NSW FUTURE FOREST SCENARIOS

NSW FOREST MONITORING AND IMPROVEMENT PROGRAM
COMMUNITY FORUM ON FOREST MONITORING
NSW NATURAL RESOURCES COMMISSION

Webinar 5: 1 December 2022

Australian National University

Peter Kanowski & Steve Cork – ANU
Team Members: Simon Ferrier – CSIRO, Steve Lade – ANU

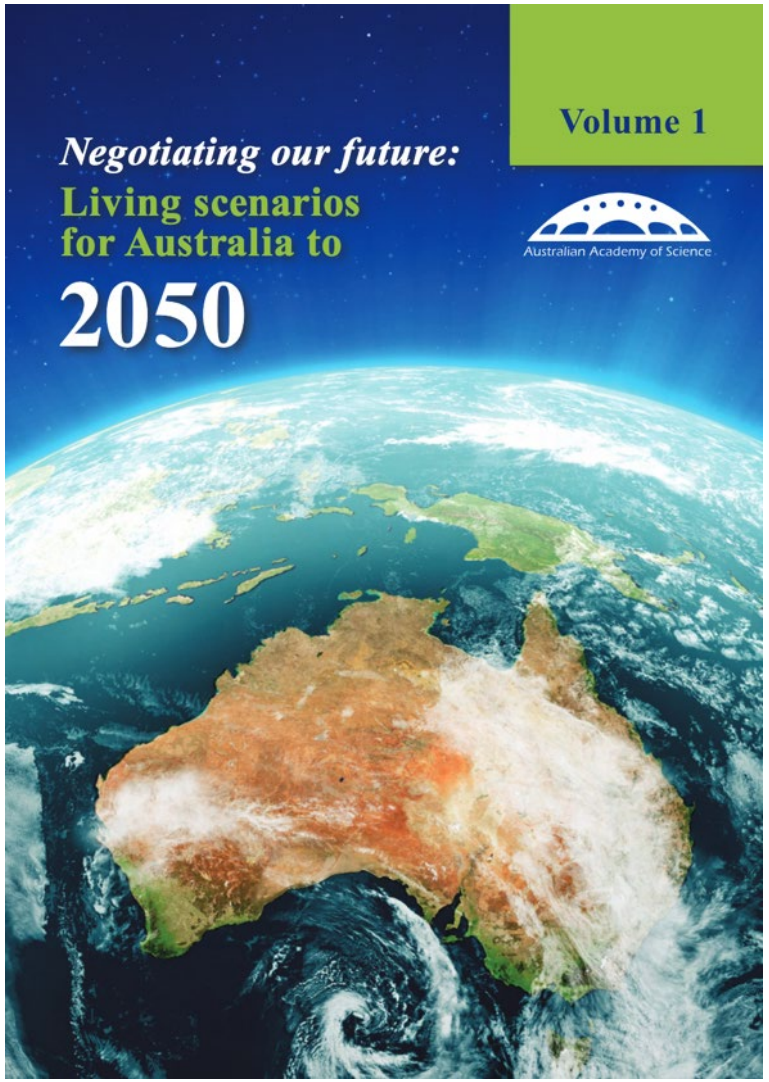
envcomm.act.gov.au/soe_about-the-report/

What we did …

- **An exploratory study** of scenarios thinking, applied to "NSW forests"
- **An expert group** (c 15 people), and facilitation team
- **A two-stage virtual process**, of exploration & refinement, Sept 2021 – Feb 2022
- **A report** (May 2022) presenting
  - background
  - methods/ approach
  - 8 example scenarios

(see www.nrc.nsw.gov.au/fmip-future)

A related example …



www.science.org.au

This forum

- **Why scenarios?**
- **What are scenarios?**
  (and what are they not?)

- **Our methods**
- **Selected examples**

- **Commentary from panellists**
- **Q&A**

www.nrc.nsw.gov.au/fmip-future

Context

- Significant, dynamic challenges
  - environmental: climate change, drought, fire, floods ...
  - socio-economic: COVID, demography, economy, geopolitics ...

- Need to consider:
  - Future states and roles of forests (social, economic, ecological …)
  - Possible pathways to alternative futures

- To do this:
  - Understanding of the present and how we got here
  - Imagination/ visions of future; where we would like to get to

= Foresight (syn. futures-thinking, futures-studies …)

Foresight

- Structured, systematic thinking about *multiple possible futures*
- Many approaches and tools
- Many (not all) include **scenarios**

Scenarios

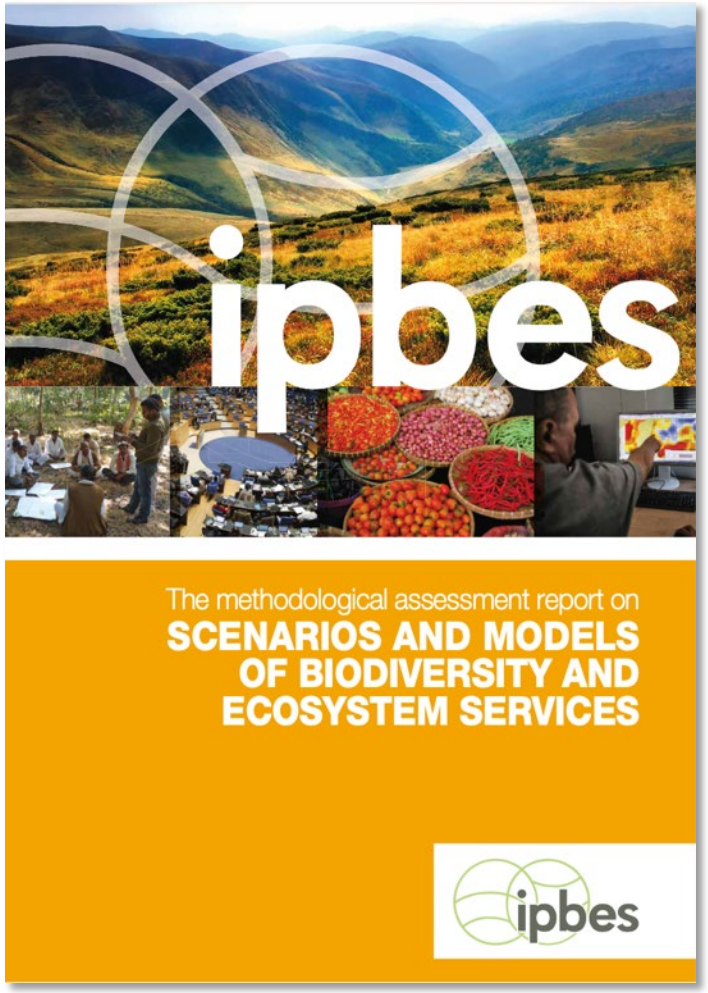
Are internally consistent narratives that:

- Explore uncertainties about futures
- Explain our thinking and test logic
- Catalysts for ongoing conversations engaging diverse stakeholders

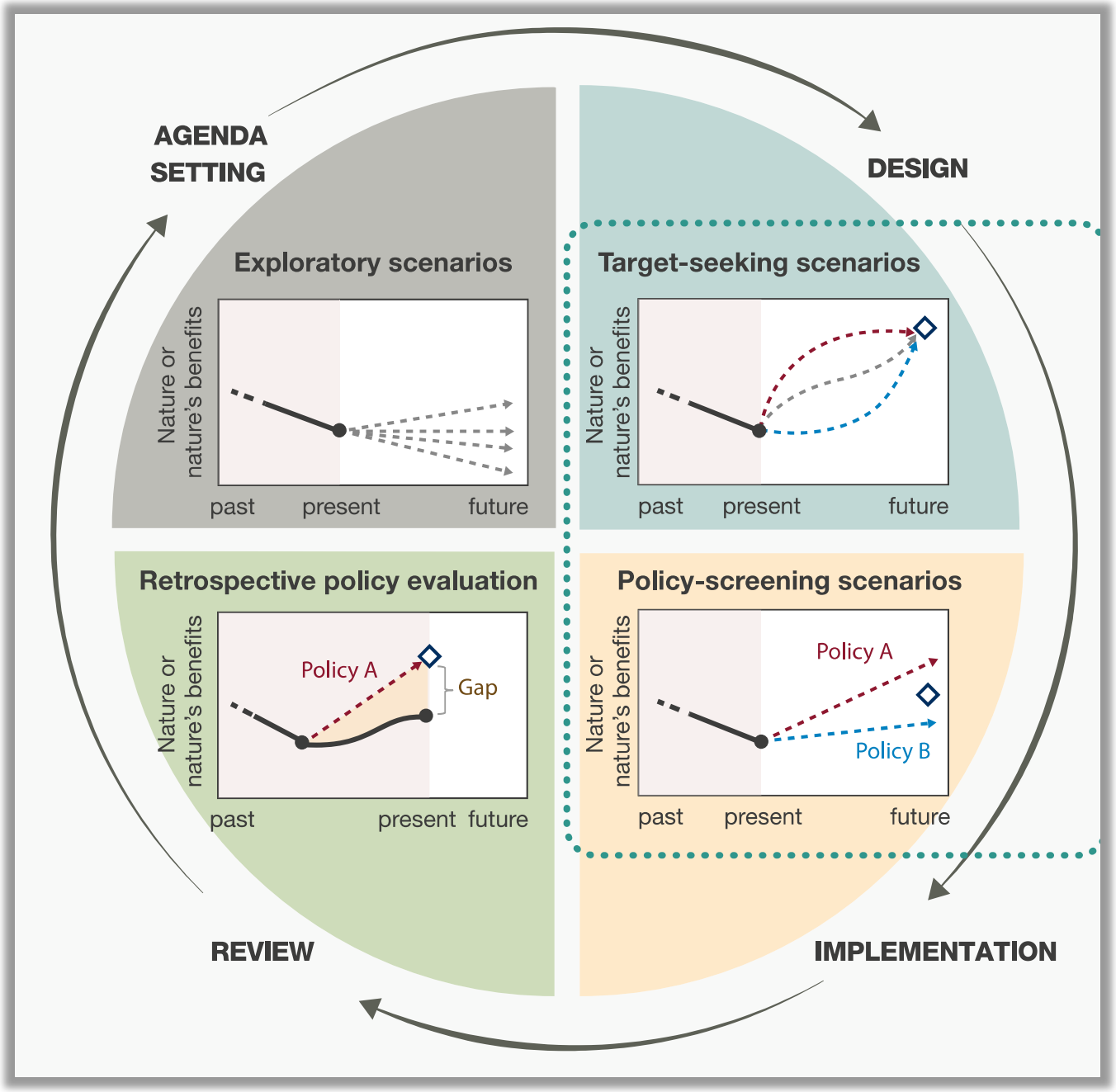
Are not:

- Predictions
- Endpoints

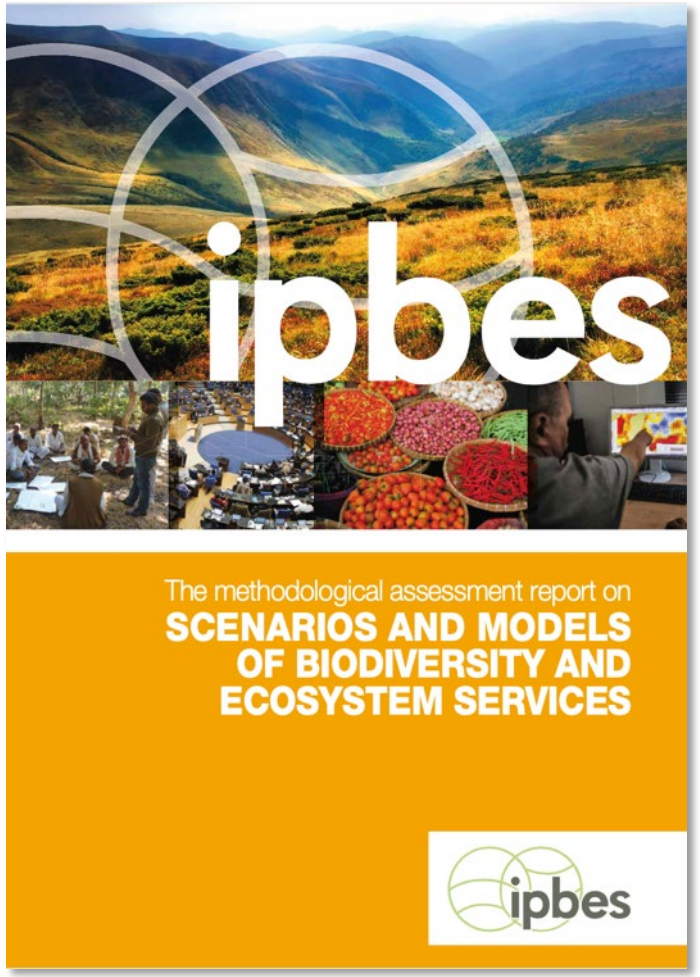
Scenarios can be used in all phases of policy cycles



ipbes.net/assessment-reports/scenarios



Our focus:
Exploring possible futures



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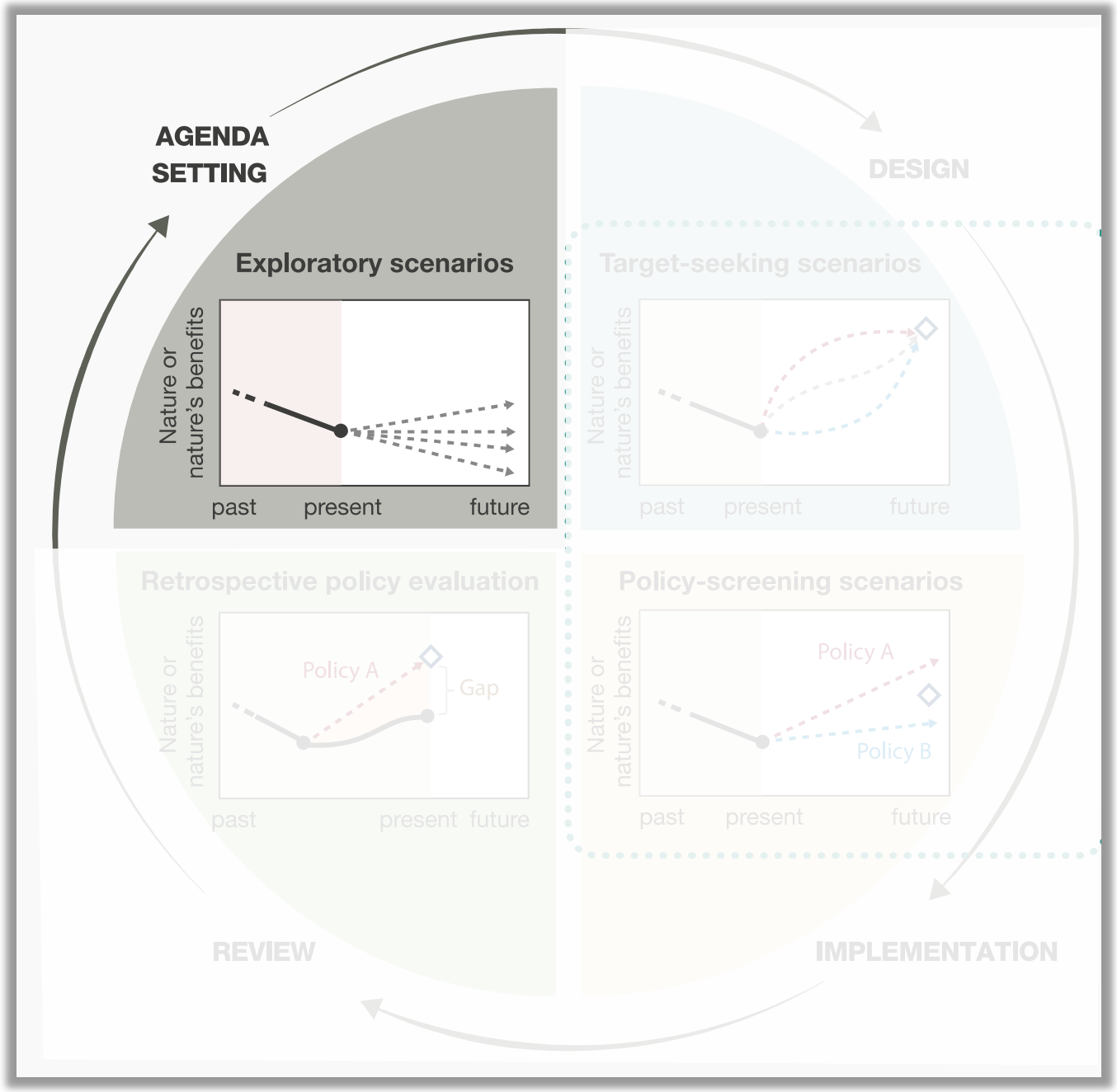
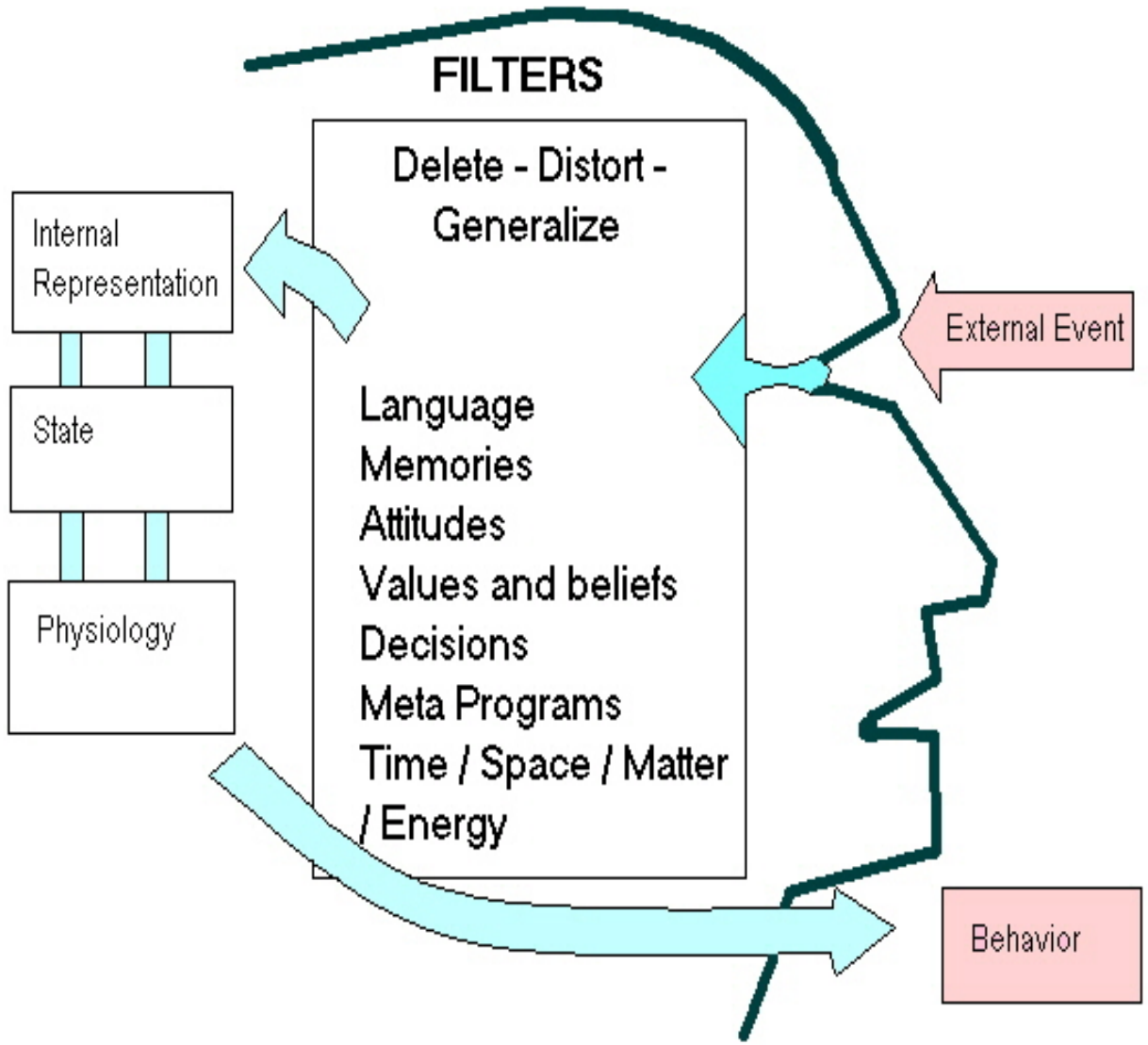


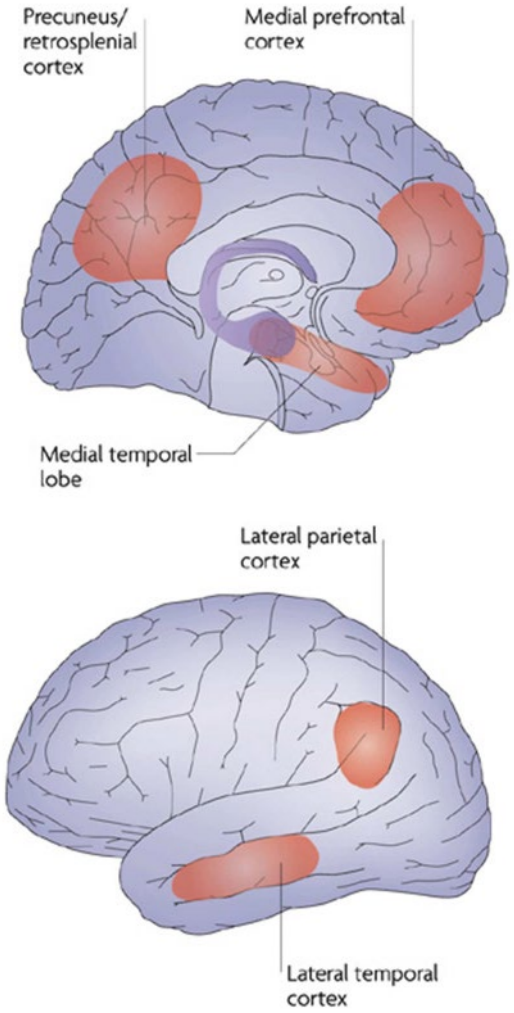
Imagination “failures”

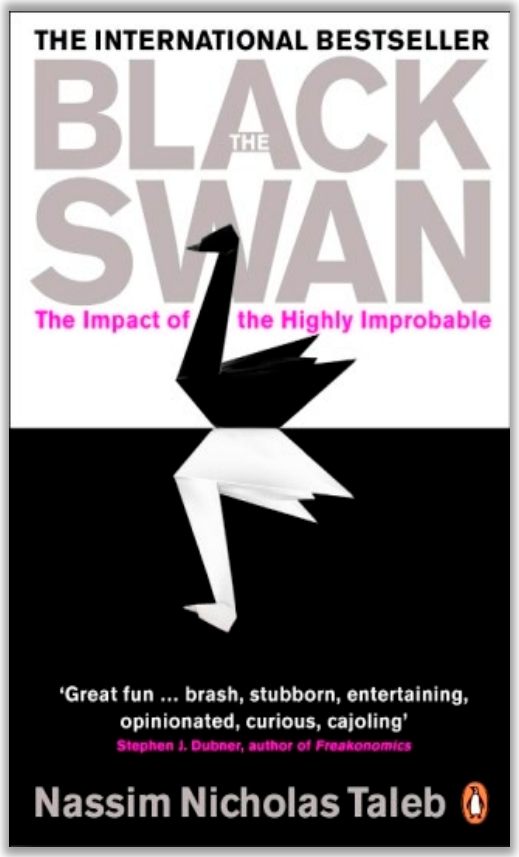
- Failure to comprehend the current situation



Imagination “failures”

- Failure to comprehend the current situation
- Narrow imagination of possible/ desirable futures

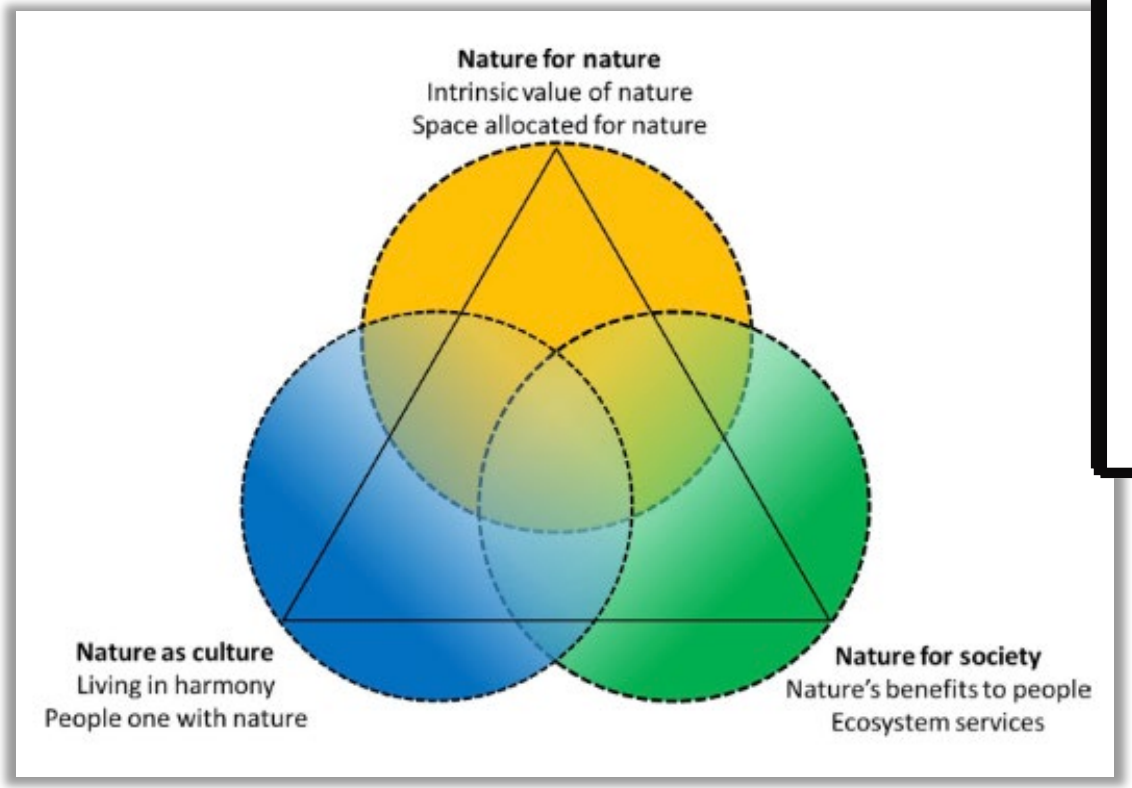




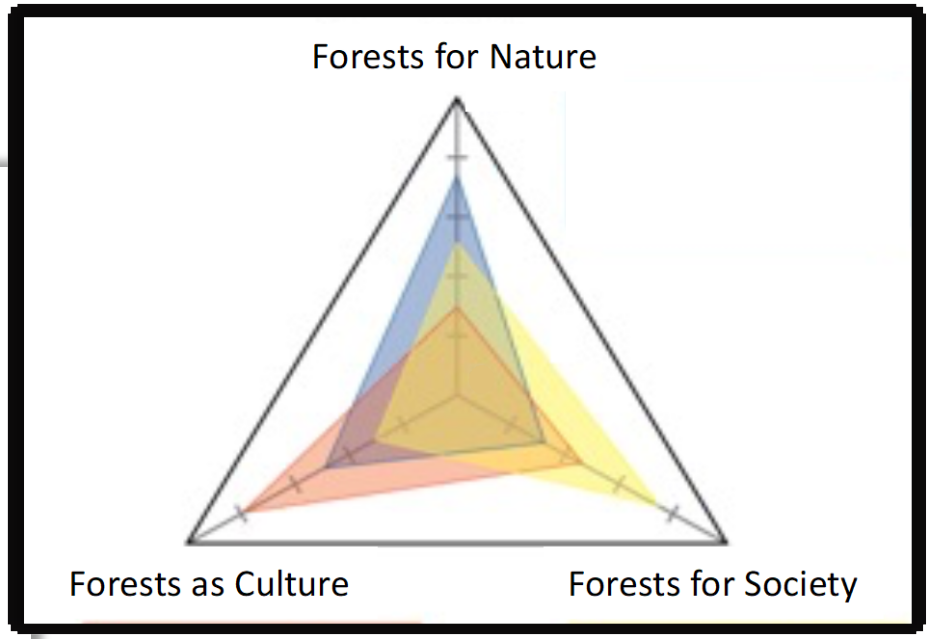
Irish & Piguet (2013) *Frontiers in Behavioural Neuroscience* 7, Article 27
www.frontiersin.org

Clarifying values

Nature Futures Framework (IPBES)

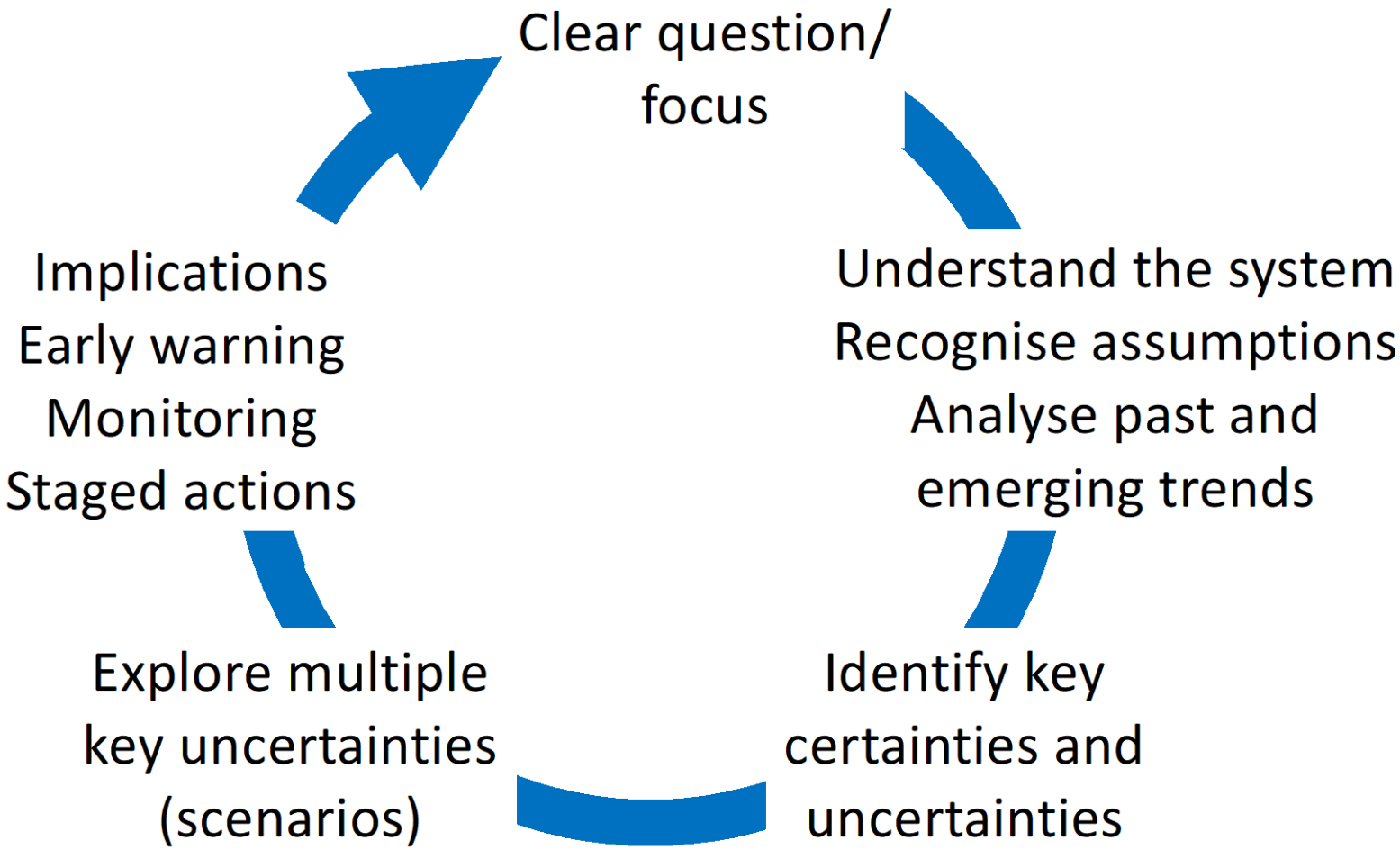


Modified framework for this project

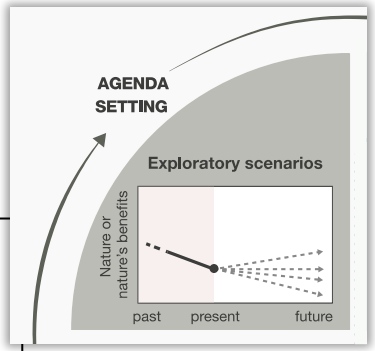


Pereira LM, Davies KK, Belder E, Ferrier S, Karlsson-Vinkhuyzen S, et al. 2020. Developing multiscale and integrative nature –people scenarios using the Nature Futures Framework. People Nat. 2(4):1172–95

A process


Clear question/
focus
Understand the system
Recognise assumptions
Analyse past and
emerging trends
Identify key
certainties and
uncertainties
Explore multiple
key uncertainties
(scenarios)
Implications
Early warning
Monitoring
Staged actions

Process overview



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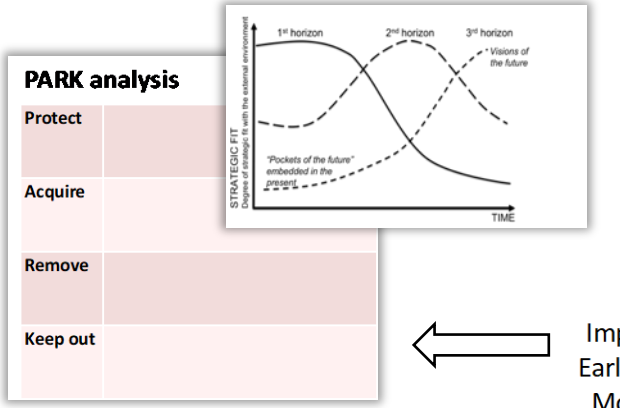
- the pathways by which these futures emerge;
- the implications of different decisions along the way?



Clear question/ focus

Understand the system
Recognise assumptions
Analyse past and emerging trends

Identify key certainties and uncertainties

Explore multiple key uncertainties (scenarios)

Implications
Early warning
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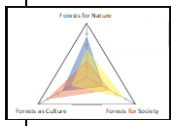
Inputs from participants on:
- Values
- Drivers of change
- Assumptions

Added opportunistically:
- Limited scan of literature
- NSW Government reports



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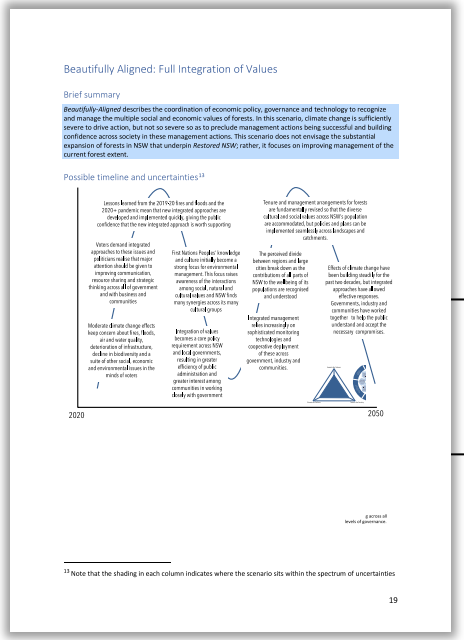

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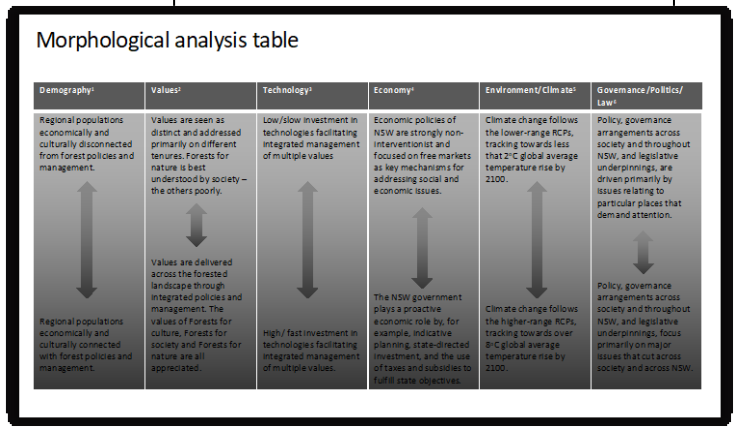

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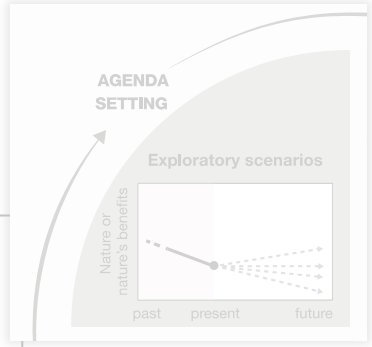

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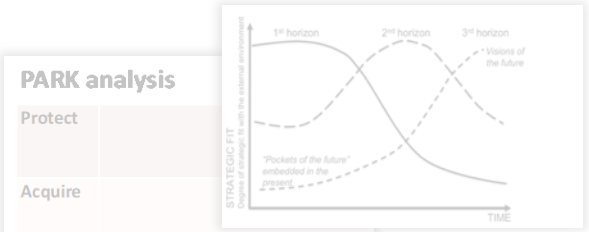

PARK analysis

Protect	
Acquire	
Remove	
Keep out	

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Morphological analysis table

Demography[1]	Values[2]	Technology[3]	Economy[4]	Environment/Climate[5]	Governance/Politics/Law[6]
Regional populations economically and culturally disconnected from forest policies and management.	Values are seen as distinct and addressed primarily on different tenures. Forests for nature is best understood by society – the others poorly.	Low/slow investment in technologies facilitating integrated management of multiple values	Economic policies of NSW are strongly non-interventionist and focused on free markets as key mechanism s for addressing social and economic issues.	Climate change follows the lower-range RCPs, tracking towards less that 2°C global average temperature rise by 2100.	Policy, governance arrangements across society and throughout NSW, and legislative underpinnings, are driven primarily by issues relating to particular places that demand attention.
Regional populations economically and culturally connected with forest policies and management.	Values are delivered across the forested landscape through integrated policies and management. The values of Forests for culture, Forests for society and Forests for nature are all appreciated.	High/ fast investment in technologies facilitating integrated management of multiple values.	The NSW government plays a proactive economic role by, for example, indicative planning, state-directed investment, and the use of taxes and subsidies to fulfill state objectives.	Climate change follows the higher-range RCPs, tracking towards over 8°C global average temperature rise by 2100.	Policy, governance arrangements across society and throughout NSW, and legislative underpinnings, focus primarily on major issues that cut across society and across NSW.

Implications
Early warning
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Staged actions

Explore multiple key uncertainties (scenarios)

Inputs from participants on:
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6 areas of uncertainties (columns)

Gradations of possible future outcomes within each

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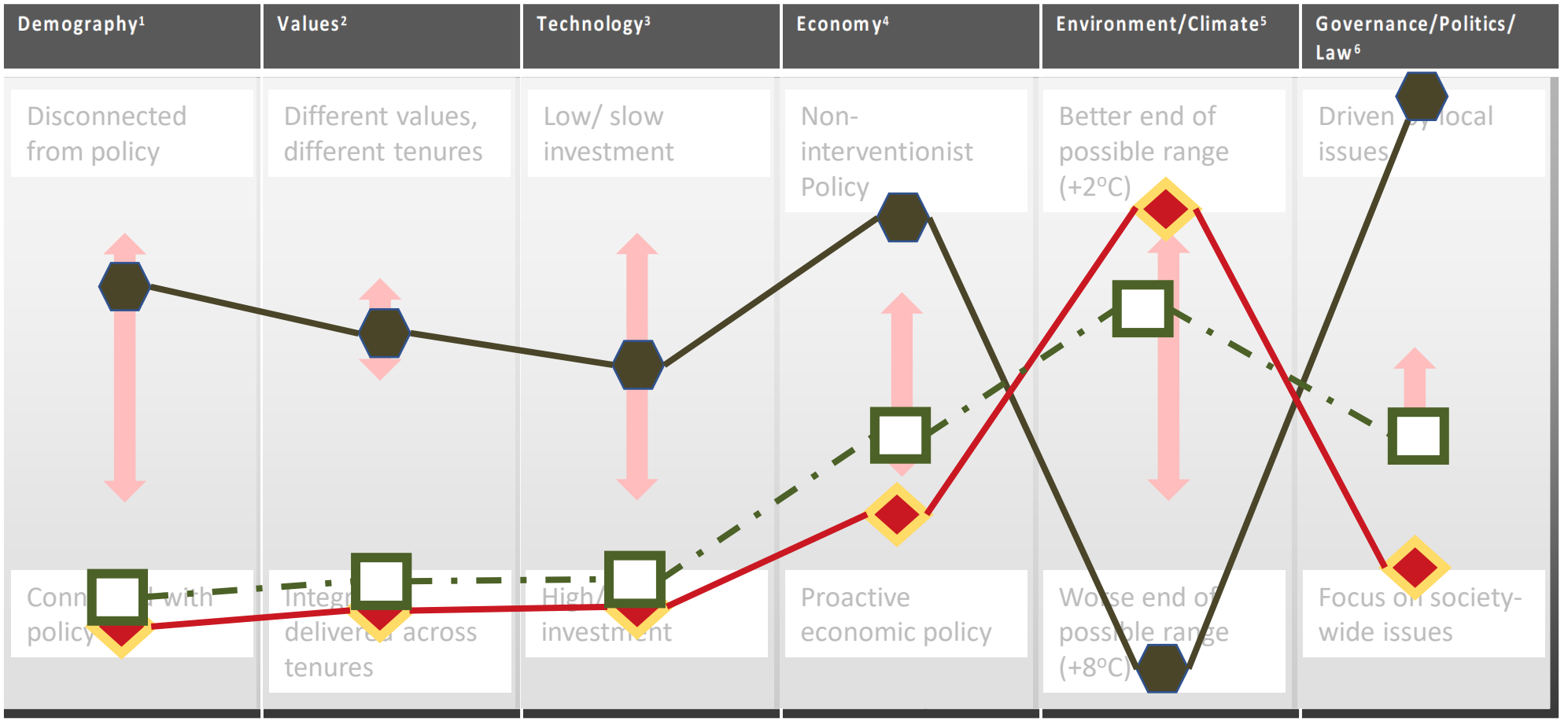
Demography[1]	Values[2]	Technology[3]	Economy[4]	Environment/Climate[5]	Governance/Politics/ Law[6]
Disconnected from policy	Different values, different tenures	Low/ slow investment	Non-interventionist Policy	Better end of possible range (+2°C)	Driven by local issues
Connected with policy	Integrated, delivered across tenures	High/ fast investment	Proactive economic policy	Worse end of possible range (+8°C)	Focus on society-wide issues

Restored NSW

Respecting Country/ People

The Great Weathering

Morphological analysis table



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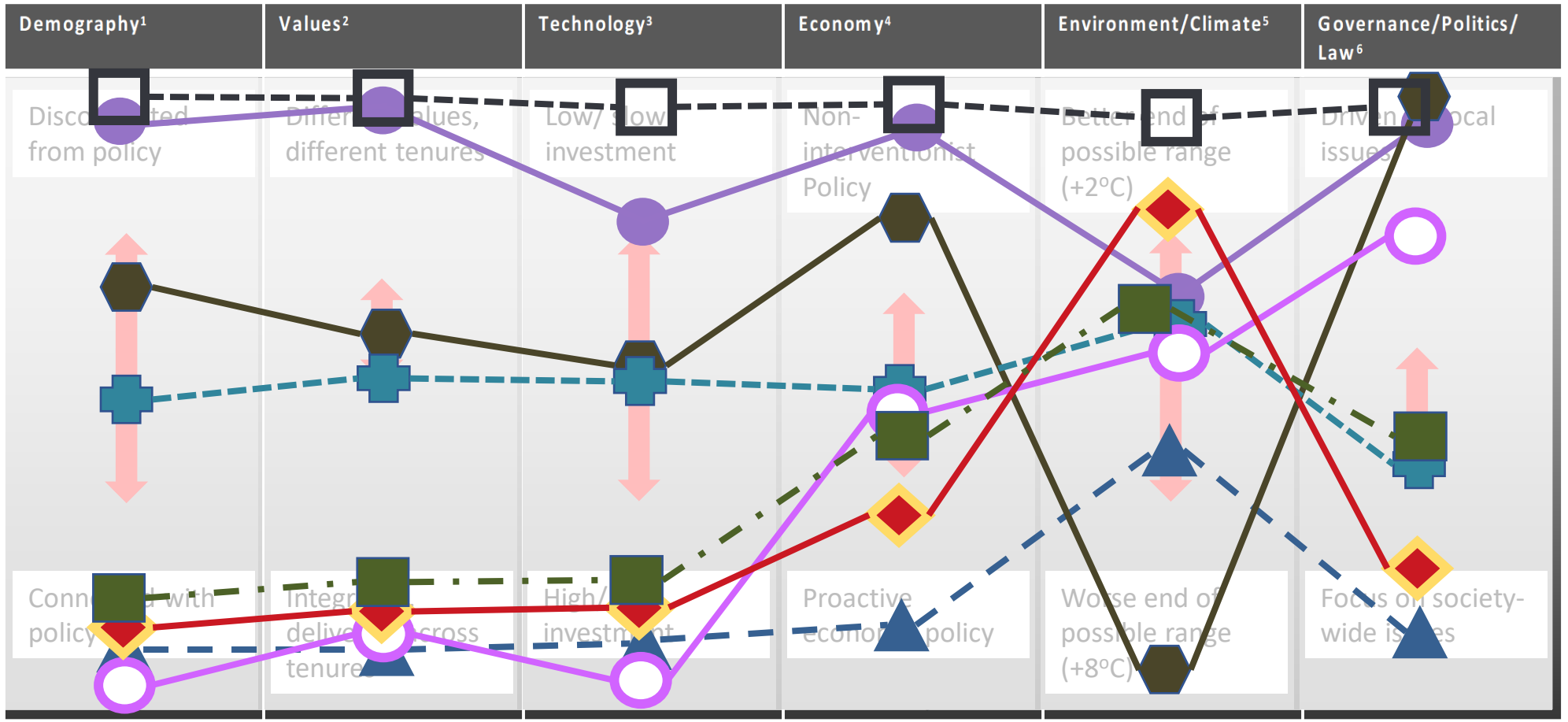
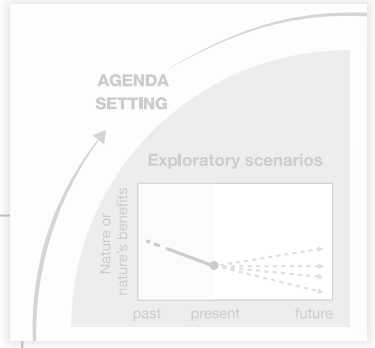


- Restored NSW
- Beautifully Aligned
- Respecting Country/ People
- A Vibrant Bioeconomy
- Regional Devolution
- Hostilities Continue
- Neglected
- The Great Weathering

Process overview



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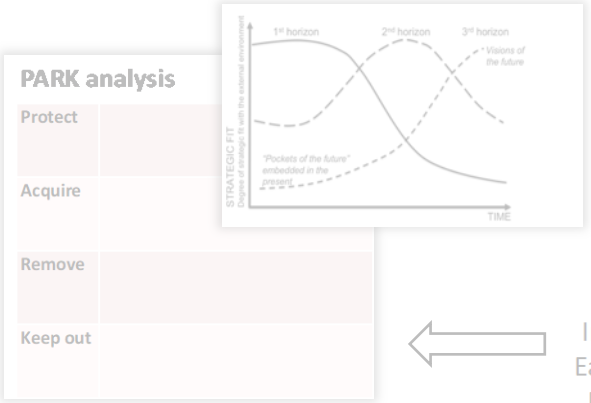

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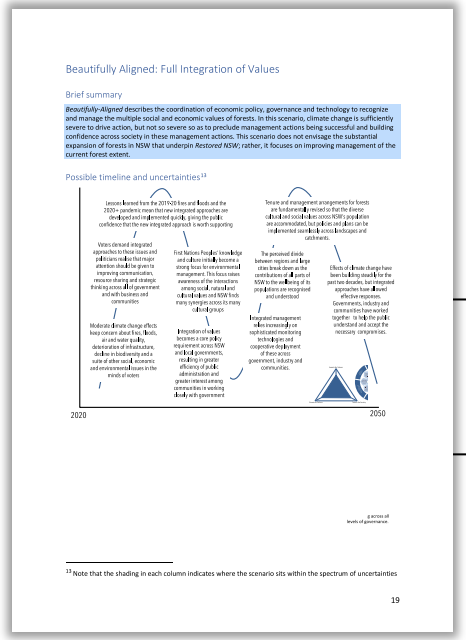

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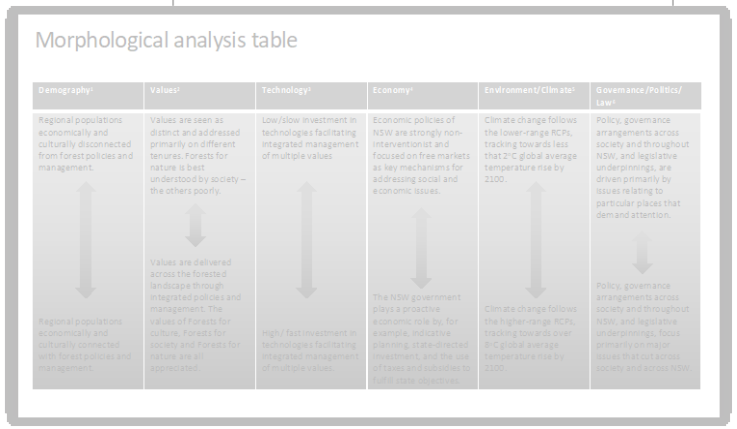
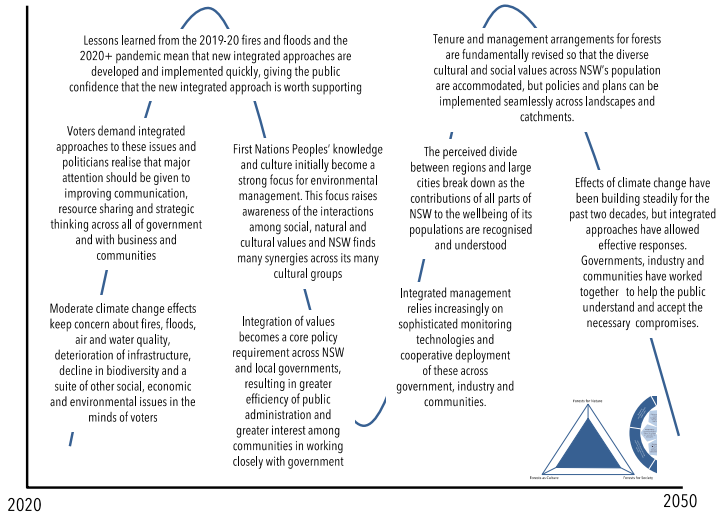


Beautifully Aligned: Full Integration of Values

Brief summary

Beautifully-Aligned describes the coordination of economic policy, governance and technology to recognize and manage the multiple social and economic values of forests. In this scenario, climate change is sufficiently severe to drive action, but not so severe so as to preclude management actions being successful and building confidence across society in these management actions. This scenario does not envisage the substantial expansion of forests in NSW that underpin *Restored NSW*; rather, it focuses on improving management of the current forest extent.

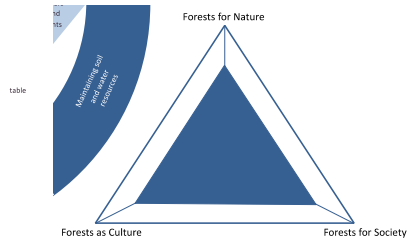
Possible timeline and uncertainties[13]



g across all
levels of governance.

[13] Note that the shading in each column indicates where the scenario sits within the spectrum of uncertainties

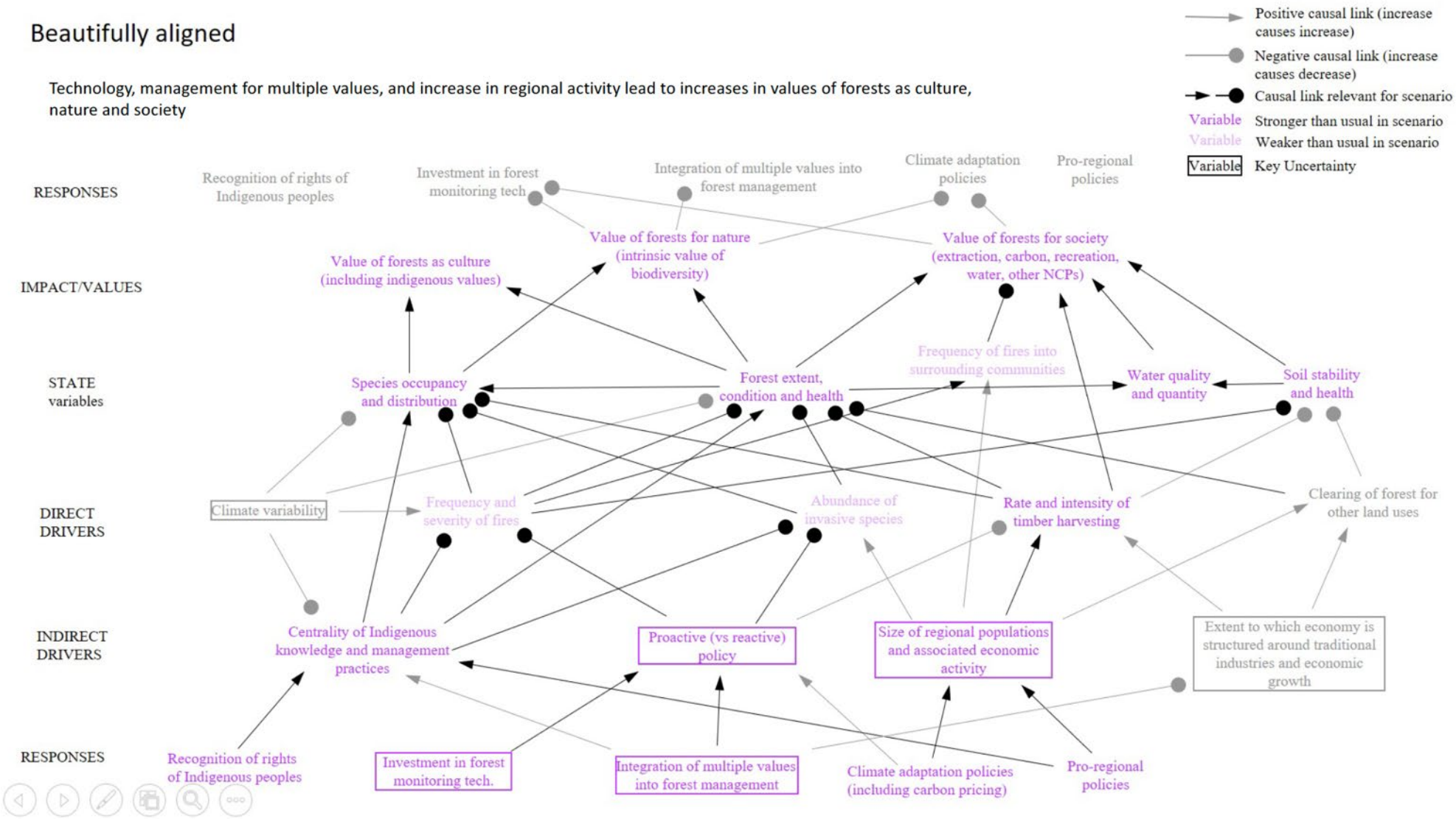
ESFM outcomes and values triangle



Issues to consider

Issues	Notes
Branching points/ early warning signs	• Does this scenario depend on climate change being sufficiently severe to encourage government action but not too severe that governments go into reactive policies? • Might this scenario flip into *Hostilities* or *Neglect* if climate change is too severe and attempts at integrated action fail (i.e., people might fight or just turn their attention elsewhere)? • More severe climate impacts on air and water quality might push this scenario towards *Restored NSW*. • If economic priorities dominate government priorities, then this scenario could move towards *A Vibrant Bioeconomy*
Reinforcing/ balancing processes	• This scenario relies on early and continued success of integration and cooperation across government and society. Factors such as institutional reluctance, entrenched power struggles and/or misinformation could derail progress. • As regional communities prosper their political power will grow and maintain this scenario if it benefits them.
Policy challenges/ opportunities	• It would be important for policy makers to be ready with plans to implement integration and cooperation quickly – otherwise the opportunity might be missed. • How could resource re-allocation proceed? • Can regional infrastructure (including human workforce) cope with such programs? • How can governments (not just politicians) communicate the value of problems avoided as these integrated approaches unfold? (Perhaps more sophisticated communication will need to be part of policy implementation?) • It is likely that there will be strong support from regional communities for many forest policies but also strong fightback if they are not happy.

Example systems diagram

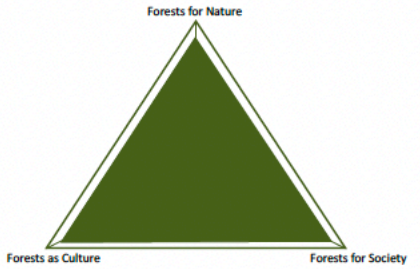
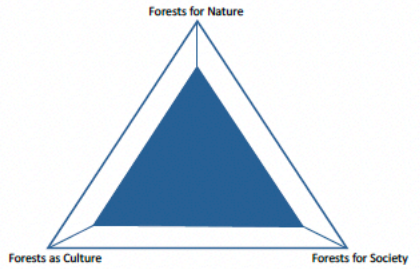
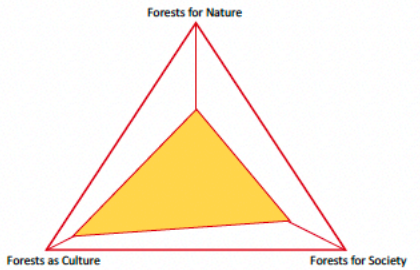
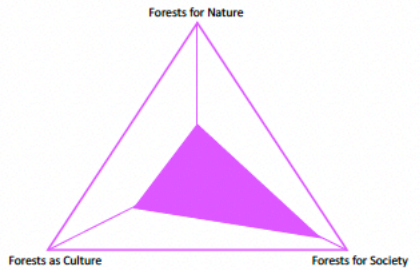
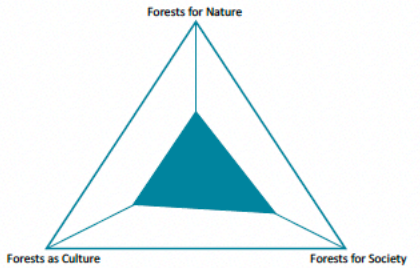
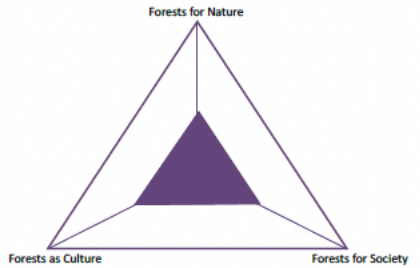
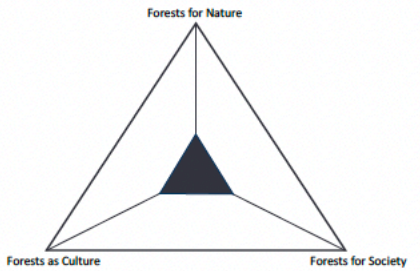
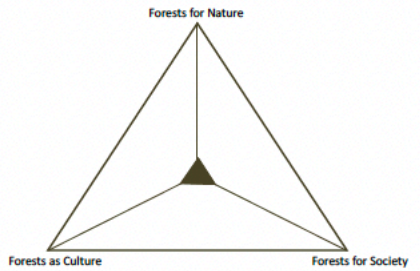


8 example scenarios

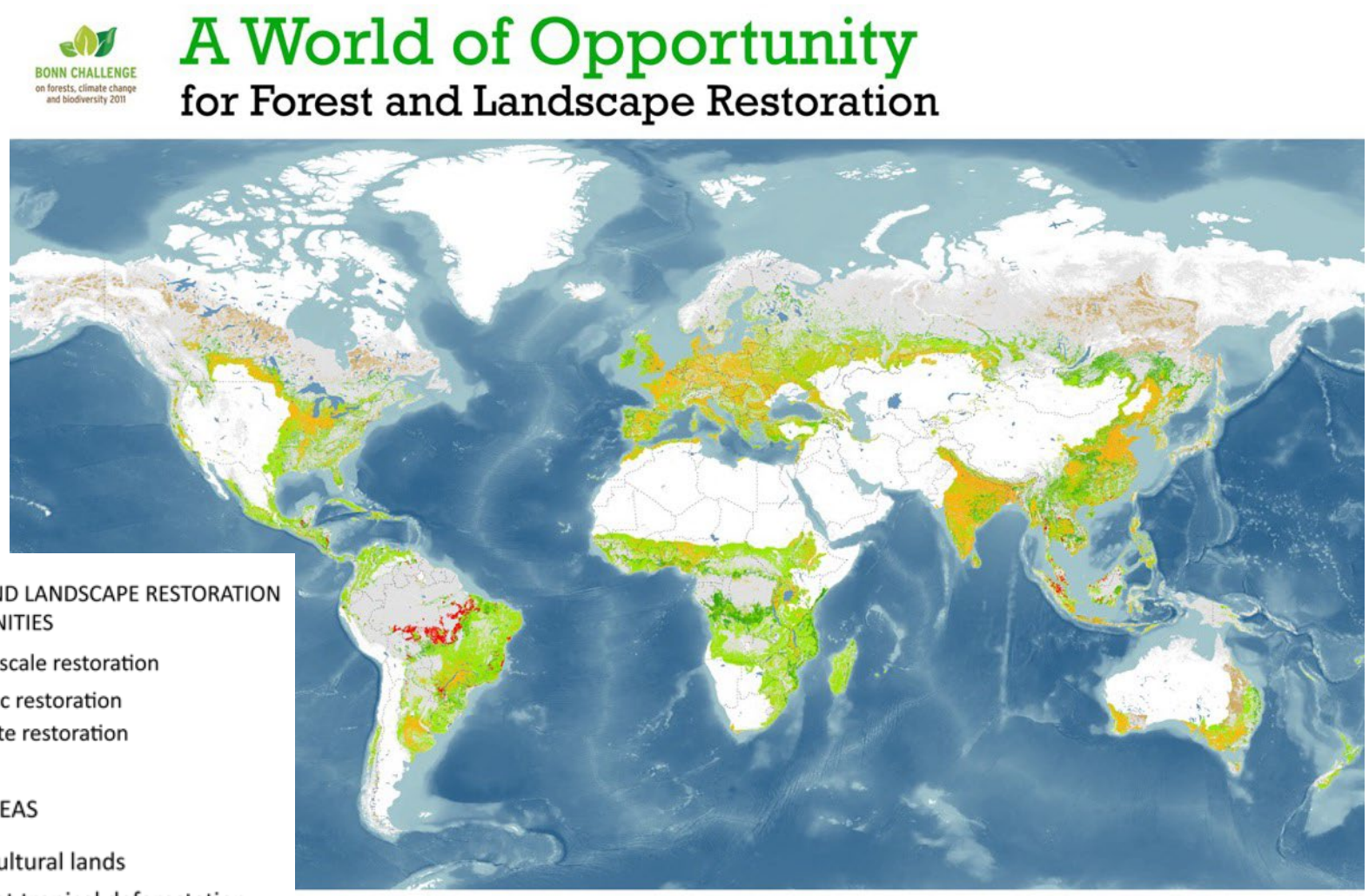
1. **Restored NSW**: Forests Across the Landscape
2. **Beautifully Aligned**: Diverse Values are Fully Integrated
3. **Respecting Country and People**: First Nations-Led
4. **A Vibrant Bioeconomy**: Forests for Climate
5. **Regional Devolution**: More Devolved Authority
6. **Hostilities Continue**: Polarised Values
7. **Neglected Forests**: Out of Sight, Out of Mind:
8. **The Great Weathering**: Climate Change Overwhelms Forests

Representing results

Indicative value outcomes across scenarios

Scenario	Value triangle	Scenario	Value triangle
Restored NSW		Beautifully Aligned	
Respecting Country and People		A Vibrant Bioeconomy	
Regional Devolution		Hostilities Continue	
Neglected		The Great Weathering	

Scenario 1: Restored NSW



www.bonnchallenge.org

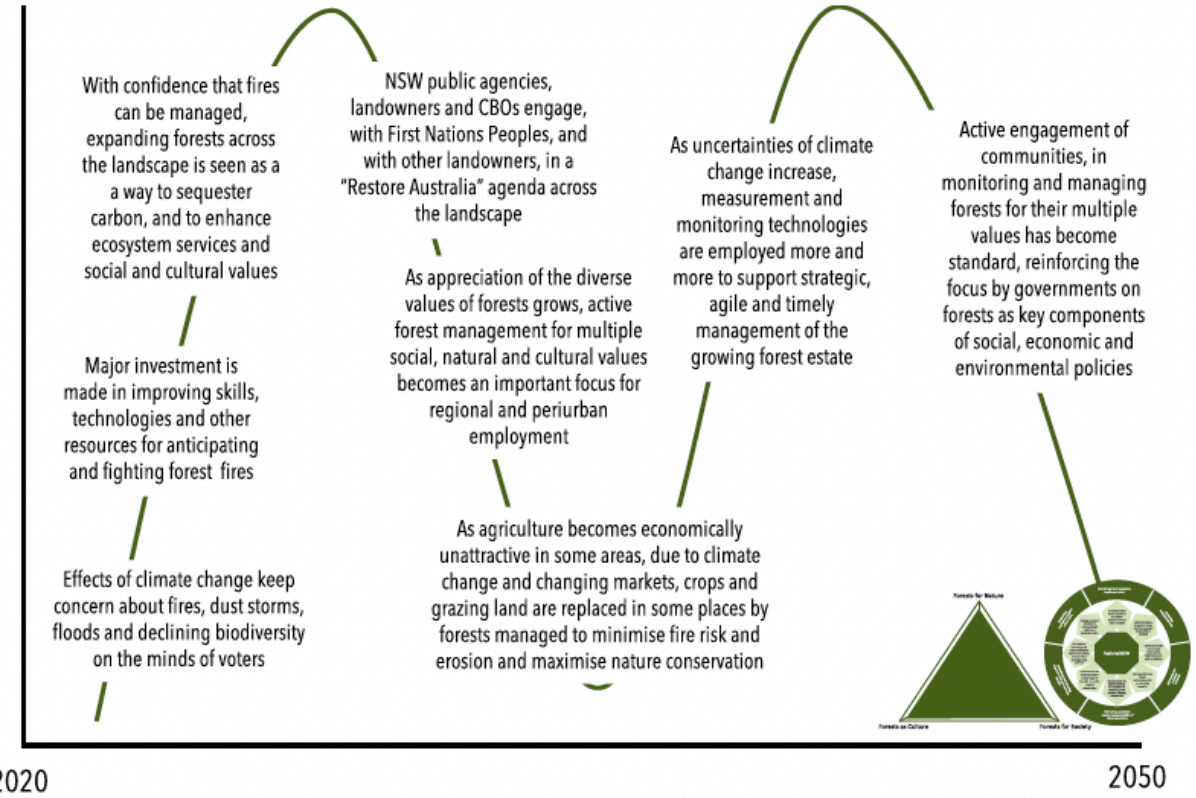
landcareaustralia.org.au/resources/publications/

Restored NSW

Brief summary

The large-scale restoration envisaged here is inspired by the UN Decade of Ecosystem Restoration, the global Forest and Landscape Restoration agenda and Trillion Trees initiative, and both established and new Australian programs. The scenario envisages major expansion of forested areas, a consequence of transition in land uses to more integrated farming and forests, and widespread restoration efforts. The diverse values of forests are valued economically, environmentally and socially in NSW. NSW public agencies, landowners and CBOs engage, with First Nations Peoples, in a *Restore Australia* agenda across the landscape. This scenario goes beyond the *Beautifully Aligned* scenario in scope and scale.

Possible timeline and uncertainties[12]



Scenario 3: Respecting country & people

BLACK SUMMER 2019–20 RESEARCH
bnhcrc.com.au

bushfire&natural HAZARDSCRC

CULTURAL LAND MANAGEMENT IN SOUTHEAST AUSTRALIA

Developing the foundation for an Indigenous-led and co-designed research program for land management with Traditional Owners

Oliver Costello[2,5], Tasmin Dilworth[1], Katharine Haynes[1,5], Tony Jansen[4] & Timothy Neale[3,5]
[1]University of Wollongong, [2]Jagun Alliance Aboriginal Corporation, [3]Deakin University, [4]One Point Five Degrees & [5]Bushfire and Natural Hazards CRC

NSW GOVERNMENT

NSW NATIONAL PARKS & WILDLIFE SERVICE

Development of a new Aboriginal joint management model for NSW national parks

environment.nsw.gov.au

LAND AND WATER
www.csiro.au

CSIRO

The Traditional Owner-led Bush Products Sector: An overview

Scoping Study and Literature Review

Emma Woodward, Diane Jarvis, and Kirsten Maclean

Finalised 8 April 2019

JAMES COOK UNIVERSITY AUSTRALIA · Kimberley Land Council · in group · ATH Australian Tropical Herbarium · CRCNA · Queensland Government

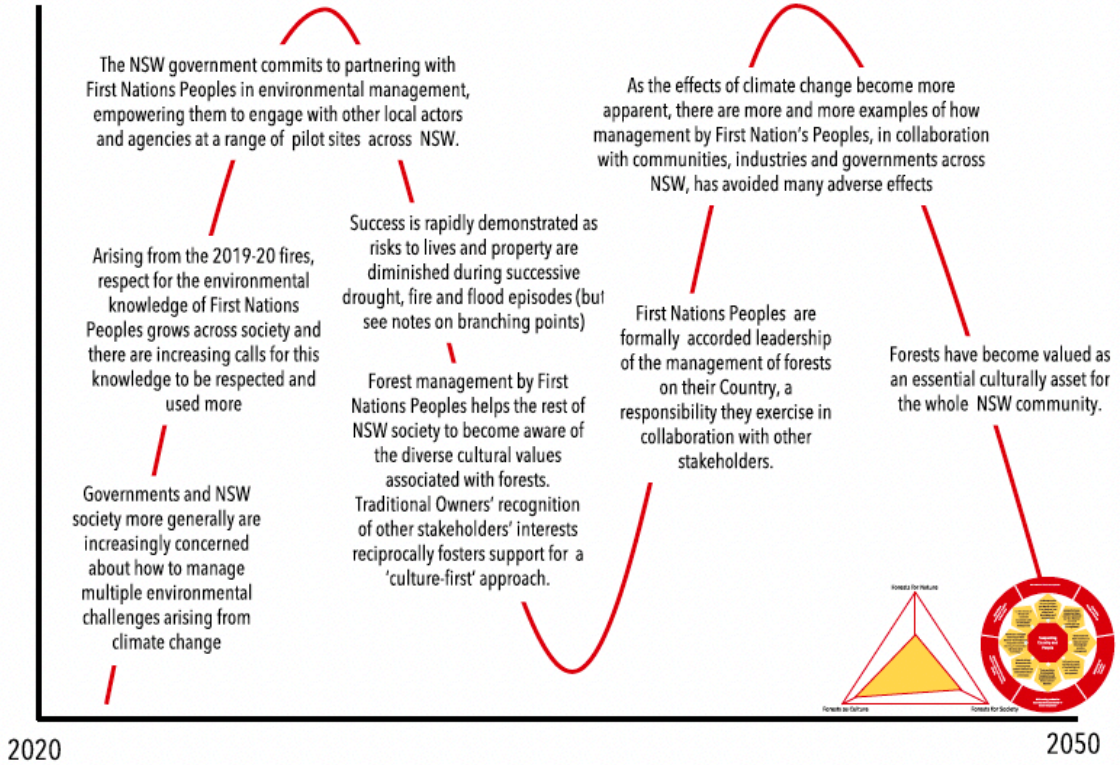
www.girringun.com/girringunrangers
www.bnhcrc.com.au

Respecting Country and People

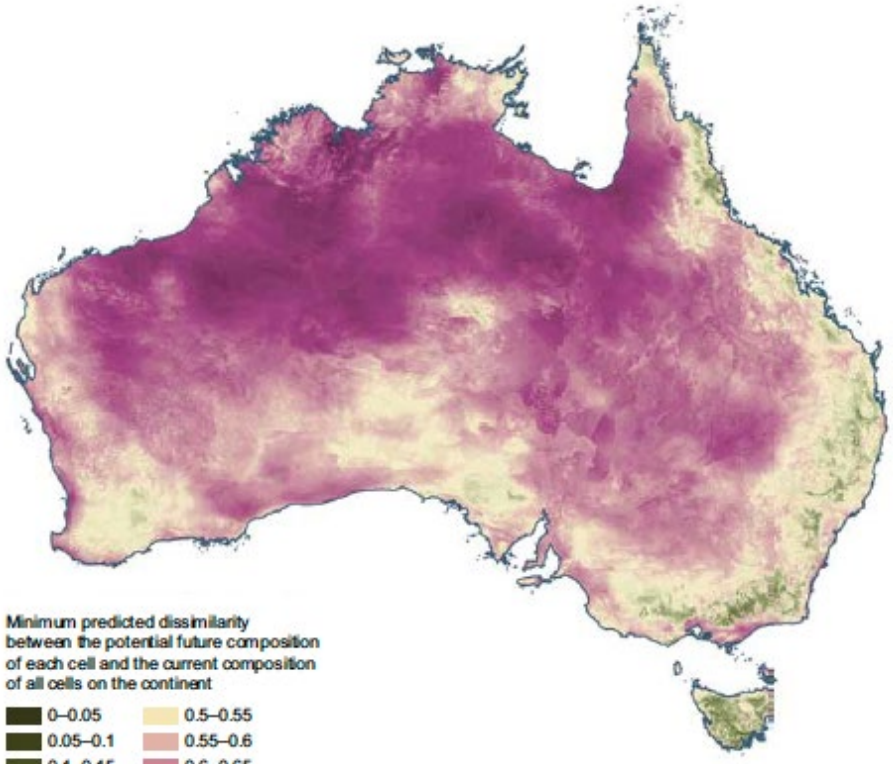
Brief summary

A scenario driven by widespread recognition of the primacy of First Nations Peoples' rights and responsibilities for country, which is exercised collaboratively with public and private forest owners, and in conjunction with other local peoples' knowledge and values. Management across public tenures is led or co-led by Traditional Owners, and supported by agencies; Traditional Owners also manage their own lands, and work in partnership with private forest owners. The values for which forests are managed reflect a conjunction of those of Traditional Owners, local communities, mediated in some cases by co-management agreements. Traditional Owners gain wide respect across society for their skilled (co)management of Country.

Possible timeline and uncertainties[14]



Scenario 8: The great weathering



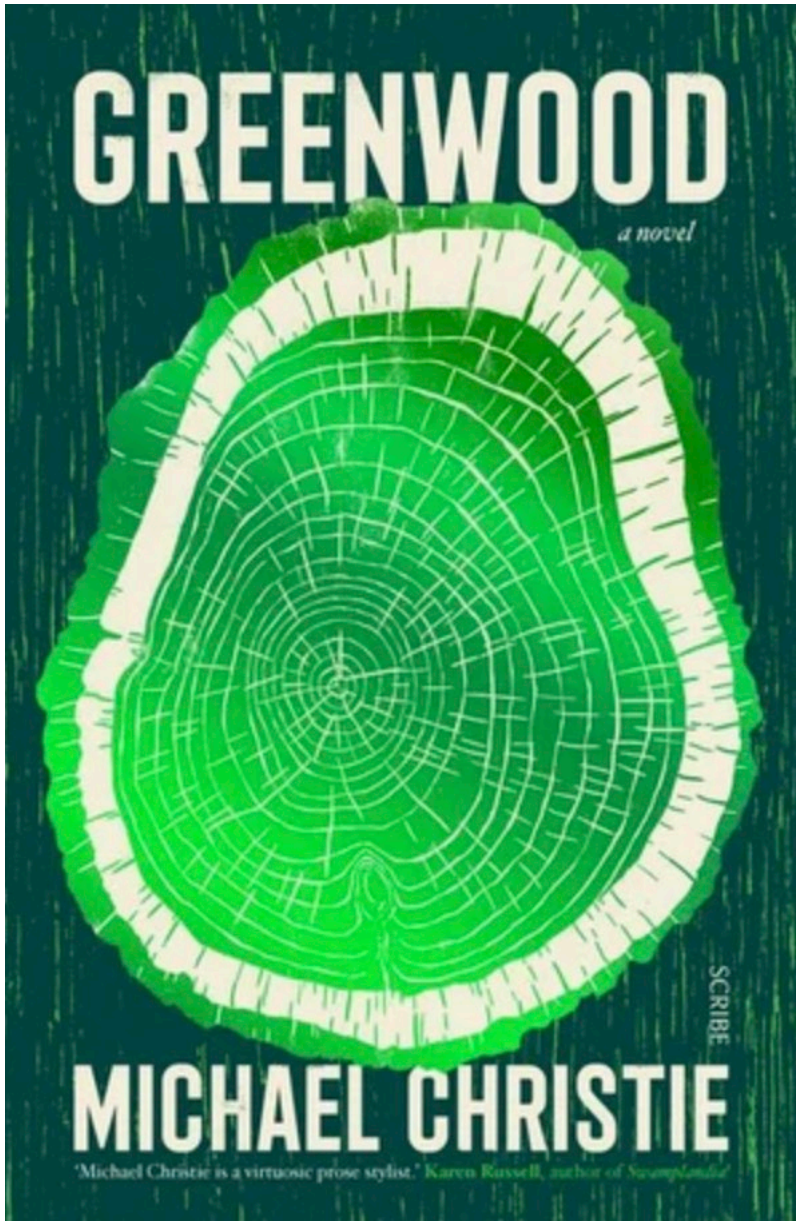
Minimum predicted dissimilarity between the potential future composition of each cell and the current composition of all cells on the continent

0–0.05	0.5–0.55
0.05–0.1	0.55–0.6
0.1–0.15	0.6–0.65
0.15–0.2	0.65–0.7
0.2–0.25	0.7–0.75
0.25–0.3	0.75–0.8
0.3–0.35	0.8–0.85
0.35–0.4	0.85–0.9
0.4–0.45	0.9–0.95
0.45–0.5	0.95–1

Source: Dunlop et al.[52]

Figure 5.22 Novel biotically scaled environments under the 2070 medium-impact scenario, based on generalised dissimilarity modelling of vascular plants

The colours depict the biotically scaled environmental difference between the future environment at each point and the most similar current environment from anywhere on the continent. In biotically scaled environments, 'the environmental change assessed is meaningful to biodiversity'.[52] Higher values (dark pinks) indicate potential locations of future environments for which no analogue currently exists anywhere on the continent.



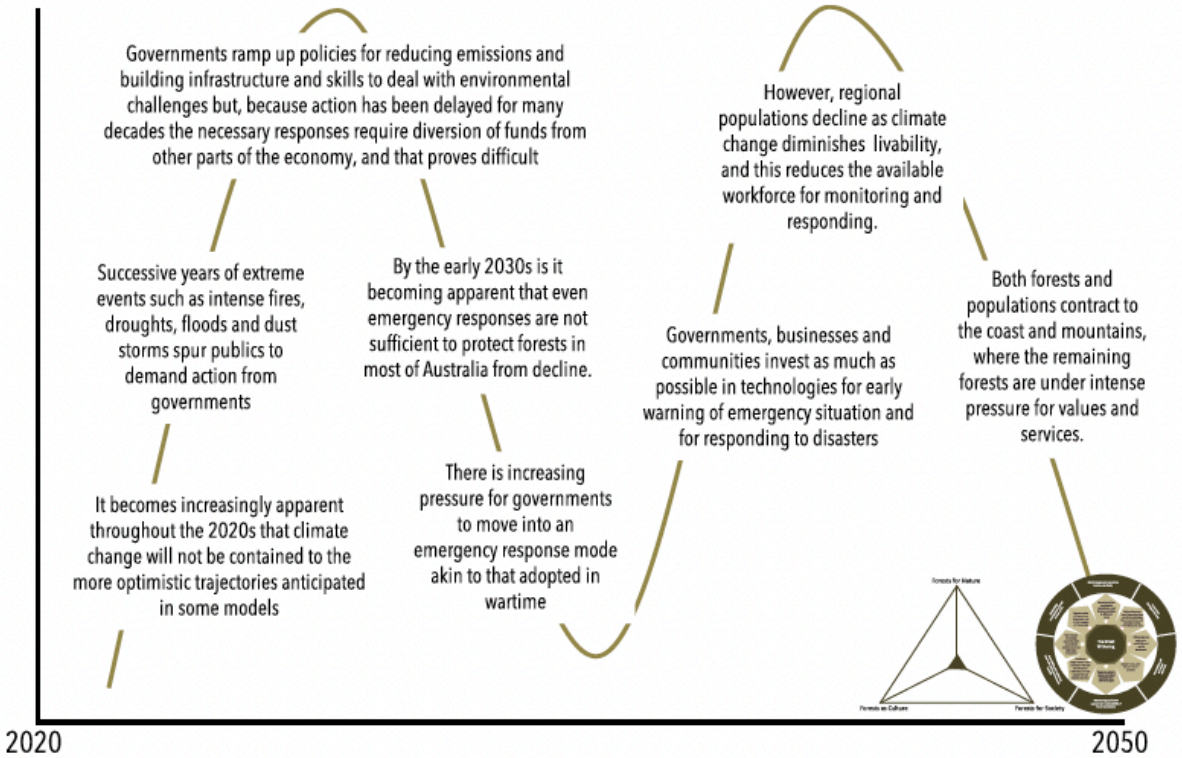
Australia State of Environment 2011

The Great Weathering

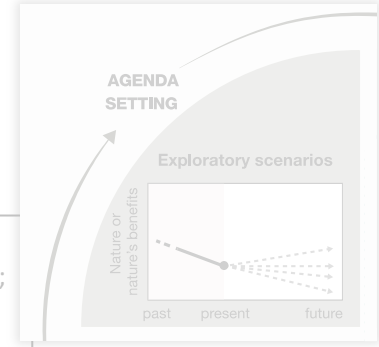
Brief summary

The Great Weathering alludes to Michael Christie's novel Greenwood, in which the world suffers a great withering of soils, vegetation and other life due to direct effects of climate change and indirect effects such as infestations of pests and diseases. In this scenario, extreme dry spells are interspersed with exceptionally high rainfall leading to drought, dust storms, floods, and increasing risks to human health and wellbeing. The impacts are so severe that no actions by governments, industries or communities can prevent major contractions and declines in most forest ecosystems. Whole ecosystems have been replaced by different assemblages of species that have different climatic requirements and different functions. There is widespread loss of many wetter forests and their values and services. As a result, both First Nations and local knowledge associated with these forest types are progressively lost.

Possible timeline and uncertainties[19]



Process overview



What might be:
- the range of alternative, plausible futures for NSW forests;
- the pathways by which these futures emerge;
- the implications of different decisions along the way?

Clear question/ focus

Understand the system
Recognise assumptions
Analyse past and emerging trends

Inputs from participants on:
- Values
- Drivers of change
- Assumptions

Added opportunistically:
- Limited scan of literature
- NSW Government reports

Identify key certainties and uncertainties

Inputs from participants on:
- Key certainties vs uncertainties
- Alternative directions of change
- Key issues to explore as narratives

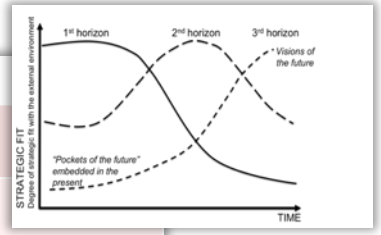
Explore multiple key uncertainties (scenarios)

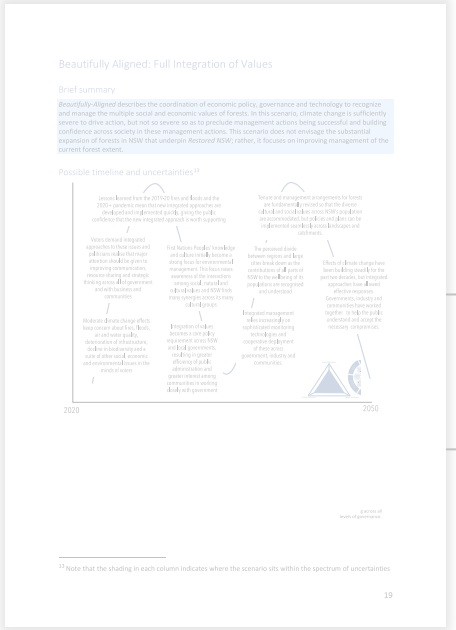
Inputs from participants on:
- Plausibility of scenario outlines
- Pathways to reach alternative futures
- Practical, on-ground implications for forests

Implications
Early warning
Monitoring
Staged actions

PARK analysis

Protect	
Acquire	
Remove	
Keep out	





Morphological analysis table

Demography	Values	Technology	Economy	Environment/ Climate	Governance /Politics/ Law
Regional populations economically and culturally disconnected from forest policies and management.	Values are seen as distinct and addressed primarily on different tenures. Forests for nature is best understood by society – the others poorly.	Low/slow investment in technologies facilitating integrated management of multiple values	Economic policies of NSW are strongly non-interventionist and focused on free markets as key mechanism s for addressing social and economic issues.	Climate change follows the lower-range RCPs, tracking towards less than 2°C global average temperature rise by 2100.	Policy, governance arrangements across society and throughout NSW, and legislative underpinnings, are driven primarily by issues relating to particular places that demand attention.
↓	↓	↓	↓	↓	↓
Regional populations economically and culturally connected with forest policies and management.	Values are delivered across the forested landscape through integrated policies and management. The values of Forests for cultures, Forests for society and Forests for nature are all appreciated.	High/ fast investment in technologies facilitating integrated management of multiple values	The NSW government plays a proactive economic role by, for example, indicative planning, state-directed investment, and the use of taxes and subsidies to fulfil state objectives.	Climate change follows the higher-range RCPs, tracking towards over 4°C global average temperature rise by 2100.	Policy, governance arrangements across society and throughout NSW, and legislative underpinnings, focus primarily on major issues that cut across society and across NSW.

Some insights from the process/ scenarios

- Measuring and monitoring are key to early warning signs
- Attitudes of, & relationships with & between, communities & stakeholders are important in all futures
- Value outcomes are policy decisions
- A series of shock events demonstrate ‘black swans’;
  and how a business-as-usual approach is unlikely to serve us well

Some important points to note

- we did not assess the likelihood of realising any of the scenarios,
  nor combinations of multiple scenarios
  (a priori, some scenarios may be more likely than others)
- the scenarios are simply a starting point;
  and require further engagement and expert input to advance to a more mature stage – eg – comparable to scenarios used in other jurisdictions
- 'future forests' thinking will be most powerful
  when embedded in the culture of organisations
  responsible for planning and managing NSW forests

Suggested next steps

- Revisit & refine scenarios,
  with broader stakeholder engagement
- Generate reflections on:
  - What might be needed to prepare for different futures (e.g., P-A-R-K)
  - Planning over multiple horizons
  - Early warning signs
- Explore integration with broader planning processes