice standard to be applied. They protect and promote Indigenous Rights within the development process. The processes of FPIC should be ongoing throughout the life of the project. To break this down:

- ▶ **Free** - the process to be free of manipulation or coercion (including financial)
- ▶ **Prior** - the process occurring in advance of any activity associated with the decision being made and allowing time for traditional decision-making processes
- ▶ **Informed** - objective, accurate, current and easily understandable information
- ▶ **Consent** - right to approve or reject a project (Hill, Lillywhite and Salmon, 2010).



Archae-aus Pty Ltd

1/107 Stirling Highway
North Fremantle WA 6159

www.archae-aus.com.au

t: 08 9433 1127