



Great Koala National Park

Economic impact analysis and environmental benefit assessment

Final Report

February 2021

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Executive summary

OVERVIEW

The koala is one of the iconic, national symbols of Australia but is currently listed as a vulnerable species and populations of koalas are in decline across the country. The major issues for koalas are clearing, fragmentation and degradation of habitat, disease, natural disasters, roads, dogs and over-browsing. The 2020 NSW Parliamentary Inquiry into *Koala populations and habitat in New South Wales* found that koalas will become extinct in NSW before 2050 without urgent government intervention. Critically, this assessment was based on evidence presented to the Inquiry, before the bushfires in the summer of 2019/2020.

Whilst understanding about koalas and their habitat increases, the policy base no longer supports their survival and is deeply politicised at the national, state and local levels. What is clear is that their habitat, which also supports many other species of flora and fauna, needs to be preserved, regenerated and protected in order for the koala to have a chance at survival in the wild. This cannot happen at a local, piecemeal level. It requires ambitious planning at a large, landscape scale in order to provide long term positive outcomes for koala populations and their habitat.

The Great Koala National Park (GKNP) was first conceived in 2015 as a direct response to a loss of valuable habitat in the Mid North Coast of NSW. It aims to be Australia's first large national park dedicated to protecting a significant, but vulnerable, koala habitat. The area of the proposed GKNP already contains two nationally recognised koala metapopulations and areas of World Heritage listed rainforest. The proposal is to transition 175,000 hectares of state forest to existing national parks to create a more contiguous national park of 315,000 hectares.

THIS INDEPENDENT ASSESSMENT

This independent assessment provides an economic impact analysis (EIA) and environmental benefit assessment (EBA) of the potential regional and broader impacts of the proposed GKNP which is located in five local government areas (LGAs): Bellingen Shire Council, Clarence Valley Council, Coffs Harbour City Council, Kempsey Shire Council and Nambucca Shire Council.

The assessment was jointly commissioned by Bellingen Shire Council, Coffs Harbour City Council and Destination North Coast. The findings provide an evidence base which highlights several key channels of potential value which may warrant further evaluation and consideration.

OVERALL FINDINGS

Economic impact analysis

The EIA assesses the potential regional impact of the proposed GKNP on the five LGAs over 15 years, starting in 2021. The approach estimates expenditure from the following three key economic channels of value:

- **Stage 1: Park establishment.** Capital investment, including habitat restoration and support for private landholders
- **Stage 2: Park management.** Capital investment and operating expenditure, including visitor infrastructure such as a multi-purpose visitor centre, including a wildlife hospital, new and upgraded tracks and amenities for bushwalkers, mountain bike trails, horse riding trails and four-wheel drive tracks
- **Visitor expenditure.** Spend by a higher number of park visitors.

In addition, the impact of the transition from state forest native logging is estimated.

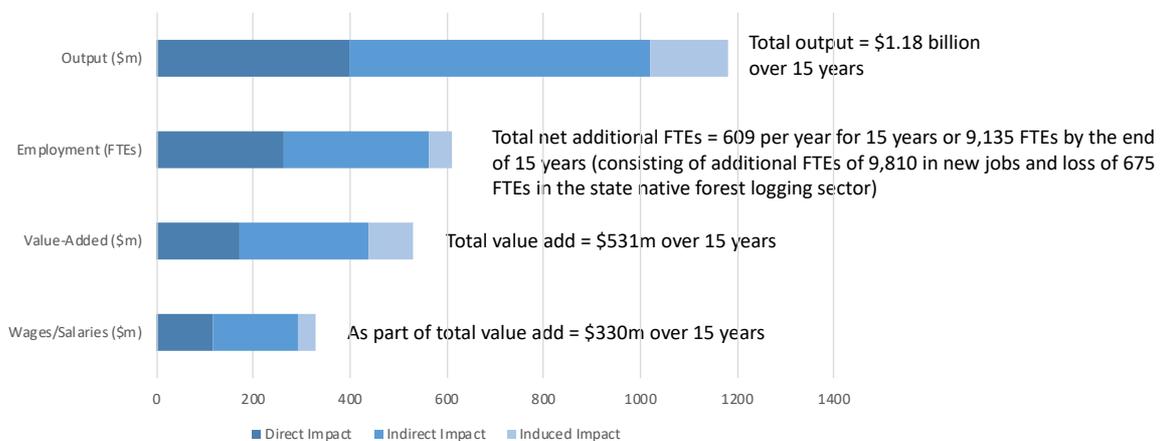
The EIA is conservative as there is significant potential to further increase the assumptions for international and domestic overnight visitor numbers and visitor expenditure. It also includes the impacts of the state forest native logging transition and an industry transition support package.

The flow-on impacts across the supply-chain, and via increased consumption in the region, are estimated to be very significant.

The assessment shows that the net impact is:

- Increase in **total output of \$1.18 billion over 15 years**
- **Additional FTEs of 9,810 in new jobs by the end of 15 years and loss of 675 FTEs** in the state native forest logging sector over 10 years i.e. net additional 9,135 FTEs
- **Additional total value-added of \$531 million over 15 years.** Of this, \$330 million is paid in wages and salaries in net present value terms to workers living in the region.

This is also shown below.



Environmental benefit assessment

The EBA is provided separately to the EIA because the benefits accrue to the whole of Australia, rather than just the five LGAs.

Aside from the devastating impact of the bushfires in the summer of 2019/2020, the decline in the NSW koala population is arguably a symptom of a broader trend in which the biodiversity of ecosystems are increasingly under threat. The environmental benefits of transitioning 175,000 hectares of state forests to national park primarily relate to preserving koalas and their habitat and, more broadly, preserving other aspects of the natural environment, including increased biodiversity. It is worth noting that, given the significant decline in the koala population as a result of the recent drought and bushfire season, the environmental value of each individual koala is now significantly higher than a decade ago.

The EBA assessment is also conservative and there is potential to further develop these estimates. However, even on a conservative basis, the benefits are not insignificant and equate to added biodiversity value of around \$530 million for the NSW population and around \$1.7 billion for all Australians.

The assessment shows that the environmental benefits equate to added biodiversity value of:

- Around **\$530 million for the NSW population**
- Around **\$1.7 billion for all Australians.**

Policy alignment

The policy environment for the creation of the proposed GKNP has shifted slightly in the last six months due to community and political pressure due to both NSW Government and Australian Government policy decisions. The NSW Minister for Energy and Environment actions and more recent commitments to increase the national park estate in NSW will support the proposed GKNP. However, these may have to be treated with caution given there is a lack of an existing policy framework and considerable uncertainty about how koalas and their habitat will be impacted by the Koala SEPP and further policies on land clearing within NSW.

Other considerations

There are many other benefits to the proposed GKNP which go beyond increased visitation, especially nature-based and eco-tourism in the Mid North Coast. These include mental health benefits and additional soil, water and air quality benefits which have not been considered in this assessment. Although these benefits are less easy to quantify, they will potentially generate significant positive outcomes to visitors, the community, local indigenous people and local businesses.

The bushfires in the summer of 2019/2020 raised significant awareness beyond local environmental groups about the plight of the koala and this, plus the 2020 NSW Parliamentary Inquiry into *Koala populations and habitat in New South Wales* and continued media attention has created a 'perfect storm' of public opinion.

The fact that koalas in their native habitat may become extinct in NSW by 2050 is a core legacy issue for the current population of NSW and indeed Australia. There is little doubt that without substantial policy and financial intervention, of which the proposed GKNP is a significant one, koala populations and other species of flora and fauna on the Mid North Coasts of NSW will continue to struggle to thrive and survive.

CONCLUSION

Based on this independent assessment, the proposed GKNP will provide positive economic impacts. These arise from an increase in regional investment and a corresponding increase in tourism in the five LGAs, taking into account a transition away from state forest native logging.

The environmental benefits of the proposed GKNP are several and long-lived, especially considering the decline in the NSW koala population in recent years. The increased biodiversity value of an expanded national parks estate will benefit all Australians for many decades.

The overall assessment is shown in the following graphic.

GREAT KOALA NATIONAL PARK INFOGRAPHIC



1. Introduction

1.1 THE CONTEXT

The bushfires in the summer of 2019/2020, which followed a long period of drought in regional NSW, directly killed 34 people and destroyed 18.6 million hectares of bushland and almost 6,000 homes.¹ In early January 2020, there were serious concerns for the regional tourism sector in NSW and Victoria and the smoke from the bushfires reached New Zealand. Charities raised many tens of millions of dollars for regional centres to recover and federal and state governments announced major infrastructure investments in the regions to support economic recovery.

The 2020 NSW Parliamentary Inquiry into *Koala populations and habitat in New South Wales* heard that about 10 million hectares of bushland was lost in NSW during bushfires of the summer of 2019/2020. The Inquiry found that in NSW ‘at least 5,000 koalas were lost during the fires, potentially many more’.²

On the North Coast, 49% of the state forest was burnt³, 30% high and very high suitability koala habitat in the North Coast was inside the fire ground⁴ and 24% of the North Coast koala population had been lost in the fires with a minimum of 2,000 koalas losing their habitat and ‘probably their lives’.⁵

Following the summer bushfire season, the Federal Minister for the Environment announced that, as a result of drought and bushfires, the conservation status of koalas may need to be raised from vulnerable to the highest threat level, endangered.⁶ In early November 2020, in response to the current threat the Australian Government allocated \$3 million to koala hospitals, \$3 million to restore habitat in south-east Queensland and north-east NSW, \$3 million to major zoos for post bushfire animal recovery and \$15 million for projects in koala habitats.⁷ In late November 2020, following continued uncertainty about the current state of the Australian koala population, the Minister announced a further \$18 million policy which includes \$2 million for a population census to identify key habitat areas for koalas across Queensland, NSW, Victoria and South Australia in order to establish ‘baseline’ population data using institutional research and citizen science.⁸ The package also includes \$2 million for koala health research and \$14 for habitat restoration.

¹ Commonwealth of Australia 2020. *Royal Commission into National Natural Disaster Arrangements Report*. p.5. Available at: <https://naturaldisaster.royalcommission.gov.au/publications/royal-commission-national-natural-disaster-arrangements-report>

² Ibid. p.x.

³ NSW Parliament 2020. Legislative Council. Portfolio Committee No. 7 – Planning and Environment. *Koala populations and habitat in NSW*. p.77. Available at: [www.parliament.nsw.gov.au/lcdocs/inquiries/2536/Koala populations and habitat in New South Wales - Report 3.pdf](http://www.parliament.nsw.gov.au/lcdocs/inquiries/2536/Koala%20populations%20and%20habitat%20in%20New%20South%20Wales%20-%20Report%203.pdf)

⁴ Ibid p.79.

⁵ Ibid. p.7.

⁶ Sydney Morning Herald 2020. *Koalas could be listed as endangered in parts of the country after taking 'extraordinary hit'*. 13 January 2020. Available at: www.smh.com.au/politics/federal/koalas-could-be-classified-endangered-after-taking-extraordinary-hit-20200113-p53qzb.html

⁷ Sydney Morning Herald 2020. *Koala Protection policy to target habitat conservation and research*. 8 November 2020. Available at: www.smh.com.au/politics/federal/koala-protection-policy-to-target-habitat-conservation-and-research-20201107-p56cef.html

⁸ Sydney Morning Herald 2020. *'Line in the sand': koala census to identify key habitat for protection*. 823 November 2020. Available at: www.smh.com.au/politics/federal/line-in-the-sand-koala-census-to-identify-key-habitat-for-protection-20201122-p56gug.html

It is clear that there is a new urgency regarding koala conservation and habitat management. In this context, it is not surprising that the Inquiry recommended⁹:

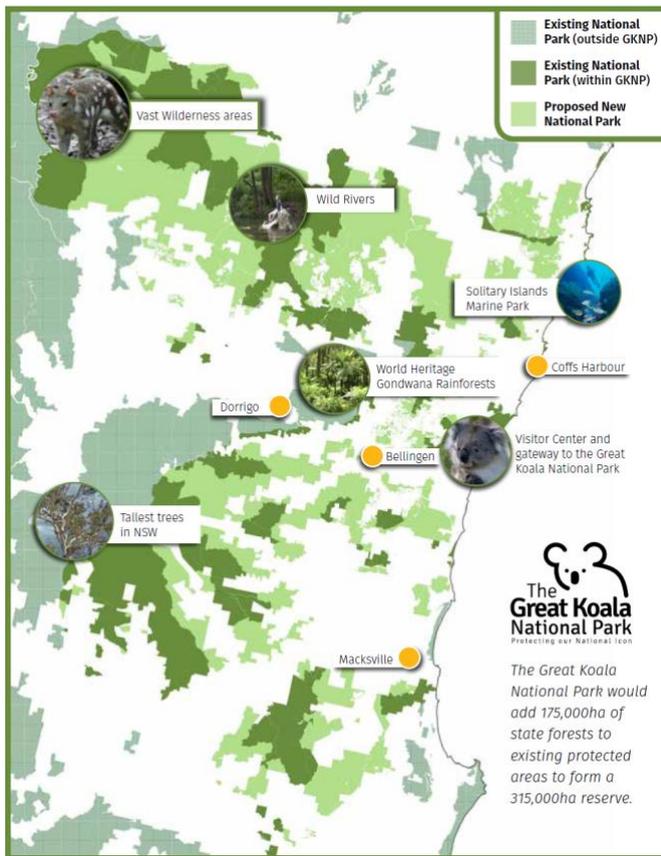
That the NSW Government investigate the establishment of the Great Koala National Park.

1.2 THE GREAT KOALA NATIONAL PARK

In 2015, the National Parks Association of NSW (NPA) proposed the creation of a GKNP. The proposed GKNP would include the transition of 175,000 hectares of state forest in the Mid North Coast of NSW into national parks to create a protected koala reserve of 315,000 hectares. In its submission to the 2020 NSW Parliamentary Inquiry into *Koala populations and habitat in New South Wales*, NPA suggested that the proposed GKNP would be Australia’s first large national park dedicated to protecting a significant, but threatened, koala habitat and a globally significant tourist attraction¹⁰.

The Mid North Coast contains koala populations of national significance and areas of World Heritage listed rainforest. As shown in Figure 1.1, the proposed GKNP includes existing national parks and conservation areas, as well as a number of state forests. It is delimited by the boundaries of two koala metapopulations (Coffs Harbour-Guy Fawkes and Bellinger-Nambucca Macleay) and covers land in five local government areas (LGAs): Bellinger Shire Council, Clarence Valley Council, Coffs Harbour City Council, Kempsey Shire Council and Nambucca Shire Council.

Figure 1.1: Great Koala National Park¹¹



⁹ Ibid. Recommendation 41. p.xvii.

¹⁰ National Parks Association of NSW 2019. Submission No 163. *Inquiry into Koala Populations and Habitat in New South Wales*. p.22. Available at: www.parliament.nsw.gov.au/lcdocs/submissions/64666/0163_National_Parks_Association_of_NSW.pdf

¹¹ National Parks Association of NSW n.d. *The Great Koala National Park: A National Park to protect our national icon*. p.7. Available at: <https://drive.google.com/file/d/0B3sKmVn4kYOBbFhzS1J3NnhyNVE/view>

Big trees and mature forests which are well-connected are important for koalas. Disturbances such as fire and intensive logging create problems for their survival. The proposed GKNP aims to enable koalas can move freely across the Mid North Coast as it will incorporate all public land within the two metapopulation boundaries. In addition, there is potential to work with adjacent private landowners on conservation activities to support conservation connectivity. Before the bushfires in the summer of 2019/2020, these two metapopulations were estimated to account for almost 20 % (or 4,500) of the NSW's wild koalas.¹² Protecting this habitat, as a key goal of the *North Coast Regional Plan 2036*¹³, will have flow-on benefits for other species including eucalypts, gliders and birds and will maintain the diversity of flora and fauna in NSW's most biologically diverse region.

The expansion in the size of the NSW national park estate will also increase its environmental value to the citizens of NSW and Australia, particularly in terms of increased biodiversity and climate change adaptation benefits. As noted in Section 7.8, in 2019, the NSW Minister for Energy and Environment revealed plans to expand the national park estate by 200,000 hectares over the next two years.¹⁴ This goal was exceeded in October 2020 and the Minister now plans to double this target with another further 200,000 hectare expansion within two years.¹⁵

1.3 THE OPPORTUNITY

The 2020 NSW Parliamentary Inquiry into *Koala populations and habitat in New South Wales* also found that koalas will become extinct in NSW before 2050 without urgent government intervention.¹⁶ With over one-third of NSW national parks damaged and more than one billion animals perishing as a result of the bushfires in the summer of 2019/2020 (800 million in NSW)¹⁷, without further quick and significant intervention, this extinction date will be brought forward.

The proposed GKNP represents a significant step towards preserving Australia's koala population from the threats of clearing, fragmentation and degradation of habitat, disease, natural disasters, roads, dogs and over-browsing.

Beyond the environmental benefits which would accrue to the whole Australian population, the proposed GKNP would offer important tourism-related benefits for the Mid North Coast region and the NSW economy more broadly. The Australian koala is a unique national icon and as a brand, has significant potential to promote international tourism.

¹² NSW Parliament 2020. Legislative Council. Portfolio Committee No. 7 – Planning and Environment. *Koala populations and habitat in NSW*. p.77. Available at: [www.parliament.nsw.gov.au/lcdocs/inquiries/2536/Koala populations and habitat in New South Wales - Report 3.pdf](http://www.parliament.nsw.gov.au/lcdocs/inquiries/2536/Koala%20populations%20and%20habitat%20in%20New%20South%20Wales%20-%20Report%203.pdf)

¹³ NSW Department of Planning 2017. *North Coast Regional Plan 2036*. Available at: www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Plan

¹⁴ Sydney Morning Herald 2019. *NSW minister proposes 10-fold increase in national park creation rate*. 18 August 2019. Available at: www.smh.com.au/environment/conservation/matt-kean-added-202-000ha-of-national-parks-now-he-wants-another-200-000ha-20201030-p56a66.html

¹⁵ Sydney Morning Herald 2020. *Matt Kean added 202,000ha of national parks. Now he wants another 200,000ha*. 30 October 2020. Available at: www.smh.com.au/environment/conservation/matt-kean-added-202-000ha-of-national-parks-now-he-wants-another-200-000ha-20201030-p56a66.html

¹⁶ NSW Parliament 2020. Legislative Council. Portfolio Committee No. 7 – Planning and Environment. *Koala populations and habitat in NSW*. p.x. Available at: [www.parliament.nsw.gov.au/lcdocs/inquiries/2536/Koala populations and habitat in New South Wales - Report 3.pdf](http://www.parliament.nsw.gov.au/lcdocs/inquiries/2536/Koala%20populations%20and%20habitat%20in%20New%20South%20Wales%20-%20Report%203.pdf).

¹⁷ NSW Government 2020. *Final Report of the NSW Bushfire Inquiry*. p.243. Available at: www.dpc.nsw.gov.au/assets/dpc-nsw-gov-au/publications/NSW-Bushfire-Inquiry-1630/Final-Report-of-the-NSW-Bushfire-Inquiry.pdf

The NSW North Coast is Australia's third largest tourism market, behind Sydney and Melbourne and its world-class national parks, marine parks, pristine beaches and magnificent wildlife provide opportunities for unique and authentic nature-based tourism experiences which set it apart from other destinations¹⁸. The proposed GKNP would add to this offer with the opportunity to:

- Increase public investment in tourism infrastructure in the proposed GKNP region to support regional economic development goals
- Encourage domestic visitors to spend more time on the Mid North Coast
- Over time, grow the share of high-value international visitors by increasing the range of tourism activities and experiences, including premium nature-based experiences focused on Australia's iconic koala.

1.4 THE AIM OF THIS INDEPENDENT ASSESSMENT

The aim of this independent assessment was to conduct:

- An economic impact analysis (EIA) to:
 - Assess the direct economic impacts of increased investment and expenditure in the proposed GKNP region as a result of the creation of the park and various additional infrastructure projects, such as the construction of a multi-purpose visitor centre at Pine Creek and new and upgraded tracks and amenities for bushwalkers, mountain bike trails, horse riding trails and four-wheel drive tracks
 - Assess the flow-on indirect and induced economic impacts in the proposed GKNP region
- An environmental benefits assessment (EBA) to:
 - Assess, at a high-level, the environmental benefits which would accrue to the residents of NSW and Australia.

The assessment was conducted between July and November 2020.

1.5 THIS REPORT

This report is divided into the following sections:

- Executive summary
- Section 1: Introduction
- Section 2: Project methodology
- Section 3: Tourism demand analysis
- Section 4: Potential impacts on state forest native logging industry
- Section 5: Economic impact analysis
- Section 6: Environmental benefit assessment
- Section 7: Policy alignment for the proposed GKNP
- Section 8: Conclusion
- Appendices.

¹⁸ Destination North Coast 2018. *North Coast Destination Management Plan 2018 to 21*. p.15. Available at: <https://dncnsw.com/wp-content/uploads/2018/07/DNC-Destination-Management-Plan.pdf>

2. Project methodology

2.1 INTRODUCTION

An independent, fit-for purpose and credible methodology was developed to understand the economic impacts and environmental benefits of the proposed GKNP.

As noted in Section 1.2, the primary frame of reference for the EIA is the following five LGAs:

- Bellingen Shire Council
- Clarence Valley Shire Council
- Coffs Harbour City Council
- Nambucca Shire Council
- Kempsey Shire Council.

However, the primary frame of reference for the EBA is NSW and Australia since many environmental benefits generated (such as increased biodiversity or climate change adaptation) by the transition of state forest to national park would accrue to all Australians.

It is important to recognise that this independent assessment does not provide a comprehensive Business Case report supported by a Cost Benefit Appraisal (CBA) which would consider the economic, social and environmental aspects of the project together. This is because:

- A full Business Case which relied on public investment from the NSW taxpayer would require an analysis from the perspective of the whole NSW economy
- A CBA is at the core of a Business Case which considers the use of public investment in a particular project or policy. This would estimate only the incremental difference in direct value-added generated between a business-as-usual scenario i.e. current levels of state forest native logging and tourism activity and public investment in the region, and the proposed GKNP i.e. reduced state forest native logging, more tourism, more biodiversity and more public investment¹⁹
- The methodology²⁰ which was initially proposed recommended as a framework for this assessment is not based on a CBA methodology and is therefore not suitable for a business case requiring public funding in NSW
- Significant difficulties were experienced during this assessment around the type and quality of available information, land use plans and financial and economic data to support the preparation of a Business Case.

¹⁹ In the CBA framework, flow-on or supply-chain economic impacts are not considered since these resources can be redirected to alternative uses in the economy. For example, a worker living in the region will still buy groceries regardless of whether they work in a state forest, in tourism, as a nurse or as a teacher. That said, the flow-on economic impacts do depend on the services required to support an industry and the value-added generated per worker, which is different across industries.

²⁰ Nous Group 2017. *Great Forest National Park: economic contribution of park establishment, park management, and visitor expenditure*. Report for The Wilderness Society. Available at: www.greatforestnationalpark.com.au/uploads/1/5/5/7/15574924/nous_gfnp_economic_contribution_study_3_february_2017.pdf

2.2 ECONOMIC IMPACT ANALYSIS APPROACH

EIA is a useful tool to measure the direct and indirect (or flow-on) effects of a policy change or public infrastructure proposal at a regional level. It relies on a detailed understanding of the trade-flows and interactions between sectors in the Australian economy at the LGA level. The ABS regularly produces input-output tables describing the intermediate flows of goods and services between industry sectors. These detailed intermediate flows can be used to derive the total change in economic activity associated with a given direct change in economic activity for a given sector. At the regional level, this approach makes sense in economic terms because there is not a significant constraint on the availability of labour and capital.

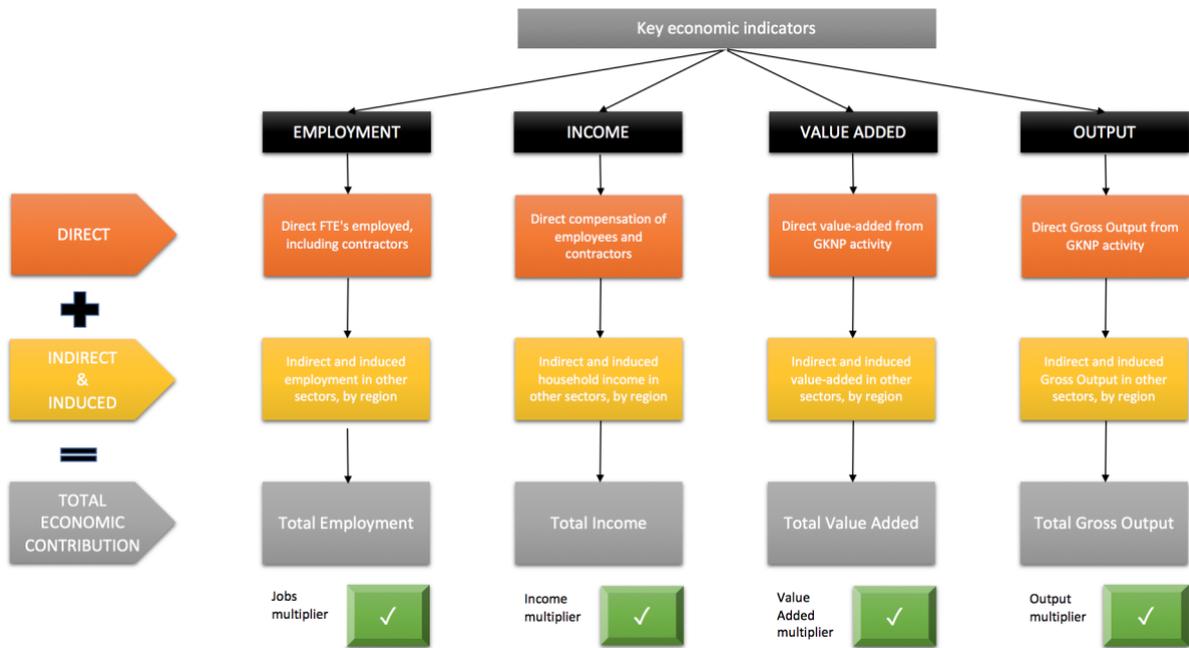
For this independent assessment, the widely-used and well-regarded REMPLAN model of the Australian economy was used to derive the multipliers of direct economic activity which are then used to calculate the indirect and induced economic activity in a particular region to provide a picture of the total change in economic activity

The proposed GKNP's direct, indirect and induced economic impacts are measured by four key economic indicators:

- **Employment:** The number of full-time equivalent (FTE) roles generated. Note these could be all full time or a mix of full time and part time roles
- **Income:** This is the income earned by employees as part of the operations of the activities in the proposed GKNP
- **Value added:** The value added generated by the proposed GKNP consists of the wages and salaries paid to employees, the profits (including income taxes) generated by the new activities and other taxes such as payroll taxes, land taxes and local government rates paid to the NSW Government and to the five local governments
- **Gross output:** This is the value of goods and services produced by an economic entity (in this case the region of the proposed GKNP). Output is equal to total revenue plus internal consumption as a result of intermediate production.

This is shown in Figure 2.1 which provides a conceptual overview of Input-Output (IO) modelling.

Figure 2.1: Four indicators of the proposed GKNP's direct, indirect and induced impacts²¹



The EIA is discussed in detail in Section 5.

2.3 ENVIRONMENTAL BENEFIT ASSESSMENT APPROACH

Valuing benefits such as a larger or more sustainable koala population or biodiversity poses special challenges. These are benefits whose value is in some sense intangible i.e. there is no 'market price' which might indicate the value of a koala or of increased biodiversity. These are also benefits which potentially accrue to many people well beyond the geographical area of the proposed GKNP. The proposed GKNP may improve the status of koalas, as well offering related benefits such as a habitat for birds and other small animals and also scenic and recreational values. People visiting the proposed GKNP may be able to enjoy these benefits directly but there is also a broader benefit for society as a whole if society values the continued existence of these species within their natural environment.

Given that there are no explicit market prices for many environmental goods and services, their valuation relies on the notion that individuals have preferences for goods and services. This means that the value of an environmental good or service to a person is what that person is willing and able to sacrifice for it. Therefore, the fundamental idea of value is tied to the concepts of willingness to pay (WTP) or sometimes willingness-to-accept (WTA).²²

A variety of techniques aim to value environmental benefits, including surrogate market (revealed preference) valuation techniques and hypothetical market (stated preference) techniques. These techniques generally aim to elicit estimates of the WTP for a particular outcome. They differ in a number of ways, including the amount and detail of data that is required (which may or may not be available) and how reliable the results are (the extent to which they are subject to biases). For example:

²¹ Branigan, J. et al. 2016. Leading locally, competing globally: measuring the University of Wollongong's contribution to economic and social prosperity in the Illawarra and beyond: 2016 update. Available at: <https://ro.uow.edu.au/cgi/viewcontent.cgi?article=2234&context=buspapers>

²² Field, B.C. & Field, M.K. 2016. *Environmental economics: an introduction*. Seventh Edition. McGraw-Hill Education.

- **Market-based valuations** (direct revealed preference methods) infer an implicit price which is revealed by examining consumer behaviour and/or prices in a similar or related market.²³ These methods are useful in many contexts but offer relatively little in this assessment where the issue is valuing the public benefit from the preservation of koalas and the associated greater biodiversity
- **Indirect revealed preference methods** derive values of environmental goods and services from market prices. They include hedonic pricing whereby the WTP for specific environmental or other characteristics is inferred from market prices and travel cost analysis, where the opportunity cost of time and travel costs is interpreted as a proxy of the value of ecosystem sites, such as parks
- **Stated preference methods** rely on specifically constructed questionnaires and interviews to survey participants in order to discover the WTP for a particular outcome or the WTA a particular outcome. Stated preference techniques include:
 - Contingent valuation methods: These ask individuals the amount they would be willing to pay to get a particular benefit or to avoid a negative impact, for example, to maintain an ecosystem, a common good or a heritage building
 - Discrete choice experiment modelling methods: Individuals reveal the value of a non-market impact indirectly by choosing between goods with different characteristics and various monetary contributions.

Market-based methods are useful in many contexts but offer relatively little in the present context where the issue is valuing the broad *public benefit* from the preservation of koalas and the associated greater biodiversity.

Indirect revealed preference methods require either the resources to undertake new research into the specific characteristics of the proposed GKNP and how visitors might value those benefits in terms of their travel and spending behaviour or a literature review of like-for-like case studies which could be used to infer values. One study, for example, provides a framework which could be used however, at this stage, there is insufficient information about the particular characteristics of potential visitors to the proposed GKNP to effectively utilise this method.²⁴

For this assessment the most adaptable and practical approach is the stated preference method drawing on the existing academic literature in the contingent valuation realm. Accordingly, two contingent valuation approaches were used which have been applied to the information available about the potential *incremental* environmental benefits of the transition of 175,000 hectares of state forest into national parks. See Section 6.3.

The EBA is discussed in detail in Section 6.

²³ Victorian Government, Department of Treasury and Finance 2013. *Economic Evaluation for Business Cases: Technical guidelines*. Available at: www.dtf.vic.gov.au/sites/default/files/2018-03/Economic%20Evaluation%20-%20Technical%20Guide.doc

²⁴ Driml, S., Brown R., Moreno Silva, C. 2020. *Estimating the Value of National Parks to the Queensland Economy*. School of Economics Discussion Paper Series 636. School of Economics, The University of Queensland. Available at: www.uq.edu.au/economics/abstract/636.pdf.

2.3 DATA SOURCES

Table 2.1 details the data sources used in this assessment.

Table 2.1: Data sources

Data source	Description
Capital investment	Developed in consultation with the Project Reference Group using publicly available comparative case studies over 15 years
Operating expenditure	Developed in consultation with the Project Reference Group using publicly available comparative case studies over 15 years
Tourism demand	Estimated over 15 years. See Section 3
State forest native logging industry impact	Estimated over 10 years. See Section 4
NSW Government assistance to the state forest native logging industry	Estimated over 10 years. See Section 4
Economic multipliers	Estimated based on REMPLAN model. See Appendix D
Environmental benefits	Estimated based on a recent meta-study of willingness-to-pay studies. See Section 6

2.4 PROJECT STAGES

The various project stages and their purpose are detailed in Table 2.2.

Table 2.2: Project stages and their purpose

Stage	Description	Purpose
Desktop review	Desk top review of a wide range of publicly available documents	To understand the success of a range of initiatives to preserve biodiversity and species habitat
Case study analysis	Analysis of a range of publicly available information relating for potential comparator initiatives	To provide comparative information about capital investment and operating expenditure for the establishment and management of the proposed GKNP
Policy analysis	Desk top review of various policies at federal, state and local government level	To provide context for potential policy interventions and assess their success
Scoping workshop	Held with a range of stakeholders from the NSW Mid North Coast	To discuss the scope and approach to the assessment, the audience and timeframes To identify potential economic impact and environmental benefits To identify sources of information, data and comparative case studies
Stakeholder interviews	Held with a range of additional stakeholders	To understand potential economic impact and environmental benefits To understand levels of support for the proposed GKNP
Analysis	EIA and EBA modelling with sensitivity analysis	To assess the EIA and EBA using the data sources and assumptions
Project briefing workshop	Held with the same range of stakeholders from the NSW Mid North Coast	To provide an overview of the findings and obtain feedback
EIA and EBA draft report	Report drafting	To present the draft assessment to the Project Reference Group and agree the approach to potential investors

Stage	Description	Purpose
Potential investor interviews	Test support for the proposed GKNP	To better understand the investment value proposition based on the EIA and EBA with potential investors
EIA and EBA final report	Report finalisation	To complete the assessment and present the findings to the Project Reference Group

2.5 HIGH-LEVEL ASSUMPTIONS

COVID-19 pandemic impacts

In general terms, the analysis in this assessment is not impacted by the COVID-19 pandemic and its related economic impacts. By the time the proposed GKNP is established, it is reasonable to assume that the impacts will have abated.²⁵ However, there is likely to impact on tourism demand in the short-term in several ways:

1. It is expected that domestic tourism (especially overnight stays) will increase until the restrictions on overseas (outbound) travel are lifted
2. By mid-2021 there are likely to be no restrictions on the movement of people between Australian states and territories
3. By 2022-23 inbound international travel will begin to grow again, albeit from a low base
4. By 2025, international inbound holiday tourism is expected to return to pre-COVID-19 pandemic levels. However, nothing is certain as patterns of consumer behaviour are likely to have been, at least in part, affected by the events of 2020.

Relevant time horizon

The EIA for the proposed GKNP has been prepared for a timeframe of 15 years, to enable the costs and benefits to be captured. A timeframe of 15 years is appropriate for the types of assets being utilised. The multi-purpose visitor centre at Pine Creek would have an asset life of at least 15 years. Walking, driving and mountain biking trails, although requiring regular maintenance, would be long-lived assets. In addition, the proposed GKNP, as a protected estate, will exist for as long as the climatic conditions and bushfire regimes support the habitat. The state forest native logging transition is assumed to occur over a 10 year period from 2021, although all estimates of the net impacts of state forest native logging are calculated over a 15 year period to align with the other analyses undertaken.

Social discount rate

The social discount rate determines the weight placed on future benefits and costs relative to more immediate benefits and costs. There is extensive academic literature on determining the social discount rate and often project-specific discount rates are developed, for example, in network industries such as water, telecommunications or airport facilities. In recent years there has been increased debate about what the appropriate social discount rate should be. In the current low interest rate environment, some have argued for a lower benchmark social discount rate.²⁶

²⁵ For instance, it is widely expected that a COVID-19 vaccine will be available by early 2021 and that the international border will be opened in mid- to late-2021 on condition that international visitors are vaccinated before arrival.

²⁶ Terrill, M. and Batrouney, H. 2018. *Unfreezing discount rates: transport infrastructure for tomorrow*. Grattan Institute. Available at: grattan.edu.au/wp-content/uploads/2018/02/900-unfreezing-discount-rates.pdf

However, it is important to consider that the current post-GFC/COVID-19 pandemic interest rate environment is a result of policy decisions made by central banks to stimulate economic activity, rather than a reflection of the supply-demand balance between the global stock of savings and investment opportunities. In addition, the actions taken by central banks are in part a response to the increased risk premium which governments and firms will likely place on potential public and private investments in a post-COVID-19 pandemic world i.e. often when the risk-free rate falls the risk premium rises. The post-COVID-19 pandemic world is likely to be no different to the post-GFC world in terms of evaluating economic risk.

Central banks attempt to offset risk by increasing the supply of money in the economy to lower the risk-free rate. Indeed, in early November 2020, Australia’s Reserve Bank set the cash rate to its lowest possible rate, at just 0.1%.²⁷ However, these actions do not, and cannot, eliminate all investment risk. Social discount rates should incorporate a risk premium which reflects the risks involved with the particular project under consideration.

A central discount rate (currently 7%) is the commonly accepted ‘central point’ social discount rate used in Australia and recommended by most government agencies (including the Commonwealth Treasury Department, Infrastructure Australia and NSW Treasury). Accordingly, 7% was used as the central discount rate in this assessment.

2.6 STAGED APPROACH TO IMPLEMENTATION

The proposed GKNP will be implemented in stages which reflects cumulative investment increases in government support for the proposed GKNP. This is shown in Table 2.3.

Table 2.3: Proposed GKNP implementation stages

Activity	Business as usual	Stage 1: Park establishment	Stage 2: Park management
COVID-19 vaccine is widely distributed. International borders open	×	×	×
State forest native logging continues in the proposed GKNP area	×		
Proposed GKNP park established		×	×
Koala habitat restoration and park management		×	×
Core infrastructure built, including multi-purpose Pine Creek visitor centre, other infrastructure and various tracks and trails			×
Visitor management			×
National advertising campaign			×
Additional park infrastructure			×
High value eco-tourism and additional value-added visitor experiences (privately funded)			×
International advertising campaign (funded by Tourism Australia and Destination NSW)			×

²⁷ Governor of the Reserve Bank of Australia 2020. *Today’s Monetary Policy Decision*. Available at: rba.gov.au/speeches/2020/sp-gov-2020-11-03.html

In summary:

- Business-as-usual scenario: This represents the status quo, where there are a number of non-contiguous national parks in the proposed GKNP region, without any specific additional management initiatives (than already planned) to protect koala habitat or attract tourism. State forest native logging would continue in the state forests identified as being transitioned to national parks under the proposed GKNP
- Stage 1 Park establishment: This involves a change in tenure of the existing state forests, with land being mapped and gazetted, borders drawn and habitat restoration activities. Some basic infrastructure is also established, such as walking paths and signage being
- Stage 2 Park management: This involves ongoing park and visitor management and significant infrastructure spend including a multi-purpose visitor centre, a wildlife hospital, new and upgraded access for bushwalkers, mountain bike hubs, horse riding trails and four-wheel drive tours.

The creation of the proposed GKNP would see the introduction of a premium experience of both state and national significance. As a result, it is anticipated that the destination would be a feature in both Destination NSW's and Tourism Australia's marketing activity as both continually seek new and differentiated product to champion and drive increased visitation. No additional budget would be anticipated for the promotion, rather the chance to promote and champion a new product of national significance would inevitably see the proposed GKNP receive significant ongoing coverage and promotion. This is anticipated to increase demand from these from international and domestic visitors.

3. Tourism demand analysis

3.1 TOURISM AND REGIONAL DEVELOPMENT OPPORTUNITIES

According to Destination NSW, nature-based tourism is a large and growing industry that attracts 37 million visitors, 141 million visitor nights and \$24 billion in expenditure annually to NSW.²⁸ Koalas in the natural environment are a significant nature-based tourism drawcard and therefore have considerable existing economic value to NSW. The potential for further growth in nature-based tourism in NSW is also significant, as experienced in Tasmania and New Zealand.

The NSW North Coast's world-class national parks, marine parks, beaches, and magnificent wildlife provide opportunities for unique and authentic nature-based tourism experiences that set it apart from other destinations. Whilst tourism is a growth industry for the region, 58% of the visitation is from domestic day trip travel and 40% from domestic overnight travel. Domestic overnight travel has an average length of stay of 3.8 nights and has almost five times the spend per visitor than domestic day trip travel.²⁹ The proposed GKNP, through the creation of a range of activities and experiences, including nature-based tourism and indigenous tourism, has the potential to increase both the length of stay for domestic visitors (with associated increased spend per visitor) but also to increase the share of the high value international visitor segment.

An enhanced visitor offering, particularly one which emphasises cultural, nature and inland attractions, aligns with the objectives of key stakeholders and regional players:

- Promoting tourism is a key action of the *North Coast Regional Plan 2036*, which calls for sympathetically located eco- and nature-based tourism activities. It outlines opportunities to grow the industry by harnessing nature-based tourism offers, and coastal and landscape assets³⁰
- The *Strategic plan for Joint Organisation Mid North Coast Councils* also aims to keep visitors in the region for longer via a regional destination management plan, an indigenous cultural tourism plan and by developing tourism infrastructure³¹
- The *North Coast Destination Management Plan 2018 to 21* identifies opportunities to develop, enhance and promote investment in nature-based tourism infrastructure. This includes skywalks, ziplines, viewing platforms and lookouts, improved interpretation and signage, significant drives and trails, signature walks, mountain bike trails and wildlife experiences such as koala sanctuaries. Particular areas of focus for the plan include working with rural and hinterland areas to grow local visitor economies, attracting an appropriate mix of intrastate, interstate, and international visitors, increasing visitation in

²⁸ Destination NSW 2019. *Nature based tourism in NSW. Year ended December 2019*. Available at: www.destinationnsw.com.au/wp-content/uploads/2020/09/nature-based-tourism-to-nsw-snapshot-ye-dec-2019.pdf

²⁹ Destination NSW 2020. *Destination NSW North Coast Fact Sheet. Year ended June 2020*. Available at: www.destinationnsw.com.au/wp-content/uploads/2020/11/north-coast-fact-sheet-ye-june-2020.pdf

³⁰ NSW Department of Planning 2017. *North Coast Regional Plan 2036*. Available at: www.planning.nsw.gov.au/Plans-for-your-area/Regional-Plans/North-Coast/Plan

³¹ Joint Organisation of Mid North Coast Councils 2017. *Strategic plan for Joint Organisation Mid North Coast Councils* Available at: www.kempsey.nsw.gov.au/council/meetings/2018/2018-02-20/pubs/2018-02-20-appendix-k-jomncc-strategic-plan.pdf

low and shoulder seasons, encouraging greater dispersal and spend across the region and managing tourism sustainably³²

Destination North Coast works with partners across the region to bolster the value of tourism, facilitate sustainable tourism planning and management, develop tourism products and experiences, attract investment in regional tourism strengths, coordinate tourism marketing and help plan for risks to the North Coast visitor economy. This includes partnerships with the National Parks and Wildlife Service, NSW Forestry and other stakeholders to develop and promote nature-based experiences as a key differentiator and competitive advantage over other regions

- The NSW Government's *Visitor Economy Action Plan 2030*³³ indicates a nature-based tourism strategy will be developed and funding for nature-based experiences increased through the *Regional Growth: Environment and Tourism Fund*. Nature-based tourism is also an important pillar of the NSW Government's *Aboriginal Tourism Action Plan*.

3.2 BUSINESS AS USUAL VISITOR NUMBERS

In 2016, the total annual number of visitors to national parks in the North Coast region was 9.1 million. In 2018 this was 7.3 million.³⁴ The proposed GKNP is a subset of the North Coast region.

In principle, recent visitor numbers can be used to derive an initial baseline estimate of potential visitors to the proposed GKNP in the future. However, annual visitor numbers to the North Coast region have fluctuated in recent years, reflecting factors such as exchange rate movements in earlier years, the bushfires in the summer of 2019/2020 and the impact of the COVID-19 pandemic on interstate and international visitors.³⁵

The proposed GKNP will cover 315,000 hectares of state forests and existing national parks. The park will encompass significant parts of the Bongil Bongil, Guy Fawkes River, Nymboi-Binderay and Washpool National Parks and others. A number of state forests will transition to national parks which will reduce the amount of state forest native logging in NSW whilst at the same time increasing the capacity of the nature-based tourism industry. Some of the state forests are currently used by tourists and the local community.³⁶

³² Destination North Coast 2018. *North Coast Destination Management Plan 2018 to 2021*. Available at: <https://dncsw.com/wp-content/uploads/2018/07/DNC-Destination-Management-Plan.pdf>

³³ NSW Government n.d. *Visitor Economy Action Plan 2030*. Available at: www.business.nsw.gov.au/_data/assets/pdf_file/0008/261827/Visitor-Economy-Industry-Action-Plan-2030.pdf

³⁴ Roy Morgan 2019. *Annual Visits to NPWS Managed Parks in New South Wales*. p.16. Available at: www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Research/Our-science-and-research/annual-visits-npws-managed-parks-nsw-state-final-report-august-2019.pdf?la=en&hash=0D9D5B49C26CAFFFB2D01D8E4AC1A75FE3141970

³⁵ As noted in Section 5, the current international border closure in response to COVID-19 pandemic is likely to severely limit the potential for international visitors to Australia for at least the next three years. However, the analysis in this report is not impacted by the COVID-19 pandemic because it is assumed that the proposed GKNP and related tourism infrastructure (such as the multi-purpose visitor centre and tracks and trails) are not operational until Year 4.

³⁶ A full discussion of the potential impacts of the proposed GKNP on the state forest native logging industry is at Section 4.

In this assessment, the number of visitors to the proposed GKNP region (a subset of the North Coast region) has been estimated via two methods:

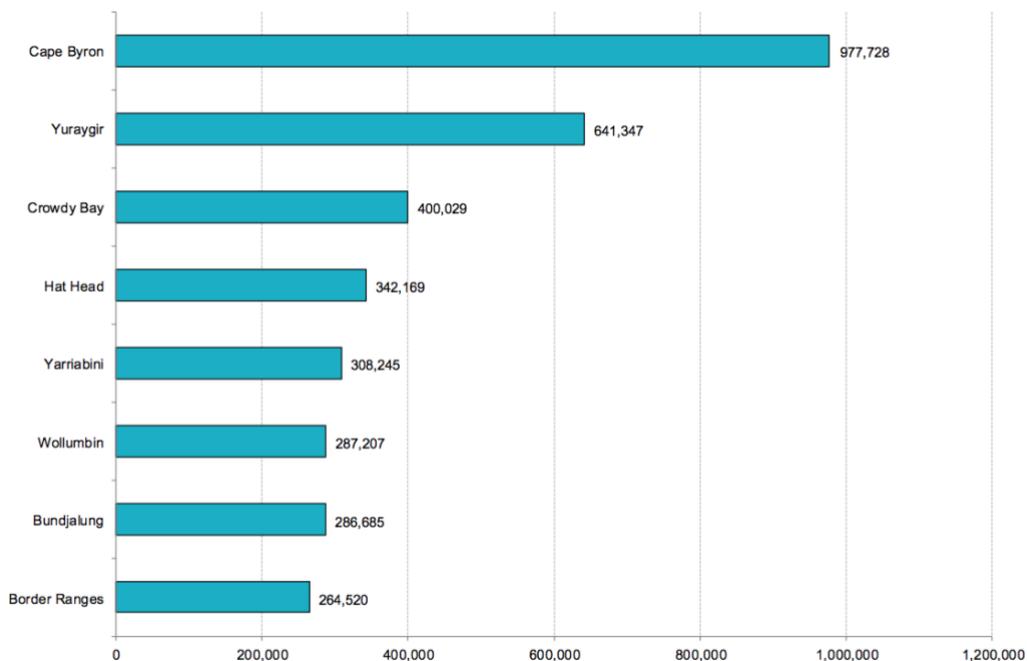
1. Using NSW NPWS data to infer visitation
2. Using GIS mapping to estimate the size of the proposed GKNP area relative to the size of the North Coast national park area and infer visitation.³⁷

Method 1: NSW NPWS data to infer visitation

2018 visitor statistics are available for only the eight most visited of the ninety national parks and nature reserve parks in the North Coast Branch of the NSW National Parks and Wildlife Service (NPWS) and no reliable and reliable visitor statistics were available for any of the proposed new national parks (transitioned from state forests) which would form the proposed GKNP.

As such, the visitor statistics for the proposed GKNP national parks, at least from publicly available sources, are incomplete. Figure 3.1 show the 2018 annual visitation for the top eight national parks in the North Coast Branch.

Figure 3.1: 2018 Visitation for the top parks in the North Coast Branch³⁸



Source: NPWS Parks Visitor Surveys 2018
Base: n=301

³⁷ At this stage, the assessment does not consider the existing number of visitors to the state forests within the proposed GKNP because it has been difficult to identify sufficiently granular and reliable data.

³⁸ Roy Morgan 2019. *Annual Visits to NPWS Managed Parks in New South Wales: 2018 Telephone Survey to Monitor Visits to NSW NPWS Managed Parks*. p.91. Available at: <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Research/Our-science-and-research/annual-visits-npws-managed-parks-nsw-state-final-report-august-2019.pdf?la=en&hash=0D9D5B49C26CAFFFB2D01D8E4AC1A75FE3141970>

Of the eight most important North Coast Branch parks for which data is available, three can be considered to be similar to the proposed GKNP in that they are not coastal or marine parks and are located away some way inland. They include:

- Yarriabini National Park
- Wollumbin National Park
- Border Ranges National Park.

Visitor numbers to North Coast Branch parks were lower in 2018 than in 2016 (reflecting a strong Australian dollar which encouraged Australians to travel overseas), so the above figures may represent lower end estimates of visitors in an 'average' year. However, visitor numbers to individual parks may not be a good indicator of visitor numbers to a much larger park with different experiences and a different capacity to service visitors in terms of built infrastructure.

As a result of the lack of available visitor information by national park, it was considered not possible to determine the baseline number of visitors to the national parks comprising the proposed GKNP based solely on this method.

Method 2: GIS mapping to infer visitation

As an alternative approach, GIS mapping software was used to determine the size of the proposed GKNP relative to the overall size of the North Coast Branch *after removing the national parks (and their related visitor numbers)* for which visitation numbers are known i.e. those national parks identified in Table 3.1.

Based on this method, 2.4 million visitors is estimated as a business-as-usual baseline. This represents one-third of the total visitors to North Coast Branch national parks in 2018 and is split between domestic day trippers (45.6%), domestic overnight visitors (51.1%) and international visitors (3.3%). The market segmentation is based on the 2019 data from TRA for the NSW market.³⁹

3.3 GROWTH IN VISITOR NUMBERS

For the EIA, the 2019 baseline is increased by 3.0% per year over 15 years which is slightly higher than the current 10-year average annual visitor growth rate in NSW (of 2.5%). This higher growth rate assumption reflects the fact that the proposed GKNP will attract domestic and international visitors away from similar attractions in other parts of Australia. It also assumes that there will be an increase in the proportion of domestic overnight visitors (at the expense of day trippers) i.e. some day trippers will convert to overnight visitors to stay longer in the proposed GKNP.

This also assumes that after the COVID-19 pandemic (and by Year 4 when the proposed GKNP is established), a higher international visitor growth rate exists, particularly in middle-class Chinese visitors to Australia. Supporting this, the NSW Government would incorporate the proposed GKNP into their marketing efforts to support the launch of a new hero product (out of its existing tourism budget) to advertise the proposed GKNP both domestically and internationally and as part of a 'brand koala' campaign.

By Year 4 (2024), when the proposed GKNP has been established, it is anticipated that the park will receive around 2.8 million visitors per year. By Year 15 (2035), it is estimated that the proposed GKNP will receive around 3.9 million visitors per year. This is shown in Table 3.1.

³⁹ Tourism Research Australia 2020. *Local Government Area Profiles 2019*. Available at: www.tra.gov.au/regional/local-government-area-profiles/local-government-area-profiles

Table 3.1: Tourism demand in the proposed GKNP region, by visitor (Year 4, Year 15)

Visitors	Year 4	Year 15	Growth no.	Annual growth %
Domestic day trippers	1,296,879	1,590,408	293,529	1.9%
Domestic overnight	1,443,267	2,202,595	759,328	3.9%
International	94,512	130,827	36,315	3.0%
Total	2,834,658	3,923,830	1,089,172	3.0%

Source: University of Newcastle analysis, based on TRA 2019.

3.4 BUSINESS AS USUAL VISITOR EXPENDITURE

In the business-as-usual stage, the potential expenditure by visitors for the five LGAs is just under 4.0 million visitors, with total expenditure of close to \$1.3 billion. Most of these visited the Coffs Harbour LGA. This was estimated using tourism-related data reported by LGA. This is shown in Table 3.2.

Table 3.2: Business-as-usual tourism-related information for the five LGAs⁴⁰

Indicator	International	Domestic overnight	Domestic day	Total
Total visitors ('000)	133	2,031	1,825	3,989
Total nights ('000)	1,064	7,239	0	8,301
Weighted-average stay (nights)	8	3	0	4
Total spend (\$m)	\$51m	\$985m	\$220m	\$1,256m
Weighted-average spend per trip (\$)	\$421	\$534	\$133	\$347
Weighted-average spend per night (\$)	\$56	\$154	\$0	\$141

Source: TRA, Local Government Area Profiles 2019.

The assumptions in business-as-usual are:

- Consistent with current visitor patterns in the proposed GKNP region, around 51% of visitors are domestic visitors spending at least one night in the proposed GKNP region (domestic overnight visitors), 46% would be other domestic visitors (day trippers), and 3.3% would be international visitors
- Given the location of the proposed GKNP, domestic overnight and international visitors would spend at least one night in the proposed GKNP region which is attributable to visiting one of the parks in the proposed GKNP.⁴¹

⁴⁰ Tourism Research Australia 2020. *Local Government Area Profiles 2019*. (Coffs Harbour, Bellingen, Nambucca, Kempsey, Clarence Valley). Available at: www.tra.gov.au/regional/local-government-area-profiles/local-government-area-profiles

⁴¹ This is consistent with Roy Morgan's finding that almost half of NPWS park visitors stated that the only reason for their trip was to visit a NSW NPWS park.

3.5 GROWTH IN VISITOR EXPENDITURE

The figures in Table 3.2 were used to derive an estimate of proposed GKNP visitor expenditure, using an average of the visitor mix to NSW national parks. Note that the proposed GKNP is a smaller region than the total area of the five LGAs.

Based on the analysis above and consistent with the sequential approach applied in the EIA (see also Section 2.6), visitor expenditure increases for the proposed GKNP only (not the total area of the five LGAs) has been estimated as follows:

- In business as usual, total visitor expenditure increases from \$259 million in Year 1 to \$392 million in Year 15
- In Stage 1, total visitor expenditure increases from \$266 million in Year 1 to \$402 million in Year 15
- In Stage 2, including the marketing and branding spend, total visitor expenditure increases from \$273 million in Year 1 to \$412 million in Year 15. There will be an increase in visitor numbers in the first three years as the proposed GKNP is established and infrastructure built, as a result of an 'announcement effect'.

This is shown in Table 3.3.

Table 3.3: Increase in visitor expenditure in the proposed GKNP

Stages	Year 1	Year 15
Business-as-usual	\$259m	\$392m
Stage 1: Park establishment	\$266m	\$402m
Stage 2: Park management	\$273m	\$412m

4. Potential impacts on the state forest native logging industry

4.1 OVERVIEW OF THE NORTH COAST FORESTRY INDUSTRY

The native forestry industry directly employs 4,735 people in the North Coast Forestry Area⁴². This area covers a significant part of NSW from just north of Sydney, west to Armidale and Tenterfield and north to the Queensland border. The forestry industry in the North Coast Forestry Area is estimated to generate around \$0.457 million in output per job, around \$0.151 million in value added per job and \$0.187 million in regional exports per job.⁴³ Most of the harvest timber is from state native forest hardwoods.

It is important to understand that the proposed GKNP does not impact all of the Wood Supply Agreements across the North Coast Forestry Area. The likely effect would be much more isolated to a number of mills in the Kempsey region with a potential increase in activity outside of the proposed GKNP area offsetting this impact. That said, there is no doubt that the loss of economic activity as a result of a transition from logging in state forests could have a potentially negative impact on the Kempsey Shire.

4.2 STATE FOREST NATIVE ACTIVITIES AND IMPACTS ON KOALAS

The NPA has argued that the NSW Government's twin policy commitments of not reducing wood supplies and not eroding environmental values are inconsistent, since forests that are most important for koalas are also those favoured by the forestry industry. According to the NPA, the key threat to koalas is accelerating habitat loss from land clearing, logging and urban development.⁴⁴

In contrast, some people argue that forest management and logging do not negatively impact native koala populations. For instance, the NSW Department of Planning Forest Science unit has been undertaking extensive surveys of identified koala habitat on the Mid North Coast using acoustic recording technology. These surveys suggest that koalas are just as likely to occupy state forests which have a long history of moderate or high intensity timber harvesting as they are to occupy protected forests in national parks.⁴⁵

Proponents of active forest management and harvesting also argue that the Mid North Coast region more than meets biodiversity requirements. Australia's approach to building a system of protected areas is based on the Interim Biogeographic Regionalisation for Australia (IBRA)

⁴² Ernst & Young 2019. *The economic impact of the cancellation of the NSW North Coast Wood Supply Agreements due to the Creation of the Great Koala National Park*. p.14. Available at:

www.parliament.nsw.gov.au/lcdocs/other/12376/Tabled%20Document-%20Document%20entitled%20-%20The%20economic%20impact%20of%20the%20cancellation%20of%20NSW%20North%20Coast%20Wood%20Supply%20Agreements.pdf

⁴³ Ibid. p.14.

⁴⁴ National Parks Association of NSW 2019. *Submission No 163. Inquiry into Koala Populations and Habitat in New South Wales*. p.2. Available at: [www.parliament.nsw.gov.au/lcdocs/submissions/64666/0163 National Parks Association of NSW.pdf](http://www.parliament.nsw.gov.au/lcdocs/submissions/64666/0163%20National%20Parks%20Association%20of%20NSW.pdf)

⁴⁵ For a description of this work, see here: www.dpi.nsw.gov.au/forestry/science/koala-research and here: www.dpi.nsw.gov.au/about-us/media-centre/releases/2018/acoustics-provide-new-insights-on-koalas-in-hinterland-forests

model.⁴⁶ In NSW there are 18 IBRA Regions. The North Coast IBRA Region, which includes the Kempsey Shire, is one of only four IBRA Regions which exceeds the International Union for the Conservation of Nature’s (IUCN’s) 15% protected area threshold (by 10%). It has, therefore, been argued that the reserve system on the Mid North Coast is already adequate.

4.3 ESTIMATING THE COST OF BUYBACKS OF EXISTING WOOD SUPPLY AGREEMENTS

Wood supply agreements within and proximate to the proposed GKNP

In order to create the proposed GKNP, some (but not all) WSAs would have to be purchased from existing rights holders. Estimating the extent and cost of such buybacks is difficult because there is no easily accessible up-to-date repository of WSAs.⁴⁷

Based on information in IPART’s *Review of Forestry Corporation of NSW’s Native Timber Harvesting and Haulage Costs*⁴⁸, as well as a desk top review as part of this assessment, there are ten timber mills within and proximate to the boundaries of the proposed GKNP. These mills are highly likely to receive timber from state forests within the proposed GKNP. Table 4.1 lists these ten mills and the current WSA harvest total. Based on this, albeit partial, analysis it is estimated that the total quantity of high-quality logs is 245,606 m³.

Table 4.1. Mills in close proximity to the proposed GKNP considered to source timber from the proposed GKNP region⁴⁹

Mill name	LGA	WSA quantity m ³
Boral Timber	Grafton, Herons Creek, Kyogle	180,803
Australian Solar Timber	Kempsey	8,123
Macleay River Hardwoods	Kempsey	n/a
Aquafern (Warrell Creek Sawmill)	Nambucca	18,000
M&B Dyer (Bowraville Sawmill)	Nambucca	10,000
Newville Hardwoods	Nambucca	657
Thora Sawmilling	Bellingen	4,465
Adams Sawmill	Coffs Harbour	21,863
Leonard Williams	Coffs Harbour	1,695
Coffs Harbour Hardwoods	Coffs Harbour	n/a
Total proposed GKNP region		245,606m³

Boral’s Grafton mill has an annual WSA of 116,000 m³ per year until 2028 which is by far the largest single quota and believed to be the only one with a duration to 2028.

The other sawmills have much smaller contracts.

⁴⁶ Australian Government, Department of Agriculture, Water and the Environment n.d. Australia’s bioregions (IBRA). Available at: www.environment.gov.au/land/nrs/science/ibra

⁴⁷ The list of WSAs on the Forestry Corporation of NSW’s website appears incomplete and interpretation of WSAs that have been transferred and rationalised is difficult to evaluate from publicly available sources.

⁴⁸ Independent Pricing and Review Tribunal 2017. *Review of Forestry Corporation of NSW’s native timber harvesting and haulage costs*. p.17. Available at: www.forestrycorporation.com.au/data/assets/pdf_file/0011/836849/ipart-review-fcsw-harvest-haulage.pdf

⁴⁹ Ibid. p.17

Estimated purchase costs of wood supply agreements

In 2015, the NSW Government bought back Boral's right to 50,000 m³ of high-quality logs per year for nine years under its WSA at a cost of \$8.55 million⁵⁰. This equates to a cost of \$19 per m³, or \$20.67 in 2020 dollars.⁵¹ To estimate the costs of all proposed GKNP-related WSA buybacks, a flat figure of \$20.67 per m³ at 2020 has been used, consistent with the cost of buybacks from Boral noted above.

On this basis:

- For Boral's WSA, which expires in 2028, the buyback cost is \$26.2 million
- The buyback cost of remaining WSAs, which expire in 2023, is \$2.7 million
- The total cost of the WSA buyback program is \$28.9 million.

Given that this estimate assumes that the timber mills within and proximate to the boundaries of the proposed GKNP source 100% of their logs from the proposed GKNP state forests, the estimates should be considered as an upper-bound cost of a buyback program.

Scaled purchase of wood supply agreements

The above analysis has assumed that Boral's entire WSAs would need to be purchased, on the assumption that Boral is likely to receive timber from a wide radius around their facilities. However, it is also possible to calculate a scaled buyback figure by estimating the approximate volume of timber that would need to be retired upon the establishment of the proposed GKNP.

At \$20.67 per m³, the cost would be \$7.2 million. However, it is likely that the mills in the immediate proximity of the proposed GKNP would also need to be bought out, as the costs of acquiring timber from other areas and from other land tenures, such as plantations, may be prohibitive. This will add an additional cost of \$2-\$4 million, giving a total potential cost of a buyback program of \$9.2-\$11.2 million. This estimate could be considered a lower-bound estimate of the buyback cost.

⁵⁰ Minister for Primary Industries. NSW Government 2014. *Buyback to ensure sustainable supply of timber from North Coast Forests*. Available at: www.dpi.nsw.gov.au/data/assets/pdf_file/0015/520224/media_release_140624_timber_buyback_sustainable_supply_north_coast.pdf

⁵¹ An average annual inflation rate of 1.7% has been applied, reflecting consumer price inflation over the period using the RBA's inflation calculator.

4.4 CONSIDERATION OF THE CANCELLATION OF EXISTING WOOD SUPPLY AGREEMENTS

Ernst & Young (EY) was engaged by the Australian Forest Products Association to identify the annual economic impact of the cancellation of WSAs between wood manufacturing companies and Forestry Corporation NSW and the North Coast Forestry Area.⁵²

Ernst & Young findings

EY states that the North Coast forestry industry is almost entirely reliant on native forest hardwood logs and that the cancellation of WSAs will result in the loss of almost 30% of the total output, jobs and value added from the forestry and logging industry in the North Coast Forestry Area and approximately 45% of the output and value added in the sawmill manufacturing sector. That output and employment loss will be concentrated in smaller areas around sawmills, where sawmills may lose economies of scale and need to rationalise or shut down altogether.⁵³ According to EY, the cancellation of Boral's WSAs would result in the closure of their hardwood business in Australia.⁵⁴

The cancellation of all WSAs in the North Coast Forestry Area is then expected to result in a loss of over 415,000 m³ of harvested hardwood timber every year until 2023⁵⁵, resulting in a number of negative flow-on effects:

- An estimated reduction in total output of \$570 million per annum in the North Coast Forestry Area, as well as:
 - An additional \$187 million lost in output per annum in the rest of NSW
 - An additional \$64 million lost in output per annum in the rest of Australia
- An estimated reduction in total value added of \$224 million in the North Coast Forestry Area, as well as:
 - An additional \$68 million lost in value added per annum in the rest of NSW
 - An additional \$23 million lost in value added per annum in the rest of Australia
- An estimated 1,395 jobs no longer supported in the North Coast Forestry Area, as well as:
 - An additional 476 jobs no longer supported in the rest of NSW
 - An additional 167 jobs no longer supported in the rest of Australia.

⁵² Ernst & Young 2019. *The Economic impact of the cancellation of the NSW North Coast Wood Supply Agreements due to the creation of the Great Koala National Park*. p.7. Available at:

www.parliament.nsw.gov.au/lcdocs/other/12376/Tabled%20Document-%20Document%20entitled%20-%20The%20economic%20impact%20of%20the%20cancellation%20of%20NSW%20North%20Coast%20Wood%20Supply%20Agreements.pdf

⁵³ Ernst & Young 2019. *The Economic impact of the cancellation of the NSW North Coast Wood Supply Agreements due to the creation of the Great Koala National Park*. p.11. Available at:

www.parliament.nsw.gov.au/lcdocs/other/12376/Tabled%20Document-%20Document%20entitled%20-%20The%20economic%20impact%20of%20the%20cancellation%20of%20NSW%20North%20Coast%20Wood%20Supply%20Agreements.pdf

⁵⁴ Ibid. p.18.

⁵⁵ Ibid. p.18.

The National Parks Association (NSW) analysis

The NPA discounts the EY analysis on the basis that EY estimated the economic costs of ending *all* native forest logging in the North Coast Forestry Area. In particular, the NPA notes that:

- Existing wood product manufacturing is unlikely to be entirely reliant on the native sector
- Even if every logging-associated job was to be impacted, this would only equate to a figure of around 837 jobs.⁵⁶

Overall, the NPA estimates that the number of impacted jobs would likely be far smaller than estimated by EY and that the impact on local employment is similarly overstated. This is shown in see Table 4.2.

Table 4.2: NPA estimate of employment in the state forest native logging industry in the five LGAs where the proposed GKNP would be located⁵⁷

	# Jobs impacted				
	Clarence Valley	Coffs Harbour	Bellingen	Nambucca	Kempsey
Forestry and logging	81	68	15	N/a	9
Forestry support services	20	36	6	N/a	5
Log saw milling and timber dressing	205	46	41	N/a	31
Other wood product manufacturing	92	69	13	N/a	20
Total logging impact	398	219	75	N/a	65
Total LGA employment	16,347	28,878	3,612	N/a	9,334
Logging as a percentage of total LGA employment	0.02%	0.007%	0.02%	N/a	0.007%

The NPA further cites 2015 Parliamentary Budget Office (PBO) costings for establishing the proposed GKNP of \$119.5 million over two years, including:

- The cost of redundancy payments (\$50.8 million)
- Business exit assistance which incorporates timber buy-backs, worker retraining and reliant business assistance (\$64.1 million)
- Mill clean-up costs (\$4.6 million).⁵⁸

The NPA notes that the PBO's costings (similar to the EY report) also assumed that all state native forest logging would be impacted, that all WSAs in the north east NSW would need to be cancelled and therefore that state native forest logging would end.

⁵⁶ National Parks Association of NSW 2019. Submission No 163. *Inquiry into Koala Populations and Habitat in New South Wales*. p.22. Available at:

www.parliament.nsw.gov.au/lcdocs/submissions/64666/0163%20National%20Parks%20Association%20of%20NSW.pdf

⁵⁷ National Parks Association of NSW 2019. Submission No 163. *Inquiry into Koala Populations and Habitat in New South Wales*. p.2. Available at:

www.parliament.nsw.gov.au/lcdocs/submissions/64666/0163%20National%20Parks%20Association%20of%20NSW.pdf

⁵⁸ Ibid. p.23

The NPA also refers to a PBO study in 2019 which estimated the cost of establishing the proposed GKNP at \$80.6 million over five years. This included funding for a koala hospital, national park tourism facilities, ecological assessments of forests and employee related costs (hiring of 100 staff), noting that the bulk of this cost was staff payments (\$63.8 million over 5 years). Overall, the NPA concludes that the approximate total cost of ending state native forest logging in north east NSW, compensating industry and workers, establishing the proposed GKNP and employing 100 additional people (based on PBO figures) is estimated at \$200 million.⁵⁹

4.5 SUMMARY

Based the different 2019 estimates from EY and the NPA, as well as desk top research, this assessment makes, the following assumptions about the potential impact in the proposed GKNP region. They are:

- Around 600-750 direct state forest native logging FTEs would be impacted over ten years as the region transitions from state forest native logging
- The mid-point estimate is 675 FTEs over a 10 year period (or 67.5 FTEs per year).
- This mid-point estimate is about half the EY estimate of 1,395 FTEs⁶⁰ noting that EY assumes all state native forest logging in the North Coast Forestry Area would immediately cease on the establishment of the proposed GKNP
- This impact in state forest native logging employment would result in a reduction in regional direct gross value-added (in the five LGAs comprising the proposed GKNP region) of \$102 million over 10 years and a further \$190 million in indirect (flow-on) impacts⁶¹
- A NSW Government industry transition support package would be offered valued at \$169 million over 10 years. This figure equates to \$250,000 per FTE over 10 years
- The NSW Government would also compensate mill owners, such as Boral, up to an estimated \$30 million (in 2020 dollars) to buy back WSAs. Some of this money could remain in the region to be reinvested in other industries, although this effect has not been modelled as it is unknown.

⁵⁹ National Parks Association of NSW 2019. Submission No 163. *Inquiry into Koala Populations and Habitat in New South Wales*. p.24. Available at: www.parliament.nsw.gov.au/lcdocs/submissions/64666/0163%20National%20Parks%20Association%20of%20NSW.pdf

⁶⁰ Ernst & Young 2019. *The Economic impact of the cancellation of the NSW North Coast Wood Supply Agreements due to the creation of the Great Koala National Park*. p.18. Available at: www.parliament.nsw.gov.au/lcdocs/other/12376/Tabled%20Document-%20Document%20entitled%20-%20The%20economic%20impact%20of%20the%20cancellation%20of%20NSW%20North%20Coast%20Wood%20Supply%20Agreements.pdf

⁶¹ EY calculated a loss of \$224 million in value-added *each year*. This is driven by the assumption that the state native forestry logging ceases immediately rather than over a ten year period. However, the EY analysis also ignores the fact that forestry resources (capital and labour) could be put to alternative uses in subsequent years. In other words, the loss should only be for a single year. The GVA figure in this assessment is discounted at a 7% social discount rate.

5. Economic impact analysis

5.1 INTRODUCTION

As detailed in Section 2.2, an EIA methodology was applied to understand the direct and flow-on impacts of an increase in capital investment and operating expenditure related to new infrastructure in the proposed GKNP region and the related increase in tourism. It also includes the impacts of the state forest native logging transition.

5.2 CAPITAL INVESTMENT

The required capital investment is additional (or new) to the business-as-usual annual capital investment in the proposed GKNP region:

- **Stage 1: Initial capital investment for park establishment costs is \$102.3 million** (in nominal terms), mainly spread over the first three years. This figure includes koala habitat restoration investment in additional private property owner capital investment (funded by the Australian taxpayer to support the protection of koalas on private property in the proposed GKNP region)
- **Stage 2: Further capital investment is \$42.6 million** (in nominal terms) over three years, which is allocated to the construction of the multi-purpose visitor centre at Pine Creek, the Bowraville Visitor Centre upgrade) and various bushwalking and mountain biking networks.
- The **total capital investment to the end of Stage 2 is \$144.9 million** (in nominal terms).

This is shown in Table 5.1.

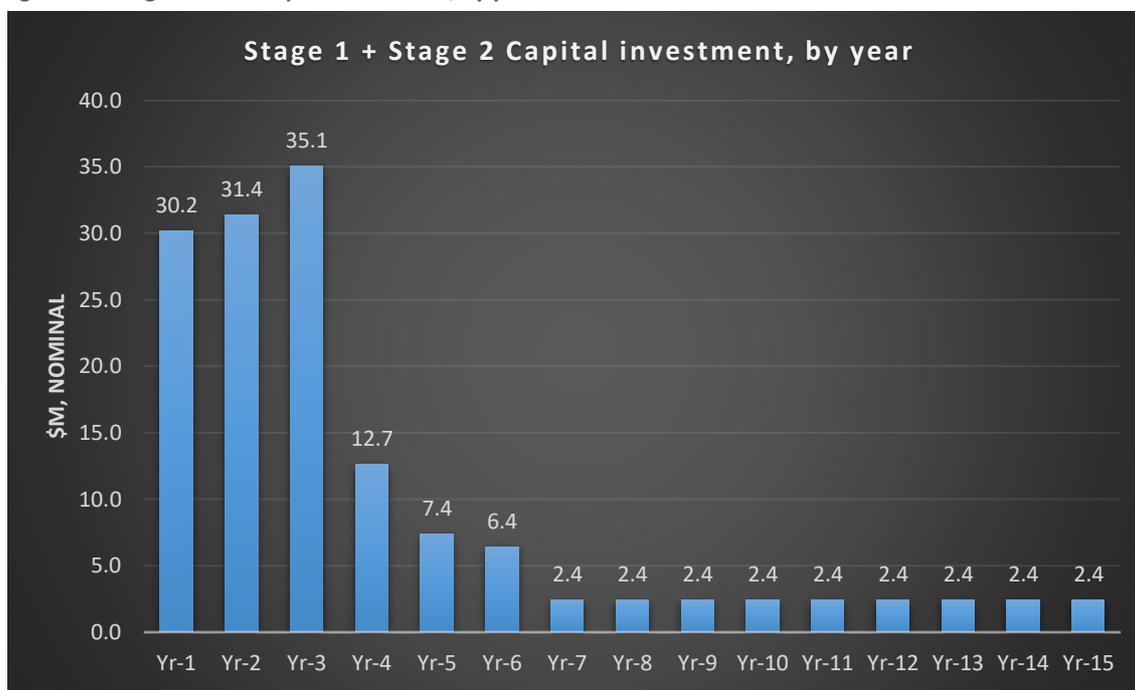
Table 5.1: Additional capital expenditure

Stage for capital investment	\$million (2019-2020)	Description
Stage 1: Park establishment	\$102.3m	Change in tenure of the existing state forests, with land being mapped and gazetted, borders drawn and habitat restoration activities (\$47.9m). Some basic infrastructure is also established, such as walking paths and signage being. Also private property investment (\$50.0m)
Stage 2: Park management	\$42.6m	Investment in visitor infrastructure including multi-purpose visitor centre at Pine Creek (\$10 million); walking and mountain biking trails (\$12 million); and Bowraville Visitor Centre (\$6 million)
Total Stages 1 and 2	\$144.9m	

Source: University of Newcastle analysis based on data supplied.

Figure 5.1 summarises total capital investment by year. Most of the capital investment occurs in the first three years. The ongoing capital investment of \$2.4 million per year relates to private property capital investment (funded by the Australian taxpayer to support the protection of koalas on private property in the proposed GKNP region).

Figure 5.1: Stages 1 and 2 Capital investment, by year



Source: University of Newcastle analysis based on data supplied.

5.3 OPERATIONAL EXPENDITURE

The operational expenditure for Stages 1 and 2 is additional (or new) to the business-as-usual annual expenditure in the proposed GKNP region:

- **Stage 1: Total operational expenditure is \$93.9 million** (in nominal terms)
- **Stage 2: Total additional operating expenditure is \$33.6 million** (in nominal terms).
- **The total operating expenditure to the end of Stage 2 is \$127.5 million** (in nominal terms)

This is shown in Table 5.2

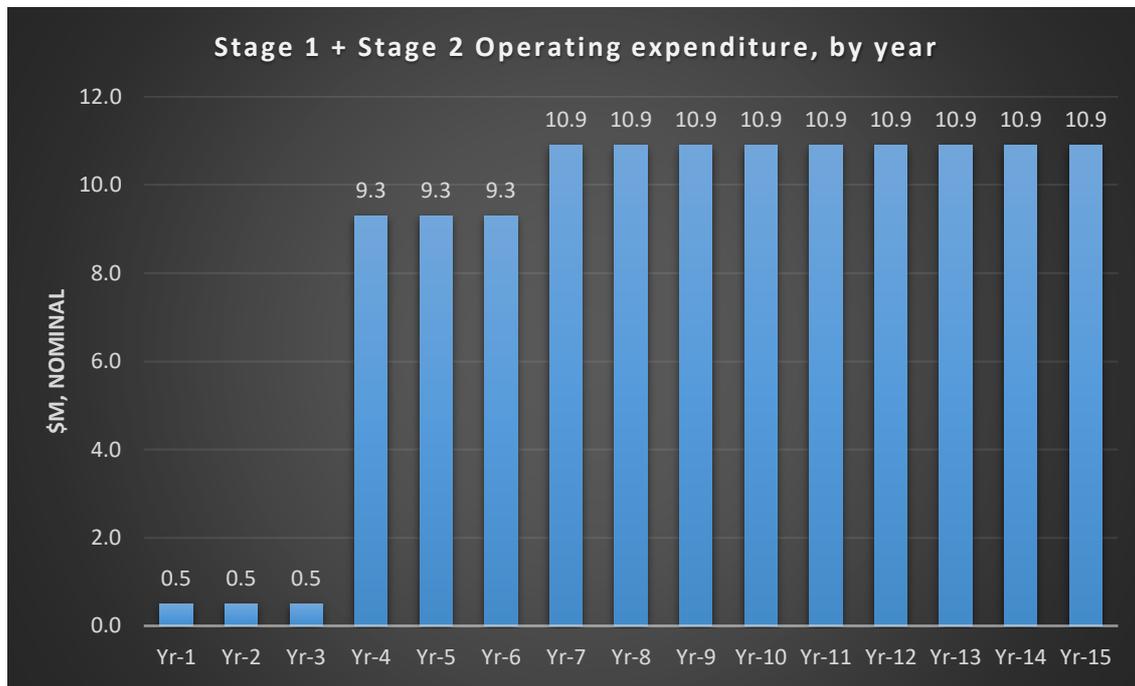
Table 5.2: Additional operational expenditure

Stage for Operational expenditure	\$million (2019-20)	Description
Stage 1: Park establishment	\$93.9m	Ongoing conservation and habitat management
Stage 2: Park management	\$33.6m	Ongoing conservation, habitat and visitor management and operations relating to park-based activities
Total Stages 1 and 2	\$127.5m	

Source: University of Newcastle analysis based on data supplied.

Figure 5.2 summarises total operating expenditure by year. From Year 4, once the proposed GKNP is fully operational and annual operating expenditure is estimated to be just under \$11 million per year.

Figure 5.2: Stages 1 and 2 Operating expenditure, by year



Source: University of Newcastle analysis based on data supplied.

5.4 STATE FOREST NATIVE LOGGING TRANSITION

A number of assumptions and estimates have been made about the potential impact of the proposed GKNP on the North Coast state forest native logging industry, including on employment, and the costs of mitigating these impacts (see also Section 4)

It is estimated that around 600-750 direct state forest native logging FTEs would be impacted over a 10-year transition period. As noted in Section 4.5, the mid-point estimate for the modelling is 675 FTEs impacted (or 67.5 FTEs per year). Without more detailed information about how the state forest native logging transition would take place, we have assumed the annual impact to be linear.

This would result in a reduction in regional direct gross value-added of \$102 million and a further \$190 million in indirect (flow-on) impacts (in the five LGAs).

It is assumed that the NSW Government would provide an industry transition support package, valued at \$169 million over the 10-year transition period. This is to support the state forest native logging industry and communities with retraining and related initiatives.

The NSW Government would also compensate suppliers an estimated \$25-\$30 million to buy back existing WSAs. Some of this compensation would likely remain in the region, although this effect has not been modelled because there is insufficient information available to determine the quantum.

There is some uncertainty about the impacts on FTEs and economic activity and the potential cost of WSA buybacks. As such, an estimated range is provided as shown in Table 5.3

Table 5.3: Estimated state forest native logging-related impacts

Indicator	Amount	Note
Direct FTEs	600-750 FTEs 675 FTE mid-point estimated	Impact over 10 years, so 67.5 FTE each year for 10 years
Direct GVA	\$102m	Over 10 years
Indirect and induced GVA	\$190m	Over 10 years
NSW Government compensation to wood suppliers	\$25-\$30m	The estimated compensation to buyback the WSA's would not necessarily be spent by suppliers in the region
NSW Government industry transition support package	\$169m	Assumed to be \$250,000 per FTE

Source: University of Newcastle analysis based on EY and NPA reports and the ABS National Accounts.

Table 5.4 summarises the estimated economic impacts of the transition of the state forest native logging industry per year in the proposed GKNP region.

Table 5.4: State forest native logging transition impact per year over ten years

Economic indicator	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Output (\$m)	(237.0)	(362.9)	(55.7)	(655.7)
Employment (FTEs) per year for ten years	(67.5)	(101)	(34)	(203)
Wages/Salaries (\$m)	(54.7)	(88.2)	(18.9)	(161.7)
Value-Added (\$m)	(102.4)	(158.2)	(31.5)	(292.2)

Source: University of Newcastle analysis based on REMPLAN model runs. Numbers in brackets denote negative numbers. Employment figures are per year over the 10-year state forest native logging transition period. From Years 11-15, there is no impact on employment.

The total decrease in regional gross value-added is \$102.4 million in net present value terms over 15-years, of which \$57.4 million is paid to workers as wages or salaries. It is estimated that 67.5 direct FTEs are impacted on average per year. This is derived from the assumption that a total of 675 state forest native logging FTEs would be impacted over a 10-year industry transition period.

An additional \$158.2 million reduction in indirect regional GVA is estimated which impacts 101 FTEs per year for ten years in the region. Induced impacts capture the additional spending in the economy from the wages paid to state forest native logging-related workers living in the region. An additional \$31.5 million reduction in induced GVA is estimated, impacting a further 34 FTEs per year for ten years.

These impacts are roughly one-half of the estimates made in the EY analysis. The reason is that that only the forestry activity directly impacted proposed GKNP will transition, rather than the whole forestry industry on the North Coast Forestry Area i.e. from just north of Sydney to the Queensland border.

5.5 TOTAL ECONOMIC IMPACTS

There are five broad economic impacts resulting from the proposed GKNP:

1. An increase in capital investment in the region (from government funds)
2. An increase in operating expenditure
3. An increase in the number of visitors staying longer in the region and an increase in the number of international visitors and higher per visitor spending across all market segments due to a national and international marketing and branding campaign
4. A transition from state forest native logging activity in the region
5. The provision of an industry transition assistance package by the NSW Government.

The analysis uses the REMPLAN model regional input-output model to estimate the indirect (or flow-on) effects of these five direct economic impacts.

The total economic impact of the proposed GKNP is positive in net terms, allowing for the transition in the state forest native logging sector, supported by an expected industry transition assistance package.

This is shown in Table 5.5.

Table 5.5: Total economic impacts for the proposed GKNP region (incl. state forest native logging transition)

Economic indicator	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Output (\$m)	398.5	623.7	157.6	1,179.8
Employment (FTEs) per year for 15 years	264	298	47	609
Wages/Salaries (\$m)	116.9	175.2	37.4	329.5
Value-Added (\$m)	170.9	268.9	90.7	530.5

Source: University of Newcastle analysis, based on REMPLAN model runs. The stream of impacts over the 15-year period of analysis have been discounted at 7% which is the social discount rate recommended by NSW Treasury. Wages/Salaries are a component of Value-Added. Value-Added is a component of Output.

The flow-on impacts across the supply-chain ,and via increased consumption, in the region are estimated to be very significant. For example, the total increase in output in net present value terms over 15 years is just under \$1.2 billion. Of this amount, a total of \$329.5 million in wages and salaries is paid, supporting a total of 609 FTEs per year on average. These figures provide an indication of the proposed GKNP’s likely economic footprint in the five LGAs.

6. Environmental benefit assessment

6.1 ENVIRONMENTAL BENEFITS

The environmental benefits of the proposed GKNP primarily relate to preserving koalas and their habitat, also more broadly, benefits related to preserving other aspects of the natural environment and biodiversity.

Preservation of the koala population

There is no widely accepted estimate of the total population size for Eastern Australia's vulnerable koala population. According to the World Wildlife Fund, there are currently 37 or 38 metapopulations with a likely total population size of 15-28,000 animals (pre 2019-20 summer bushfires).⁶² Surveys and population models show the majority of metapopulations across NSW, Queensland and the ACT are in decline, with reduced ability for transfer of genetic materials between populations. It appears likely that koalas have already disappeared from large areas of their former range in western NSW and Queensland, suggesting habitat conditions in these areas are now inadequate to support koala populations. Many existing populations are under high levels of threat from clearing, fragmentation and degradation of habitat, disease, natural disasters, roads, dogs and over-browsing.

The bushfires in the summer of 2019/2020 had a further devastating impact to existing koala populations. Seven combined bioregions were impacted by the fires i.e. NSW North Coast & South East Queensland, Sydney Basin, New England Tablelands, South East Highlands, South East Corner, Brigalow Belt & Nandewar and NSW Southwestern Slopes. The combined NSW North Coast & South East Queensland had 28.88% of the entire land surface burnt.⁶³

Conservative estimates indicate that these fires killed nearly 4,000 koalas between September and mid-December 2019. Overall, they conclude that the NSW koala population has declined by at least 28.52% (lower bound) to as high as 65.95% (upper bound) over the three most recent koala generations, inclusive of the impacts of the fire events up until mid-December 2019. These estimates do not take into account the many hundreds of thousands of hectares of otherwise unburnt koala habitat which have additionally been rendered unsuitable for koalas through water-stress leading to leaf-browning and loss of preferred browse species i.e. food sources.⁶⁴

⁶² World Wildlife Fund 2019. *Koala Habitat Conservation Plan*. p.9. Available at: www.wwf.org.au/ArticleDocuments/353/WWF-Koala%20Habitat%20Conservation%20Plan-Abridged.pdf.aspx

⁶³ Lane A., Wallis K., & Phillips S. 2020. *A review of the conservation status of New South Wales populations of the Koala (Phascolarctos cinereus) leading up to and including part of the 2019/20 fire event*. A report prepared for the International Fund for Animal Welfare. pp.3-4. Available at: https://d1jyxxz9imt9yb.cloudfront.net/resource/353/attachment/original/koala-conservation-status-in-new-south-wales_2_.pdf

⁶⁴ Ibid. p.4.

Greater biodiversity

The decline in the koala population is a symptom of a broader trend in which the ecosystems of many plant and animal species are increasingly under threat. The main drivers of the loss and fragmentation of koala habitat are excessive tree-clearing and deforestation.⁶⁵ For example, between 1990 and 2016, at least 9.6 million hectares of vegetation were cleared in NSW and Queensland, including both primary and regrowth forests.⁶⁶

The koala habitat conservation and restoration measures for the proposed GKNP would also benefit other species inhabiting forests and bushland of Eastern Australia, many of which are threatened with extinction.⁶⁷ These include marsupials (such as Greater Glider, Yellowbellied Glider, Spotted-tail Quoll, Eastern Quoll, Long-nosed Potoroo and Brushtailed Phascogale), many species of bats, birds, reptiles, invertebrates and plants. The proposed GKNP aims to significantly reverse the broad scale biodiversity decline in the forests and bushland of NSW and Queensland.

The *Royal Commission into National Natural Disaster Arrangements* also described the bushfires in the summer of 2019/2020 as an 'ecological disaster'.⁶⁸ Fires affected tens of millions of hectares of land in NSW, covering native forests and grasslands that serve as wildlife habitat and house ecosystems. Over 330 threatened species and 37 threatened ecological communities protected under Australian environmental law were affected. The impacted areas include sites which are recognised and protected under the EPBC Act for their significant ecological and heritage value, including World Heritage properties, National Heritage places and Wetlands of International Importance.

6.2 BIODIVERSITY VALUATION MEASURES

In the context of the proposed GKNP, the public environmental benefit relates to the preservation and sustainability of the NSW koala population and, more broadly, the protection of natural habitat and biodiversity.

Whilst some studies attempt to value koalas with reference to the commercial opportunities they offer, for example, in terms of greater tourism visitor numbers and associated expenditures, there are none which attribute a biodiversity value to koalas or koala populations. Estimating the environmental value of the proposed GKNP therefore requires a broader approach which focuses on the benefit of achieving more biodiversity, of which a more sustainable koala population is one aspect.

⁶⁵ World Wildlife Fund 2019. *Koala Habitat Conservation Plan*. p.9. Available at: www.wwf.org.au/ArticleDocuments/353/WWF-Koala%20Habitat%20Conservation%20Plan-Abridged.pdf.aspx

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Binskin 2020. *Royal Commission into National Natural Disaster Arrangements Report*. p.5. Available at: <https://naturaldisaster.royalcommission.gov.au/publications/royal-commission-national-natural-disaster-arrangements-report>

Biodiversity provides a so-called ‘non-use’ value to society. This is a value which comes from knowing an environmental feature will continue to exist in future, irrespective of any expectation of actual use.⁶⁹ This value is generally estimated on the basis of stated preference methods which assess individuals’ WTP to protect and maintain particular habitats or species which they may never themselves see.⁷⁰ In general, values for designated biodiversity areas vary greatly depending on the context, what ‘biodiversity’ encompasses and depending on the techniques to derive corresponding WTP values.

Biodiversity services are an important component of the ‘ecosystem’ services provided by parks and natural spaces and include carbon storage, water filtration, soil quality and many others.⁷¹

Potential approaches to environmental benefit assessment are described in Section 2.3. The most adaptable and practical approach for this assessment is the stated preference method drawing on the existing academic literature in the contingent valuation realm. Accordingly, two contingent biodiversity valuation methods are used which are applied to the information available about the potential *incremental* environmental benefits of transitioning 175,000 hectares of state forest into national parks.

Method 1: The Green Infrastructure toolkit

The *Green Infrastructure Toolkit* was developed to assist local stakeholders in making decisions about ‘green’ investments, such as parks and green spaces which offer a wider societal benefit.⁷² The toolkit provides a simple framework to help identify and broadly assess the benefits of proposed green investments, and existing green assets, including biodiversity.

The toolkit offers an approach to value investment in green infrastructure which can improve and protect habitats, provide ecosystem services such as pollination and support biodiversity. This includes green spaces in towns and cities and in sites designated of high value internationally such as Special Area of Conservation or UK statutory designation such as National Nature Reserve or Site of Special Scientific Interest.

The studies from which these estimates were derived vary in quality and draw on responses from UK residents only. The estimates are calculated in terms of pounds per hectare per household and are very low on a per hectare basis.

The proposed GKNP will comprise an area of 315,000 hectares. It is almost certainly of a size which is substantial enough to benefit all citizens of NSW (so that they would be deemed to benefit) and arguably also sufficiently large to benefit Australian citizens more generally. Given the iconic status and positive perception of koalas in the international community, there may indeed be international citizens and countries who may be deemed to benefit from the establishment of the proposed GKNP. However, to be conservative, these potential beneficiaries have been ignored.

⁶⁹ *Building natural value for sustainable economic development. The green infrastructure valuation toolkit user guide.* p.9. Available at: www.greeninfrastructurenw.co.uk/resources/Green_Infrastructure_Valuation_Toolkit_UserGuide.pdf

⁷⁰ Ibid. p10.

⁷¹ Varcoe, T., Betts O’Shea, H. & Contreras, V. 2015. *Valuing Victoria’s Parks – Accounting for ecosystems and valuing their benefits: Report of first phase findings.* Available at: www.forestsandreserves.vic.gov.au/_data/assets/pdf_file/0027/57177/Valuing-Victorias-Parks-Report-Accounting-for-ecosystems-and-valuing-their-benefits.pdf

⁷² *Building natural value for sustainable economic development. The green infrastructure valuation toolkit user guide.* p.9. Available at: www.greeninfrastructurenw.co.uk/resources/Green_Infrastructure_Valuation_Toolkit_UserGuide.pdf

Table 6.1 shows that the valuation of the proposed GKNP varies widely, ranging from around \$6 million for Australia for general green space, to more than \$3.4 billion for national nature reserves and similar.

Table 6.1: Valuation of the proposed GKNP, using the Green Infrastructure Toolkit Calculator⁷³

WTP for type of green space	Mid-point/average estimate A\$ 2019, inflation adjusted	Total value – NSW A\$ 2019	Total value – Australia A\$ 2019
WTP value for general green space	\$0.000007644	\$2m	\$6m
Additional WTP for Local Nature Reserves and similar	\$0.000249395	\$65m	\$206m
Additional WTP for National Nature Reserves and similar	\$0.004125995	\$1,083m	\$3,412m
Additional WTP for Woodland/Wetland	\$0.000181545	\$48m	\$150m

Note: 2016 ABS Census shows there were around 2.6 million households in NSW, compared to almost 8.3 million households in Australia.

Table 6.1 highlights that estimates of the WTP for ecosystems services can vary widely. This is because:

- People have differences in preferences, since people may differ in the importance they attach to the natural environment, including cultural preferences and levels of wealth or income
- Estimates of non-use values rely on stated-preference methods which ask people about their WTP without some form of budget constraint being attached to such valuations
- Stated preference methods require significant resources if they are to be done well and can suffer from biases that often limit their validity and reliability if that is not the case.⁷⁴

Overcoming these types of difficulties requires a rigorous survey design and testing the survey responses for their robustness, including by testing whether responses can be reproduced, internally consistent and are stable over time.

As such an alternative method to value biodiversity might be used.

Method 2: Meta-analysis of non-use values for biodiversity

Another approach is to combine multiple valuations to even out the variances. As such, a recent ‘meta-analysis’ has been used. This is a statistical analysis which combines the results of multiple studies of non-use values for biodiversity.⁷⁵ This analysis collected the results of 1,681 studies which focused on the conservation or restoration of habitats, species, or both. These studies were further assessed for their quality, including in terms of the methodology used, data quality and indications of bias. Out of the initial 1,681, 159 WTP valuations from 62 publications were selected.

⁷³ Now hosted on the Mersey Forest website at: www.merseyforest.org.uk/files/GI-Val_Calculator_v1.6.xlsx. See tab 10 on Biodiversity.

⁷⁴ Pearce, D., Atkinson, G. and Mourato, S. 2006. *Cost-benefit Analysis and the Environment: Recent Developments*. OECD. Available at: www.oecd.org/environment/tools-evaluation/36190261.pdf

⁷⁵ Nobel A., et al. 2020. *Are biodiversity losses valued differently when they are caused by human activities? A meta-analysis of the non-use valuation literature*. Environ. Res. Lett. 15. Available at: <https://iopscience.iop.org/article/10.1088/1748-9326/ab8ec2/pdf>

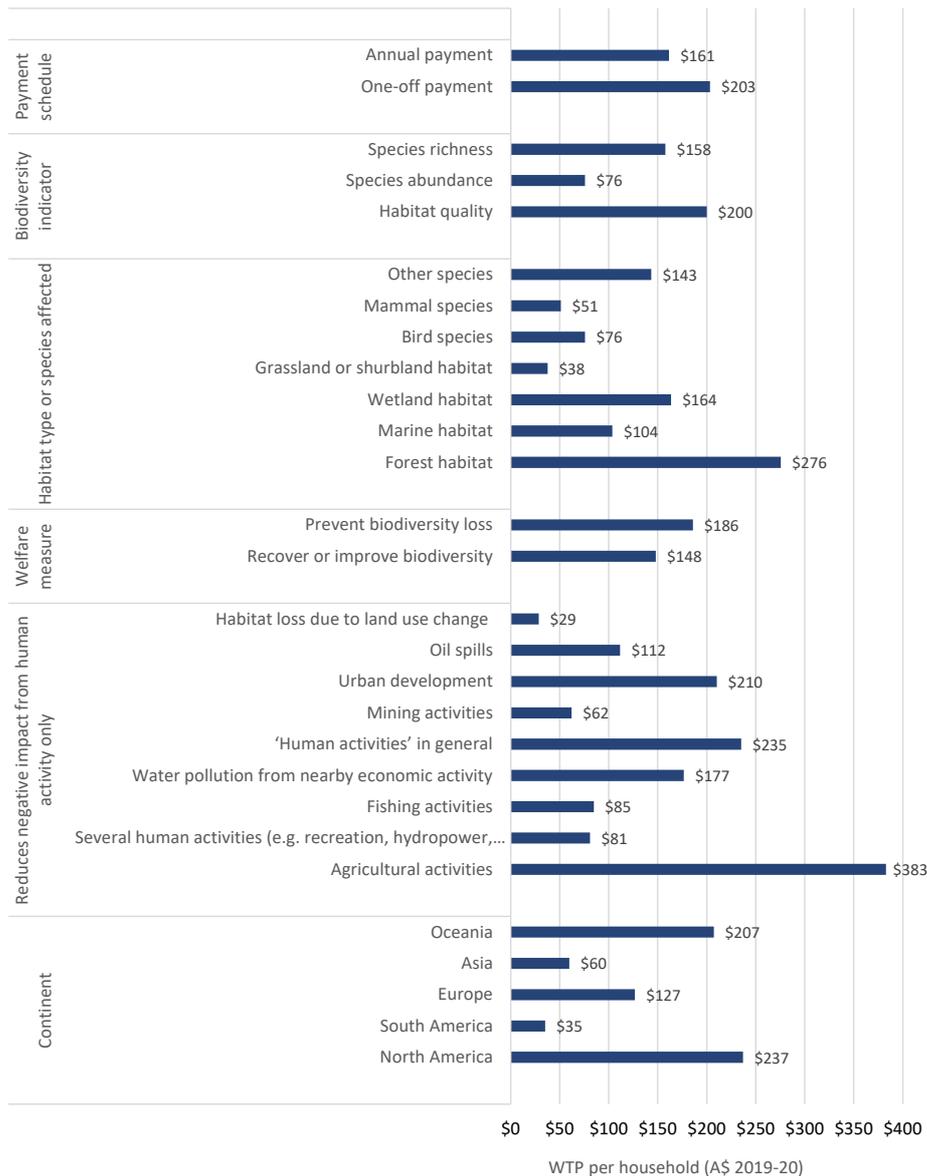
In these 62 publications, non-use values were measured in terms of WTP for biodiversity improvements or WTP to avoid biodiversity loss. Three definitions of biodiversity were generally used:

1. The quality of the habitat which is the broadest definition and does not indicate which particular biodiversity aspect will be affected within a habitat and to what extent
2. The number of individuals of a particular species in a particular area or species abundance
3. Species richness or the number of species within a particular area.

Figure 6.1 summarises the results of the analysis, converted into 2019-20 Australian dollars and expressed in terms of the annual WTP per relevant household (in NSW or Australia).⁷⁶

⁷⁶ The authors note some limitations of this meta-analysis, including that the results may be biased towards the preferences of North Americans and Europeans due to a lack of studies in other regions of the world. Also, due to the relatively imprecise definition of biodiversity in the majority of economic valuation studies, survey participants may have interpreted the same biodiversity change in different ways.

Figure 6.1: Value of biodiversity, WTP per household (AUD\$ 2019-20)



- The central average estimate across all studies reviewed in detail is that households would be prepared to make an annual payment of \$161 (or a one-off payment of \$203) to preserve biodiversity
- Households were found to have a WTP of \$148 per annum to recover or improve biodiversity or of \$186 per annum to prevent biodiversity loss
- The average WTP for biodiversity in Oceania (which includes Australia) is \$207 per annum
- The average WTP for biodiversity in a forest habitat is \$276 per annum (more than for other types of habitat)
- The annual WTP for biodiversity also varied with the indicator of interest, for instance \$200 for habitat quality, \$76 for species abundance, and \$158 for species richness.

The valuation of diversity using the meta-analysis approach is shown in Table 6.2:

Table 6.2: Valuations of biodiversity for the proposed GKNP using a range of WTP estimates

Biodiversity WTP estimates	NSW \$	Australia \$
Households would be willing to pay a one-off amount:		
Overall average WTP (one-off)	\$530m	\$1,685m
Households would be willing to pay an annual amount:		
Overall average WTP (annual)	\$421m	\$1,338m
Oceania average WTP (annual)	\$540m	\$1,717m
Average WTP – Recover or improve biodiversity (annual)	\$386m	\$1,227m
Average WTP – Prevent biodiversity loss (annual)	\$484m	\$1,541m
Average WTP – Habitat quality (annual)	\$521m	\$1,657m
Average WTP – Species richness (annual)	\$41m	\$1,308m
Average WTP – Minimum (Habitat loss due to land use change) (annual)	\$98m	\$312m
Average WTP - Maximum (Reduces negative impact on biodiversity from agricultural activities) (annual)	\$997m	\$3,173m

Taking all the average annual valuations, this presents a wide range of WTP valuations for the proposed GKNP as follow:

- For NSW, the aggregate annual WTP ranges from a minimum of around \$98 million to a maximum of \$997 million, with an average aggregate WTP of \$411 million
- For Australia as a whole, the aggregate annual WTP ranges from a minimum of around \$312 million to a maximum of more than \$3.1 billion, with an average aggregate WTP of around \$1.3 billion.

Taking a more conservative approach and only using one-off valuation:

- The one-off value using the overall average of WTP is around \$530 million
- The one-off value using the overall average of WTP is around \$1.7 billion.

This approach was used for the EBA.

There are a number of limitations of applying this methodology to the proposed GKNP. For example, the proposed GKNP is not the only home for koalas in Australia (although likely the most significant) and the creation of a more contiguous, rehabilitated landscape, in and of itself, may not dramatically increase koala numbers or biodiversity more generally in the short-term, and without allied measures.

However, the conservation area is large and only marginal improvements to habitat and biodiversity (from the transition from state forest to national park) will generate large monetary benefits according to the studies upon which this methodology is based.

6.3 SUMMARY

Environmental benefits have not been incorporated into the EIA because the benefits accrue to the whole of Australia whereas the EIA is focussed on the five LGAs in the proposed GKNP region. The 'non-use' value to society of the proposed GKNP has been assessed. This is defined as the value people attach to the knowledge an environmental feature will continue to exist in future, irrespective of any expectation of actual use.

Two approaches were adopted for this purpose and the results are:

1. **Green Infrastructure Toolkit:** The proposed GKNP would rank equivalent to a national nature reserve and may be valued at more than \$1 billion for NSW or more than \$3.4 billion for Australia as a whole
2. **International meta-analysis:** Using the one-off average WTP (rather than a more ambitious WTP per year), the value of the proposed GKNP for the NSW population is around \$530 million and for Australia is around \$1.7 billion.

Given that the state forests proposed to be transitioned already provide a broad range of environmental benefits (net of the negative impacts of state forest native logging), the incremental benefits of transitioning would be at the lower end of these estimates.

Accordingly, it is estimated that the total environmental value of the proposed GKNP to the Australian community is likely to be closer to the \$1.7 billion estimate. This implies an annual benefit valued at between \$70 and \$120 million depending upon the discount rate used to value a very long-lived environmental asset such as a national park.

Given the lack of detailed supporting information about the incremental increase in environmental benefits which would result from transitioning state forests to national parks, these estimates should be treated as high-level and preliminary.

7. Policy alignment for the proposed GKNP

7.1 OVERVIEW

The previous sections focused on the EIA and the EBA. This section considers the policy broader institutional benefits associated with the proposed GKNP, including meeting policy agreements, goals and objectives. In this context, it is relevant that Australia has a number of domestic and international agreements and initiatives for the preservation of species and biodiversity.

7.2 INTERNATIONAL POLICY ALIGNMENT ON SPECIES PROTECTION AND BIODIVERSITY PRESERVATION

Australia played an active role in the UN Rio Earth Summit of 1992 to develop the Convention on Biological Diversity. This ground-breaking international treaty links sustainable economic development with the preservation of ecosystems, species and genetic resources.

On signing the Convention, Australia agreed to develop two strategies:

1. A national strategy for the conservation of Australia's biodiversity, now known as *Australia's Strategy for Nature 2019-2030*
2. A strategy for a system of protected areas, now known as the *Strategy for the National Reserve System 2009-2030*

Australian Government is a signatory to Targets 11 and 12 from the most recent International Union for the Conservation of Nature (IUCN) Convention of Biological Diversity (Aichi summit):⁷⁷

Target 11

By 2020, at least 17% of terrestrial and inland water, and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscapes and seascapes.

Target 12

By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

In 2018, the Collaborative Australian Protected Area Database (CAPAD) showed that 19.74% of the Australian landmass was protected.⁷⁸ All 89 Australian bioregions have some representation, with 62 regions exceeding the target and 27 regions currently at less than 10% protected. In 2018, the bioregion for the proposed GKNP had 25.06% IBRA reservation which, as discussed in Section 4.2 already exceeds the IUCN's 15% protected area threshold and therefore is sufficient for meeting international convention targets.

⁷⁷ Convention on Biological Diversity 2010. *Aichi Biodiversity Targets to 2020*. Available at: www.cbd.int/sp/targets

⁷⁸ Department of the Environment 2018. *Terrestrial CAPAC 2018 National Summary*. Available at: www.environment.gov.au/system/files/pages/f329f2b1-6945-43df-9e96-f68ec893b116/files/capad2018-terrestrial-national.xlsx

7.3 NATIONAL POLICY ALIGNMENT ON SPECIES PROTECTION AND BIODIVERSITY PRESERVATION

Australia's Strategy for Nature has three goals, underpinned by twelve objectives⁷⁹. The three goals are linked to all 20 of the Aichi targets and also the 17 UN Sustainable Development Goals (SDGs). The Strategy has a strong focus on connecting all Australians with nature but importantly Goal 2 is 'Care for nature and all its diversity' with five objectives to:

- O5: Improve conservation management of Australia's landscapes, waterways, wetlands and seascapes
- O6: Maximise the number of species secured in nature
- O7: Reduce threats and risks to nature and build resilience
- O8: Use and develop natural resources in an ecologically sustainable way
- O9: Enrich cities and towns with nature.

The *Strategy for the National Reserve System 2009-2030* is the cornerstone of Australia's efforts to protect terrestrial biodiversity in a changing climate. All state and territory governments and the Australian Government agreed to adopt IUCN standards for the definition of protected areas and it is this strategy which supports Aichi Target 11. The definition of a protected area is:

A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.

The IUCN emphasises that protected areas should not be seen as isolated entities but part of broader conservation landscapes, including both protected area systems and wider conservation approaches implemented across the landscape. Whilst the part played by the sustainable management of productive ecosystems outside of protected areas, such as well-managed forests and defence areas, is recognised as an important contribution to the conservation of biodiversity, they are not managed exclusively for secure long-term conservation.

The Strategy notes there are six definitions of protected areas according to their management objectives which range from strict nature conservation to multi-use reserves. However, the management objectives must not be inconsistent with the primary purpose which is biodiversity conservation.

For the proposed GKNP, the definitions of Category II National park and Category VI Protected area with sustainable use of natural resources are important⁸⁰:

Category II National park

To protect a large natural or near natural areas set aside to protect large scale ecological processes, along with the complement of species and ecosystem characteristics of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.

⁷⁹ Australian Government, Department of Agriculture, Water and the Environment 2019. *Australia's Strategy for Nature 2019–2030*. Available at: www.australiansnaturehub.gov.au/national-strategy

⁸⁰ IUCN 2013. *Guidelines for applying protected area management categories including IUCN WCPA best practice guidance on recognising protected areas and assigning management categories and governance types*. Available at: <https://portals.iucn.org/library/node/30018>

Category VI Protected area with sustainable use of natural resources

To protect natural ecosystems and use natural resources sustainably, when conservation and sustainable use can be mutually beneficial

A landscape scale approach is a concept promoted by the IUCN in its 2020 *Guidelines for Conserving Connectivity through Ecological Networks and Corridors*⁸¹ based on 25 case studies which show that interconnected systems of protected and conserved areas are necessary for species and natural processes to persist in the face of climate change. *Australia's Strategy for the National Reserve System 2009-2030* also highlights the importance of strengthening ecological linkages at landscape scale and that:

*A comprehensive, adequate and representative system of protected areas cannot be achieved through the public reserve system alone. As a result, there are now protected areas on Indigenous land and private land where the primary purpose of management of the land is conservation of biodiversity and associated values.*⁸²

This approach is also the overarching principle of the Great Eastern Ranges Initiative in Australia (which runs through the proposed GKNP). Evidence suggests that increasing connectivity, or corridors (a term used interchangeably with connected landscapes), provides assistance against environmental stressors for wildlife, especially those living in relative isolation. Stressors are often due to the effects of climate change, which has increasingly led to disruptions in movement and breeding and can lead to a decrease in species' population size. Other evidence also suggests that connected patches of landscape more be effective towards decreasing extinction in wildlife population than isolated patches.

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is the Australian Government's principal piece of environment legislation to protect Australia's native species and ecological communities. It does this by providing for⁸³:

- Identification and listing of species and ecological communities as threatened
- Development of conservation advice and recovery plans for listed species and ecological communities
- Development of a register of critical habitat
- Recognition of key threatening processes
- Where appropriate, reducing the impacts of these processes through threat abatement plans and non-statutory threat abatement advices.

Koalas are currently listed as 'vulnerable' under the EPBC Act and also 'vulnerable' on the IUCN Red list in 2016 (in between 'near threatened' and 'endangered').⁸⁴ This is seen as a conservative listing and is perhaps somewhat out of date in 2020.

⁸¹ IUCN 2020. *Guidelines for conserving connectivity through ecological networks and corridors*. Available at: <https://portals.iucn.org/library/node/49061>

⁸² Australian Government 2009. *Australia's Strategy for the National Reserve System 2009-2030*. p.23. Available at: www.environment.gov.au/system/files/resources/643fb071-77c0-49e4-ab2f-220733beb30d/files/nrsstrat.pdf

⁸³ Australian Government Department of Agriculture, Water and the Environment 1999. *Threatened species & ecological communities*. Available at: www.environment.gov.au/biodiversity/threatened

⁸⁴ Woinarski, J. & Burbidge, A.A. 2020. *Phascolarctos cinereus (amended version of 2016 assessment)*. *The IUCN Red List of Threatened Species 2020*. Available at: <https://dx.doi.org/10.2305/IUCN.UK.2020-1.RLTS.T16892A166496779.en>

In October 2020, the Threatened Species Scientific Committee published its finalised priority assessment list (to assess threatened species from October 2020 to October 2021) and this list proposes a revised assessment for koalas (combined populations of Qld, NSW and the ACT) as 'endangered'⁸⁵. It is important to note however, that this revised assessment is the only nomination from the public on the list, the other 27 species being nominated by the Committee. If approved as 'endangered' this will mean that the koala will become of national environmental significance and that actions which have, or are likely to have, a significant impact on a matter of national environmental significance will require approval under the EPBC Act.

7.4 STATE POLICY ALIGNMENT ON SPECIES PROTECTION AND BIODIVERSITY PRESERVATION

In NSW, the key pieces of legislation which identifies and protects threatened species, populations and ecological communities in NSW biodiversity is the *Biodiversity Conservation Act 2016* (BC Act).

The NSW National Parks and Wildlife Service (NPWS) manages over 7 million hectares (more than 9%) of land across NSW, including more than 870 protected areas. These protected areas play a critical role in conserving biodiversity, as well as natural and cultural heritage. NPWS produces a plan of management for each park which contains information including the natural environment, Aboriginal heritage, history and recreational opportunities in a park. The plans are a requirement under the *National Parks and Wildlife Act 1974* and help guide the conservation of biodiversity, rehabilitation of landscapes and the protection of natural and cultural heritage, including protection of world heritage values and management of world heritage properties in a park. They also include management principles for use of a park by Aboriginal people for cultural purposes, sustainable visitor or tourist use, natural resource management and land management practices.

Effective fire management plays a significant part of species protection and biodiversity preservation and national parks and reserves have a fire management strategy to manage fire operations in parks and reserves to protect life, property, and community and environmental assets in the event of a bushfire.

As evidenced in the findings from the *Royal Commission into National Natural Disaster Arrangements* and the *NSW Bushfire Inquiry* land and fire management in Australia is critical, especially with climate change impacts. The NSW community meetings held as part of the Inquiry found that there was wide ranging community perception that fuel loads were high and hazard reduction before the fire season could be improved.⁸⁶ However, the Inquiry found that fuel loads were on average no higher than they have been for the last 30 years. What was different was the dryness of the fuel following extensive drought condition, especially in Northern NSW.⁸⁷

However, this perception of fuel load (and also perceptions about NPWS's ability to effectively manage such a large area), may affect community support for the proposed GKNP.

⁸⁵ Threatened Species Scientific Committee 2020. Finalised Priority Assessment List for the Assessment Period Commencing 1 October 2020. Available at: www.environment.gov.au/system/files/pages/e0a90020-a411-4508-adac-53758c304de1/files/2020-finalised-priority-assessment-list.pdf

⁸⁶ NSW Government 2020. *Final Report of the NSW Bushfire Inquiry*. p.12. Available at: www.dpc.nsw.gov.au/assets/dpc-nsw-gov-au/publications/NSW-Bushfire-Inquiry-1630/Final-Report-of-the-NSW-Bushfire-Inquiry.pdf

⁸⁷ Ibid. p.47.

7.5 SPECIFIC POLICIES FOR KOALA CONSERVATION

In Australia, the first *National Koala Conservation Strategy* was released in 1998. It identified the major issues for koalas as clearing, fragmentation and degradation of habitat, disease, natural disasters, roads, dogs, and over-browsing. The Strategy addressed these issues with six objectives comprising: conservation of koalas in existing habitat; restoration of degraded habitat; better understanding of the conservation biology of koalas; education; management of captive, sick or injured koalas; and management of over-browsing.

However, an evaluation of the Strategy found that although it remained a good framework for the conservation and management of koalas, the Strategy itself was not properly implemented. There was little evidence to demonstrate that the Strategy had driven any of the achievements over the previous 10 years. As such, the *National Koala Conservation and Management Strategy 2009-2014* was developed which stressed that 'loss of habitat is the major threat to the koala in Queensland and New South Wales and is the primary factor responsible for declining populations in those states'⁸⁸. This is in addition to over-browsing, natural disasters (fire and drought), disease, vehicle collisions, predation by dogs and climate change. Importantly, the Strategy noted that:

*Healthy ecosystems provide a broad range of biodiversity benefits, so protecting and restoring natural habitat is essential not just for koalas but also for a wide range of other species that depend on these habitats. Habitat conservation efforts often take place at a **multi-species or landscape scale** and efforts to address koala habitat should be integrated into these approaches wherever possible to achieve maximum benefit for koalas and other species and ecological communities.*

Unfortunately, rolling out a national strategy again proved problematic and the Strategy was not re-published after 2014. Now, Queensland, New South Wales and the Australian Capital Territory have developed their own policies and strategies relevant to the context in their regions.

The NSW Government lists the koala as 'vulnerable' and notes that koalas are one of Australia's most iconic animals, recognisable around the world. However, koala populations are under increasing pressure and have declined in NSW by around 26% in the last 15 to 20 years. To prevent this rate of decline the NSW Government has two strategies specifically for koalas to securing them in the wild for the next 100 years:

- *Saving our Species* which was established under the BC Act. It is important to note that the koala is not listed in the BC Act but is managed under *Saving our Species*
- The three-year *NSW Koala Strategy*⁸⁹ which was published in May 2018 in response to the NSW Chief Scientist and Engineer's 2016 *Independent Review into the Decline of Koala Populations in Key Areas of NSW*.

The *Saving our Species* koala strategy has a five-year budget for 2017-21 of \$4 million (\$800,000 per year) and identifies twelve priority management sites, two of which are in the boundaries of the proposed GKNP They are:

⁸⁸ Australian Government 2009. *National Koala Conservation and Management Strategy 2009-2014*. Available at: www.environment.gov.au/system/files/resources/165139fc-3ab5-4c96-8b15-d11a1ad882ab/files/koala-strategy.pdf

⁸⁹ NSW Government Office of Environment and Heritage 2018. *NSW Koala Strategy*. Available at: www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/nsw-koala-strategy-18250.pdf

- Bongil Bongil National Park in Bellingen, Clarence Valley, Coffs Harbour LGA. Actions include habitat creation in Bongil Bongil National Park (6.5 hectares) and additional plantings to infill corridors within the Bellingen site
- Clarence Valley. Actions include areas for core koala habitat mapped, revegetated and/or restored.

The *NSW Koala Strategy* commits \$44.7 million to stabilise koala populations which includes \$20 million to acquire land to protect koala habitat and \$24.7 million to implement strategy actions. The land acquisition element includes:

- The creation of over 24,000 hectares of new koala reserves and parks in the Central Coast, Southern Highlands, North Coast, Hawkesbury and Hunter
- The transfer of over 4,000 hectares of native forest with koala habitat to the national parks estate, including on the Mid North Coast.

In addition, the NSW Biodiversity Conservation Trust will invest funds to help interested landholders protect and manage koala habitat on their land. The Biodiversity Conservation Trust works with eligible landholders to maximise their options for diversifying income while protecting koala habitat on their land, for example, through annual management payments or grants.

The *NSW Koala Strategy* also aims to deliver a network of koala hospitals, relocate koalas to unoccupied koala habitat and deliver priority research under a research plan informed by a research symposium.

One critical program which will underpin all future NSW koala strategies is the mapping and analysis undertaking to identify priority management responses. Under the *Saving our Species* koala strategy, the *Framework for the spatial prioritisation of koala conservation actions in NSW* will be vital to provide a more accurate map of threats to koalas in different parts of NSW.⁹⁰ The areas of regional koala significance (ARKS) of the proposed GKNP covered in the Framework and their assessment are:

- 8. Clouds Creek: High resilience and moderate security
- 9. Coffs Harbour-North Bellingen: Moderate resilience and moderate security
- 30. North Macleay-Nambucca: Moderate resilience and moderate security.

The ARKS form one of the layers in the *Koala Habitat Information Base* which provides NSW spatial data on koala habitat, likelihood, koala preferred trees and koala sightings. The Information Base includes:

- The Koala Habitat Suitability Model – predicts the probability of finding koala habitat at any location
- A Koala Tree Suitability Index – indicates the probability of finding a tree species that koalas are known to use for food or shelter
- Koala Likelihood Map and Koala Likelihood Confidence Map – predicts the likelihood of finding a koala at a location

⁹⁰ NSW Government, Department of Planning, Industry and Environment 2020. *Framework for the spatial prioritisation of koala conservation actions in NSW*. p.20-20. Available at: www.environment.nsw.gov.au/research-and-publications/publications-search/framework-for-the-spatial-prioritisation-of-koala-conservation-actions-in-nsw

- Areas of regional koala significance (ARKS) – identify regions mapped as having key koala populations with potential for long-term viability
- Native vegetation of New South Wales – this high-resolution map shows the extent of native tree cover and water bodies across New South Wales
- Koala sightings recorded in NSW BioNet.

Although before the bushfires in the summer of 2019/2020, the Information Base confirms that the areas within the proposed GKNP are high in terms of tree suitability, koala likelihood and native vegetation extent.

The Australian Government continues to provide funding to support koala habitat protection and restoration projects in Northern New South Wales and South East Queensland and in early 2020 the Department of Agriculture, Water and the Environment conducted a cost-benefit analysis using the Investment Framework for Environmental Resources (INFFER) tool to inform the prioritisation of project sites.⁹¹

The analysis identified that on the NSW North Coast, the main levels of threat to koalas were:

- Fragmentation – past clearing for agricultural/urban development which has created a legacy of fragmented, isolated and small patches of habitat
- Degradation of existing habitat – habitat quality may be affected by a suite of interacting factors, including: drought, wildfire, overgrazing, weed invasion and altered habitat structure from disrupted ecological processes, for example, changed fire regimes, hydrological change
- Drought/heat stress – climate change is a potential threat to the koala, as it is expected to lead to increased temperatures, changes to rainfall, increasing frequency and intensity of droughts and increased fire risk.

13 ARKS in NSW were assessed using INFFER and ranked to recommend the priority areas for improving koala habitat based on input from the NSW Department of Planning, Industry and Environment and Local Land Services. Two ARKS, 9. Coffs Harbour-North Bellingen and 30. North Macleay-Nambucca were ranked 2nd and 10th respectively with benefit cost ratios of 0.55 and 0.09 respectively. In particular, for 9. Coffs Harbour-North Bellingen the comments included:

Lower threats, good habitat value. Lots of NP and State Forest. Work to be done around Lowanna-Ulong on private land (very small section of the ARKS). Low confidence on the KLM that could improve with survey. Potential to improve connectivity with surrounding reserves and forests.

The report concluded that:

*If there is preference to invest in more than one ARK area, then Belmore River, Coffs Harbour-North Bellingen and Port Macquarie are the top three priority regions.*⁹²

Taken collectively, this means there are increasingly multiple measures to identify koala habitat and confirms the importance of the proposed GKNP region for koalas. Indeed, the Coffs Harbour-North Bellingen ARK is a priority region and if the koala becomes listed as a threatened species, as noted in Section 7.2.2, then this priority ARK will be critical to the survival of the koala in NSW.

⁹¹ Natural Decisions 2020. *INFFER analysis – Koala Conservation*. For the Australian Government. Available at: www.environment.gov.au/system/files/resources/9d85470b-45f9-4e70-b5a5-21a502d57c9a/files/koala-conservation-inffer-report.pdf

⁹² Ibid. p.21.

7.6 NSW STATE ENVIRONMENTAL PLANNING POLICY

Under the NSW *Environmental Planning and Assessment Act 1979*, State Environmental Planning Policy No. 44 (SEPP 44), ‘potential koala habitat’ refers to areas of native vegetation where the trees that are listed in Schedule 2 of the policy constitute at least 15% of the total number of trees in the upper or lower strata of the tree component. ‘Core koala habitat’ refers to land with a resident population of koalas, evidenced by attributes such as breeding females and recent sightings as well as historical records of a population.

This SEPP was repealed and replaced on March 2020 with a new definition for ‘core koala habitat’, two maps and the most up to date trees species data but still no guidelines on how the tools should be utilised. Like SEPP 44 it still only applies to council-approved development. There has been extensive debate and comment from both private landowners and the environmental lobby on the changes, especially given the proposed changes to the Local Land Service Act definition are also weak.

7.7 COUNCIL KOALA PLANS OF MANAGEMENT

In the proposed GKNP, all of the five LGAs have *Koala Management Plans* which aim to identify locally mapped habitat at a sufficiently fine granularity to be useful for planning approvals. Anyone submitting a Development Application which requires removal of native vegetation as a part of the development (and if the development is situated within the mapped area), will need to consult the Plan to determine which provisions are applicable to the proposed development.

These five Plans will support the identification of where habitat is, or was, before the bushfires in the summer of 2019/2020 which will assist the private land conservation efforts which are an important part of Stage 1 of the establishment of the proposed GKNP.

7.8 RECENT DEVELOPMENTS

The past six months have seen unprecedented media coverage on koalas as a result of Australian and NSW Government policy proposals and development approvals. In addition, the recent approval of the Brandy Hill quarry expansion⁹³ is an example of the conflict between federal and state planning policies.

Whilst not official NSW Government policy, in 2019, the NSW Minister for Energy and Environment revealed plans to expand the national park estate by 200,000 hectares over the next two years.⁹⁴ This goal was exceeded in October 2020 and the Minister now plans to double this target with another further 200,000 hectare expansion within two years.⁹⁵ Whilst many new national parks created have been relatively modest and additions to existing national parks, the target in 2019/20 was given a boost via a private land acquisition (rather than reclassification of land) of Narriearra Station near Tibooburra to create the Narriearra Caryapundy Swamp National

⁹³ Australian Broadcasting Corporate 2020. *Koala habitat to be cleared as Brandy Hill quarry expansion approved*. 27 October 2020. Available at: www.abc.net.au/triplej/programs/hack/koala-habitat-to-be-cleared-as-brandy-hill-quarry-approved/12819180

⁹⁴ Sydney Morning Herald 2019. *NSW minister proposes 10-fold increase in national park creation rate*. 18 August 2019. Available at: www.smh.com.au/environment/conservation/matt-kean-added-202-000ha-of-national-parks-now-he-wants-another-200-000ha-20201030-p56a66.html

⁹⁵ Sydney Morning Herald 2020. *Matt Kean added 202,000ha of national parks. Now he wants another 200,000ha*. 30 October 2020. Available at: www.smh.com.au/environment/conservation/matt-kean-added-202-000ha-of-national-parks-now-he-wants-another-200-000ha-20201030-p56a66.html

Park of 153,682 hectares.⁹⁶ The station is an important refuge for threatened wildlife, with more than 25 threatened animal species, including nearly 90% of NSW's critical habitat and breeding areas for the nationally endangered Grey Grasswren. This development is potentially a positive sign that the NSW Government might support the creation of national parks to save and/or protect vulnerable species.

7.9 CONCLUSION

Policies and legislation can be strong and often singular instruments to create change and support the achievement of a policy goal or commitment. However, they can be open to interpretation and negotiation and many occur in highly politicised situations. As has been seen in NSW in the past six months, the koala, even more that its landscape scale habitat, has been the source of robust contention at government and community level. A pivot further towards large habitat conservation at this point seems far off.

The policy alignment for the establishment of the proposed GKNP is strongest at federal level (apart from the recent Brandy Hill quarry expansion decision) although Australia has already achieved its goals for IBRA in the IBRA NSW North Coast bioregion. It is also nominally strongly aligned at a NSW Government level for the proposed GKNP region because this region is covered at a granular level by the ARKS mapping and the INFFER conclusions. At a local level, to some extent, koalas are more formally protected on land which might be developed, by the five LGA Koala Management Plans. The recent creation of national parks in NSW is to be supported but whether state forest transition to national parks is politically and economically acceptable and can be realised is yet to be seen.

⁹⁶ The Land 2020. *New national park to be created in NSW's North West*. 29 June 2020. Available at: www.theland.com.au/story/6810054/record-land-purchase-for-new-national-park

8. Conclusion

OVERALL FINDINGS

This assessment has found that the proposed GKNP has economic merit and environmental benefit and should be further supported.

Economic impact analysis

The EIA is conservative as there is significant potential to further increase the assumptions for international and domestic overnight visitor numbers and visitor expenditure. It also includes the impacts of the state forest native logging transition and an industry transition support package.

The flow-on impacts across the supply-chain, and via increased consumption in the region, are estimated to be very significant.

The assessment shows that the net impact is:

- Increase in **total output of \$1.18 billion over 15 years**
- **Additional FTEs of 9,810 in new jobs by the end of 15 years and loss of 675 FTEs** in the state native forest logging sector over 10 years i.e. net additional 9,135 FTEs
- **Additional total value-added of \$531 million over 15 years.** Of this, \$330 million is paid in wages and salaries in net present value terms to workers living in the region.

Environmental benefit assessment

The EBA assessment is also conservative and there is potential to further develop these estimates. However, even on a conservative basis, the benefits are not insignificant and equate to added biodiversity value of around \$530 million for the NSW population and around \$1.7 billion for all Australians.

The assessment shows that the environmental benefits equate to added biodiversity value of:

- Around **\$530 million for the NSW population**
- Around **\$1.7 billion for all Australians.**

Policy alignment

The policy environment for the creation of the proposed GKNP has shifted slightly in the last six months due to community and political pressure due to both NSW Government and Australian Government policy decisions. The NSW Minister for Energy and Environment actions and more recent commitments to increase the national park estate in NSW will support the proposed GKNP but these commitments may have to be treated with caution given there is no existing policy framework to support them and there is considerable uncertainty about how koalas and their habitat will be impacted by the Koala SEPP and further policies on land clearing within NSW.

OTHER CONSIDERATIONS

There are many other benefits to the proposed GKNP which go beyond increased visitation, especially nature-based and eco-tourism in the Mid North Coast. These include mental health benefits and additional soil, water and air quality benefits which have not been considered in this assessment. Although these benefits are less easy to quantify, they will potentially generate significant positive outcomes to visitors, the community, local indigenous people and local businesses.

The bushfires in the summer of 2019/2020 raised significant awareness beyond local environmental groups about the plight of the koala and this, plus the 2020 NSW Parliamentary Inquiry into *Koala populations and habitat in New South Wales* and continued media attention has created a 'perfect storm' of public opinion.

The fact that koalas in their native habitat may become extinct in NSW by 2050 is a core legacy issue for the current population of NSW and indeed Australia. There is little doubt that without substantial policy and financial intervention, of which the proposed GKNP is a significant one, koala populations and other species of flora and fauna on the Mid North Coasts of NSW will continue to struggle to thrive and survive.

NEXT STEPS

This assessment provides an evidence base which highlights several key channels of potential value which may warrant further evaluation of the potential benefits of the proposed GKNP.

It is recommended that a full business case be commissioned by the NSW Government to evaluate the net economic and environmental benefits of the proposal. As part of this, there would need to be:

- Further research on visitor demand analysis, especially for international and overnight domestic visitors and their spend patterns
- An assessment of the business opportunities for tourism activities and experiences
- Community engagement, especially indigenous engagement around cultural land conservation and joint management models, including stakeholder mapping to understand more broadly the impact of the proposed GKNP on the regional community
- Assessment of the role of private landowners in koala habitat conservation and regeneration, especially where connectivity corridors might be created
- Research into the benefits of transitioning state forests to national parks
- Research to determine the impact on the state forest native logging industry on the Mid North Coast and over what timeframe, including a consideration of an appropriate industry adjustment package to support retraining
- Research on a potential koala branding and marketing campaign.

SUMMARY

The proposed GKNP is a critical intervention to conserve and rehabilitate koala habitat in order to provide koalas in NSW with the best chance of survival. The EIA and the EBA both estimate positive outcomes for the region, despite the potential impact of the transition from the state forest native logging industry. The results of this assessment can be used to inform further decision making by all levels of government who are committed to long term regional development and environmental and social sustainability.

Appendix A: Capital investment and operating expenditure

Capital investment assumptions

Capital investment \$ nominal (Years 1-15)	Total \$m
Stage 1	
Park establishment costs	3.8
Koala habitat restoration	47.9
Private property support	50.0
World Heritage Assessment	0.6
Stage 1 TOTAL CAPEX	102.3
Stage 2	
Multi-purpose visitor centre Pine Creek	10.4
Bowraville visitor centre	6.0
Multi-day bushwalking trails	6.0
Mountain bike network	6.0
Coast walk	0.8
Self-guided car tours	2.0
Coastal cycleway	2.0
Horse riding trails	2.5
Four-wheel driving tours	0.2
Local bushwalk network	4.4
Ecotourism support program	0.1
Dorrigo visitor centre upgrade	0.3
Shuttle bus networks	2.0
Stage 2 TOTAL CAPEX	42.6
Total Stages 1 + Stage 2 Capital investment	\$144.9m

Source: University of Newcastle estimates based on data supplied.

Operating expenditure assumptions

Operating expenditure \$ nominal (Years 1-15)	Total \$m
Stage 1	
Park management	57.6
Koala habitat restoration	28.8
Koala centre of excellence	7.5
Stage 1 TOTAL OPEX	93.9
Stage 2	
Visitor management	19.2
Bushwalking trails (5% capital cost)	2.7
Mountain bike network (5% capital cost)	2.7
Shuttle bus networks	9.0
Stage 2 TOTAL OPEX	33.6
Total Stages 1 + 2 Operating expenditure	\$127.5m

Source: University of Newcastle estimates based on data supplied.

Appendix B: Economic impact multipliers used

Capital investment

Without detailed business case plans, capital investment is generally distributed equally between the Construction and Construction Services industries. Table B1 shows the Type 1 (indirect) and Type II (indirect and induced) capital investment multipliers which were derived from the REMPLAN model used in the EIA.

Table B1: Capital investment phase economic multipliers (Stage 1 and Stage 2)

Economic indicator	Type 1 multiplier	Type II multiplier
Output	1.897	2.200
Employment	2.250	2.750
Wages/Salaries	2.279	2.766
Gross Value Added	2.198	2.802

Source: REMPLAN model runs.

Operating expenditure

Table B2 shows operating expenditure distributed against the certain industries in the REMPLAN model to determine the industry multipliers.

Table B2: Operating expenditure phase economic multipliers (Stage 1 and Stage 2)

OPEX	% share
Retail trade	20%
Food & Beverage	20%
Sport & Recreation	50%
Rental & Hiring	5%
Other Services	5%
Total	100%

Source: REMPLAN model runs.

Table B3 shows the Type 1 (indirect) and Type II (indirect and induced) operating expenditure multipliers, derived from the REMPLAN model, used in the EIA.

Table B3: Operating expenditure phase multipliers (Stage 1 and Stage 2)

Economic indicator	Type 1 multiplier	Type II multiplier
Output	1.530	1.926
Employment	1.333	1.500
Wages/Salaries	1.427	1.732
Gross Value Added	1.536	2.049

Source: REMPLAN model runs.

Visitor expenditure

Table B4 show the distribution of visitor expenditure against certain industries based on the Tourism Satellite Accounts and the TRA North Coast visitor consumption data in the REMPLAN model.

Table B4: Visitor expenditure

	Visitor expenditure	
	\$m	% share
Accommodation services	580.6	10.3%
Actual and imputed rent on dwellings	129.3	2.3%
Takeaway and restaurant meals	1,005.2	17.9%
Taxi fares	54.9	1.0%
Local area passenger transportation	42.8	0.8%
Long distance passenger transportation	891.8	15.8%
Motor vehicle hire and lease	66.5	1.2%
Travel agency and tour operator services	342.0	6.1%
Recreational, cultural and sporting services	323.2	5.7%
Gambling and betting services	30.7	0.5%
Shopping (including gifts and souvenirs)	637.2	11.3%
Food products	348.0	6.2%
Alcoholic beverages and other beverages	323.2	5.7%
Motor vehicles, caravans, boats, etc	67.1	1.2%
Fuel (petrol, diesel)	615.1	10.9%
Repair and maintenance of motor vehicles	11.6	0.2%
Education services	92.5	1.6%
Other tourism goods and services	66.0	1.2%
Direct tourism consumption	\$5,627.7m	100%

Source: TRA North Coast Visitor Survey.

Table B5 shows the Type 1 (indirect) and Type II (indirect and induced) visitor expenditure multipliers, derived from the REMPLAN model, used in the EIA.

Table B5 Visitor expenditure multipliers

Economic indicator	Type 1 multiplier	Type II multiplier
Output	1.447	1.817
Employment	1.200	1.400
Wages/Salaries	1.402	1.701
Gross Value Added	1.443	1.890

Source: REMPLAN model runs.