

Setting the scene: the value of forests

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Disclaimer: I'm not providing financial advice!

Outline

- Values
- What is value?
- What do we value about forests?
- Valuation methods
- Discount rate, uncertainty and risk, 'other' forest values
- The value of investing in research

Value versus values?

Personal values – what matters to you individually (e.g., creativity, success)

Cultural values – shared beliefs within a group or society

Moral values – ideas about right and wrong behavior

Social values – what helps communities function well (e.g., cooperation)

Corporate heads asking: we can do this, but should we do it?

A photograph of a forest path with tall, thin trees and sunlight filtering through the canopy, creating a dappled light effect on the ground.

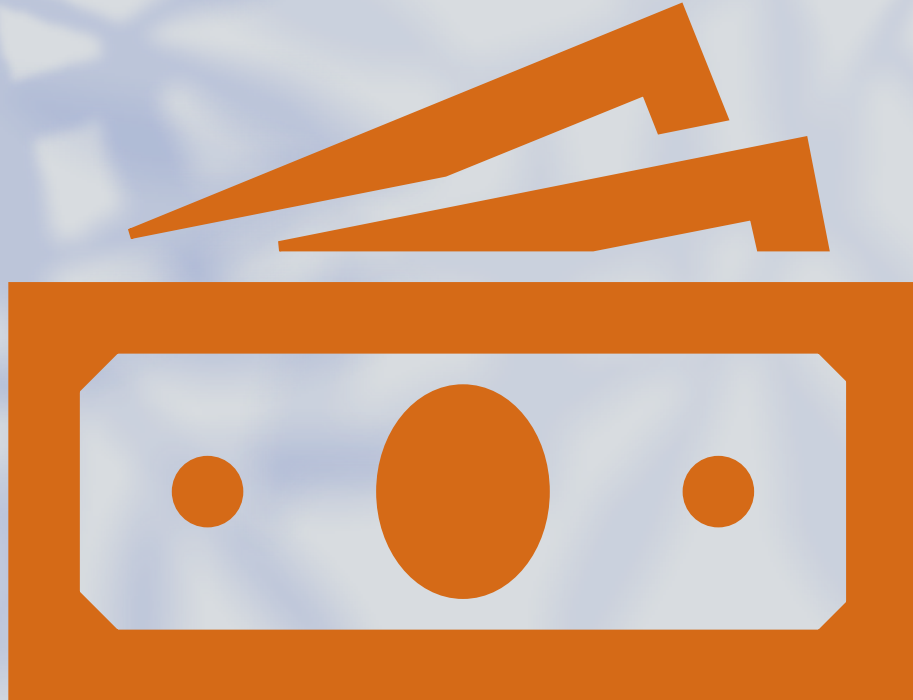
What do we value about forests?

- **Environmental Benefits**
 - Biodiversity
 - Water and soil
 - Carbon
- **Resources and Economy**
- **Human Health and Well-being**
- **Cultural and Spiritual Value**
- **Natural Hazard Protection**

An aerial photograph of a vast, dense forest of evergreen trees, likely spruce or fir, covering a hillside. The trees are tightly packed, creating a textured green surface. The lighting is soft, highlighting the varying shades of green and the conical shapes of the tree tops.

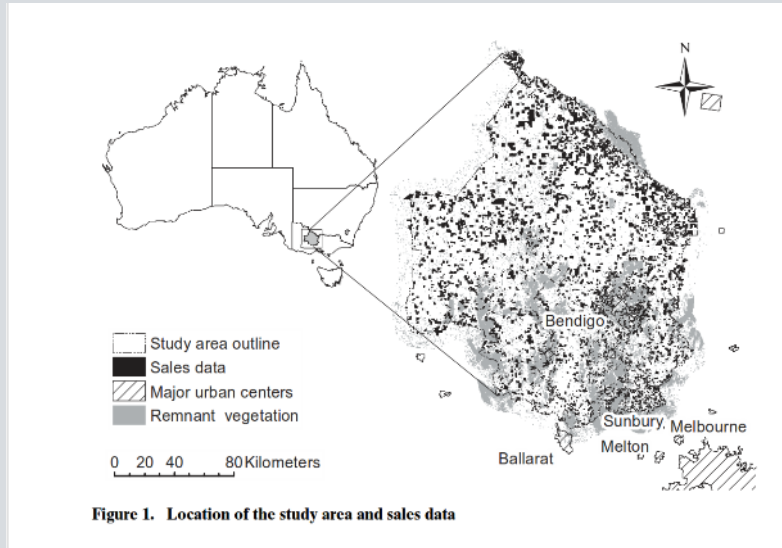
Why value forests?

Approaches to valuation



- **Indigenous perspectives: care, stewardship and reciprocity**
- **Total Economic Value Frameworks**
- **Market-Based Methods**
- **Revealed Preference Methods**
- **Stated Preference Methods**
- **Carbon & Ecosystem Service Valuation**
- **Natural Capital Accounting**

Trees and agricultural land value



**Tree cover increases
land value on all
properties**
10 ha - about 40%
1000 ha - about 20%

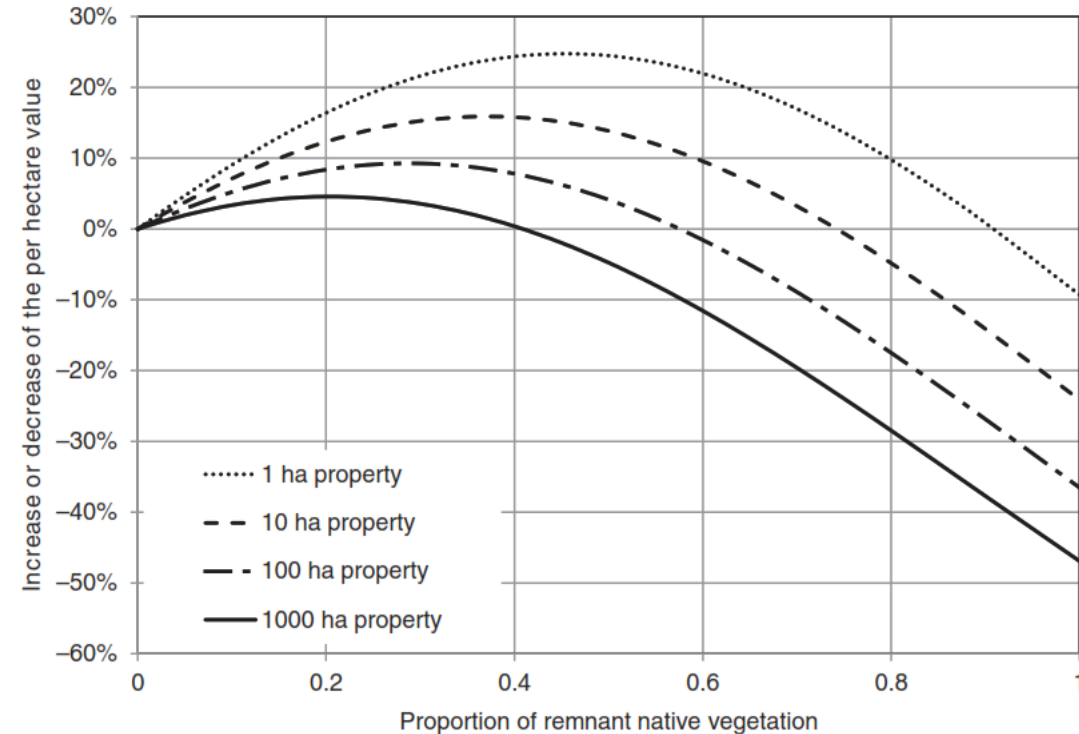
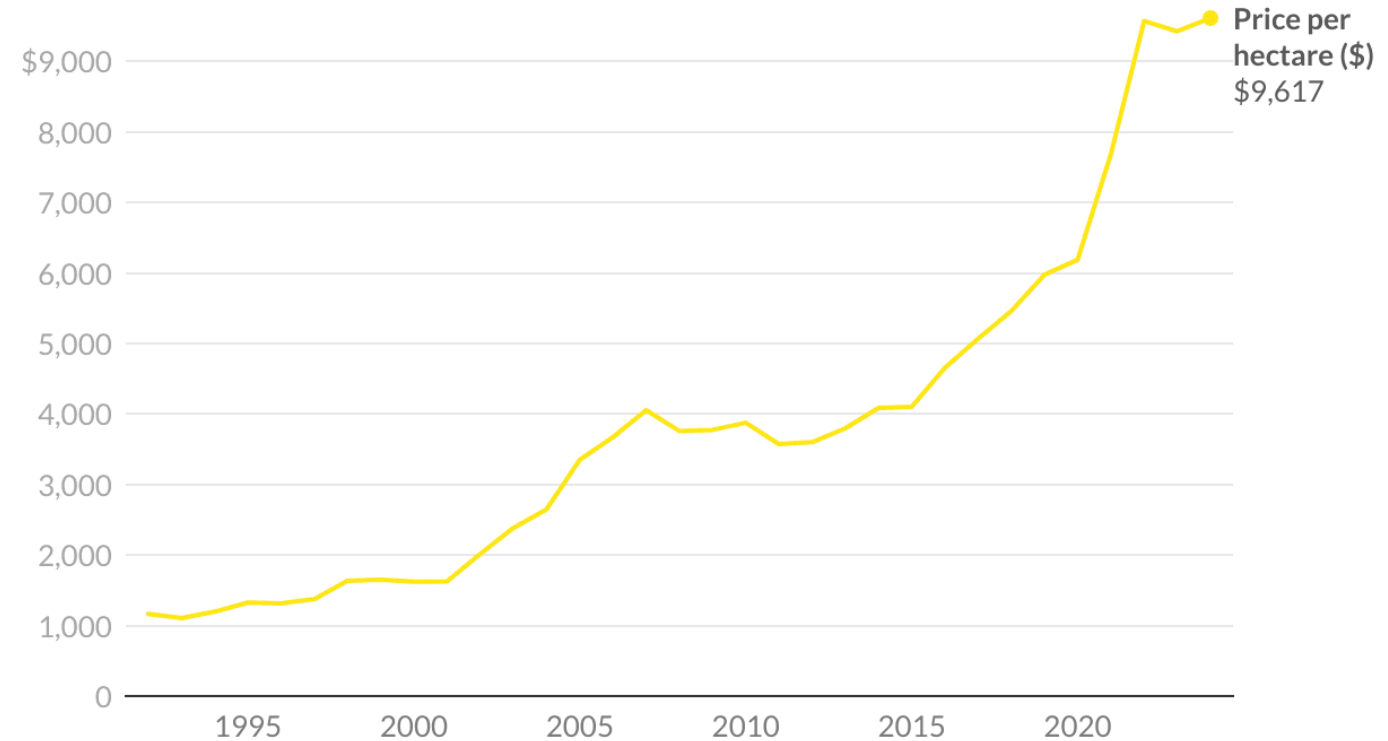


Figure 5. Effect of the proportion of native woody vegetation on land value by property size over time

Agricultural land values

What is the highest and best use of land?

National farmland prices, 1992 to 2024



Source: ABARES

RayWhite

The rise of timberland investment

- Timberland investment has a long history
- Institutional investment grew in the US due to tax and accounting treatment of forest assets, risk of hostile takeovers
- In integrated companies, forest assets were undervalued on balance sheets. When sold they realized value growth for alternative owners (TIMOs, REITs)
- Institutional investors saw value in trees as an alternative 'real' asset class
- Value is not just from future land rents or cash flow, value accrues as trees grow and with inflation, providing portfolio diversification

Financial valuation: the basics

- Plantation trees are living 'biological assets' attached to land. In accounting terms they are treated like livestock, grapevines or orchards. Land is a non-current asset
- The combined 'fair value' of land (if owned) and trees needs to be reflected in balance sheets. Annual change is incorporated in the profit and loss statement
- Lack of active markets for larger forestry assets in Australia and New Zealand means fair value is generally estimated using the present value of expected cash flows from trees. Some stands may be rated zero PV, with reasons
- Fair value of the combined asset but separating present value of current crop from 'future rotations'
- Typically produce a single number, with sensitivity to key assumptions
- More challenging for native forests
- Issues: there are many, focus on discount rate, uncertainty and risk, 'other values'

Managing a firm involves decisions that impact on value

- **What to produce? For which markets?**
- **How to produce, how much, where and when?**
- **What prices to pay for inputs? What prices to accept or set for products?**

Managers can realise 'hidden' value, which could extend beyond timber

How do we value investment in regenerative practices (reduc input costs and environmental impacts, reduce volatility)?

MYTH #2

"Forestry is a simple business"

FACT

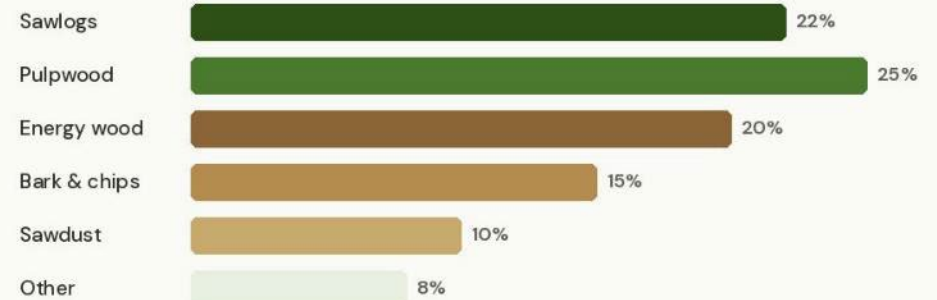
15 products from one tree

Sawlogs, pulpwood, energy wood, bark, sawdust — each with its own market and price.

Only 17–22% becomes a plank.

An investor sees 'timber.' A forester sees 15 price points.

What One Tree Becomes



Only 17–22% of a tree becomes a plank

Distribution of value

- Short and long term
- Between actors along value chains
- Between current and future generations

MYTH #3

"Forest owners capture most of the value"

FACT

15–18¢ of every retail euro

Stumpage: €55–70/m³

Retail construction timber: €360–400/m³

The margin sits in processing and logistics.

The forest is the raw material. The value is created after it.

Where the Money Goes



→ Final retail: €360–400/m³

Discounting – the value of time

- *'A dollar today is worth more to me than a dollar next year.'*
- *'Happiness (utility) today is worth more to me than happiness next year.'*
- 'Happiness (utility) is worth more to the society of today than happiness is worth to the society of next year.'

$$\left[\begin{array}{c} \text{equivalent value at present of some} \\ \text{future cost, benefit or revenue} \end{array} \right] = \left[\begin{array}{c} \text{its imputed} \\ \text{future value} \end{array} \right] \times \left[\begin{array}{c} \text{a discount} \\ \text{factor} \end{array} \right]$$

Higher discount rates diminish value of future net returns or asset growth

Figure 1.1 Effect of time on discounted value of £1000

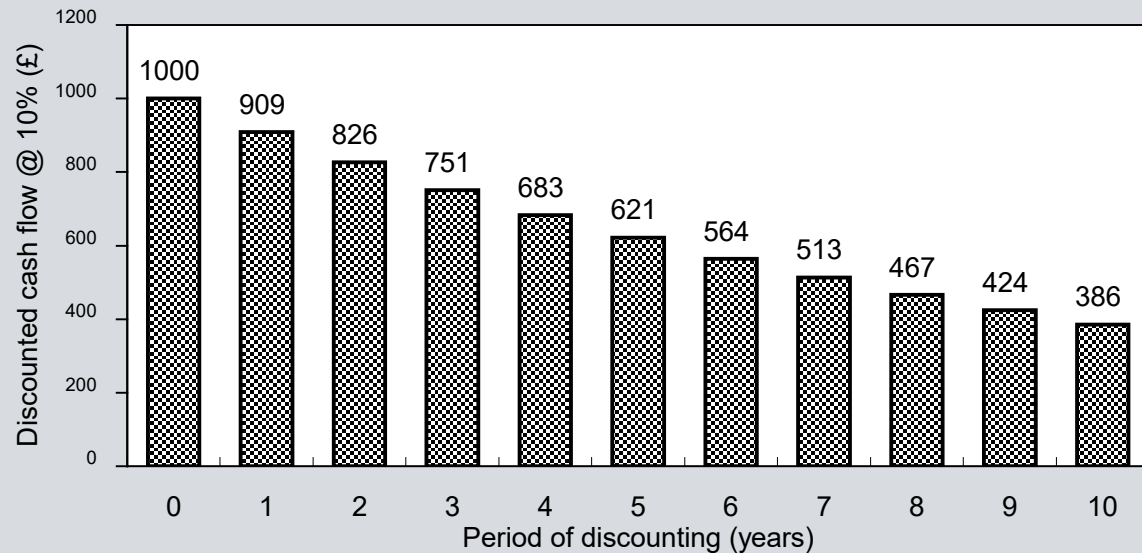
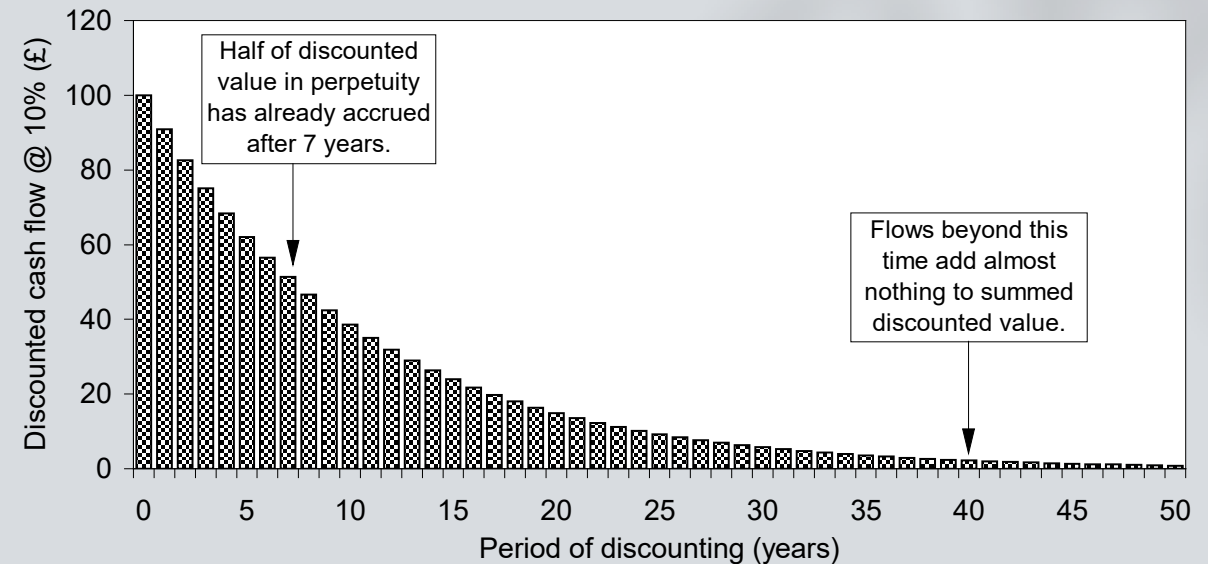


Figure 1.4 Discounted value of an on-going cash flow



Discount rates vary

- With perspectives on the future, eg relative benefits (or impacts) for current and future generations
- Between countries, ownerships (state vs corporate) and size of estate
- Over time with changes in central bank policy settings and capital markets
- With time preference for money
 - poor farmers want short-term income or benefits
 - Richer owners can wait

Period (years from present)	UK	France	Denmark	Norway
0-30	3.5%	4%	4%	4%
35-70	3%	2%	3%	3%
70-75	3%	2%	2%	3%
75-120	2.5%	2%	2%	2%
120-200	2%	2%	2%	2%

Some owners may choose to focus solely on future growth in asset value and wealth, rather than NPV

Discount rate schedule for different time horizons recommended for use by European Treasuries for public investments (from Price et al 2020)

Effects

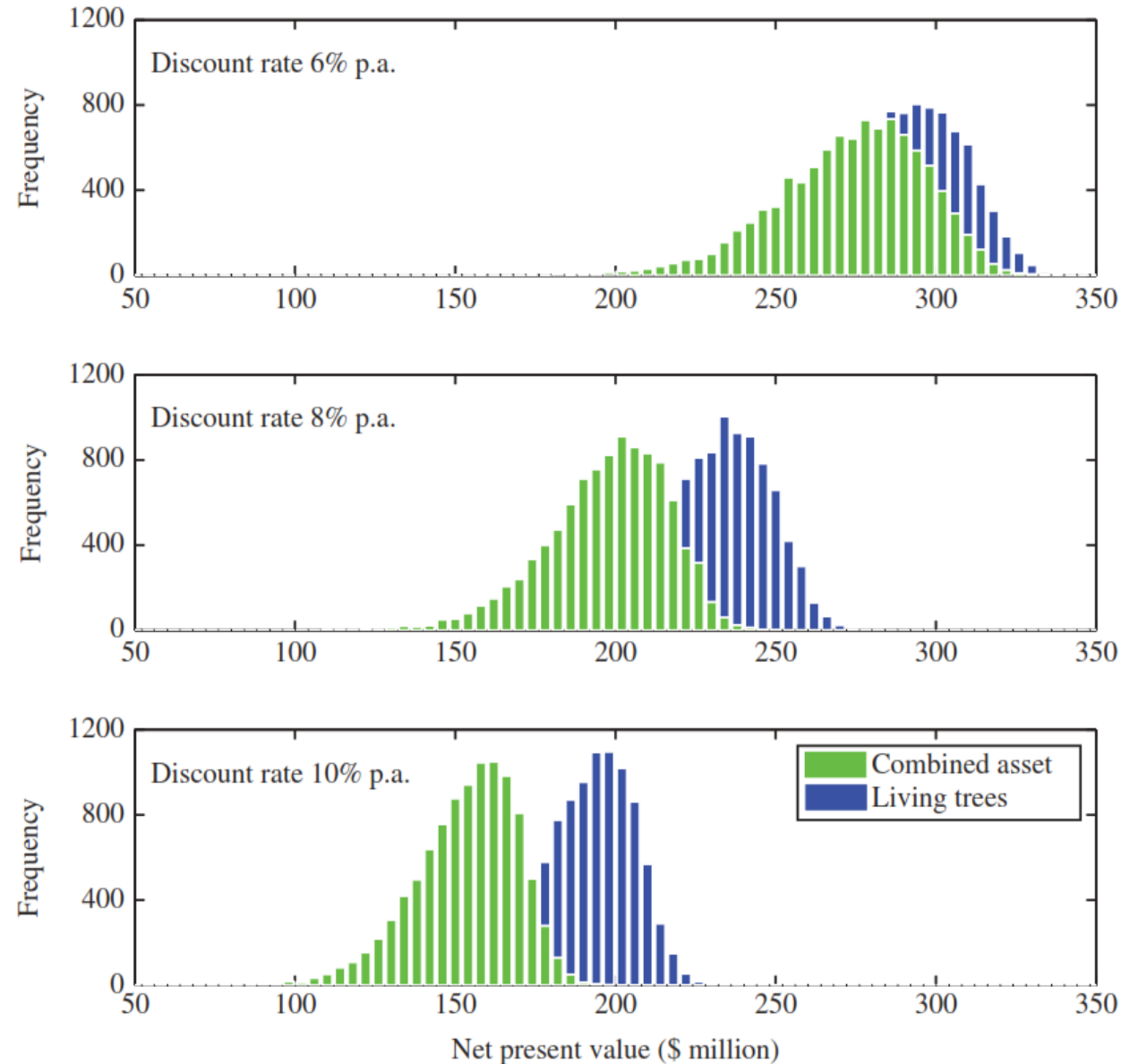
This example from a hypothetical 40,000 ha radiata pine estate

For institutional investors 'risk free' rate is 6%, 'market' rates > 8%

Value of trees is about 20% lower using 8%, 33% lower using 10%

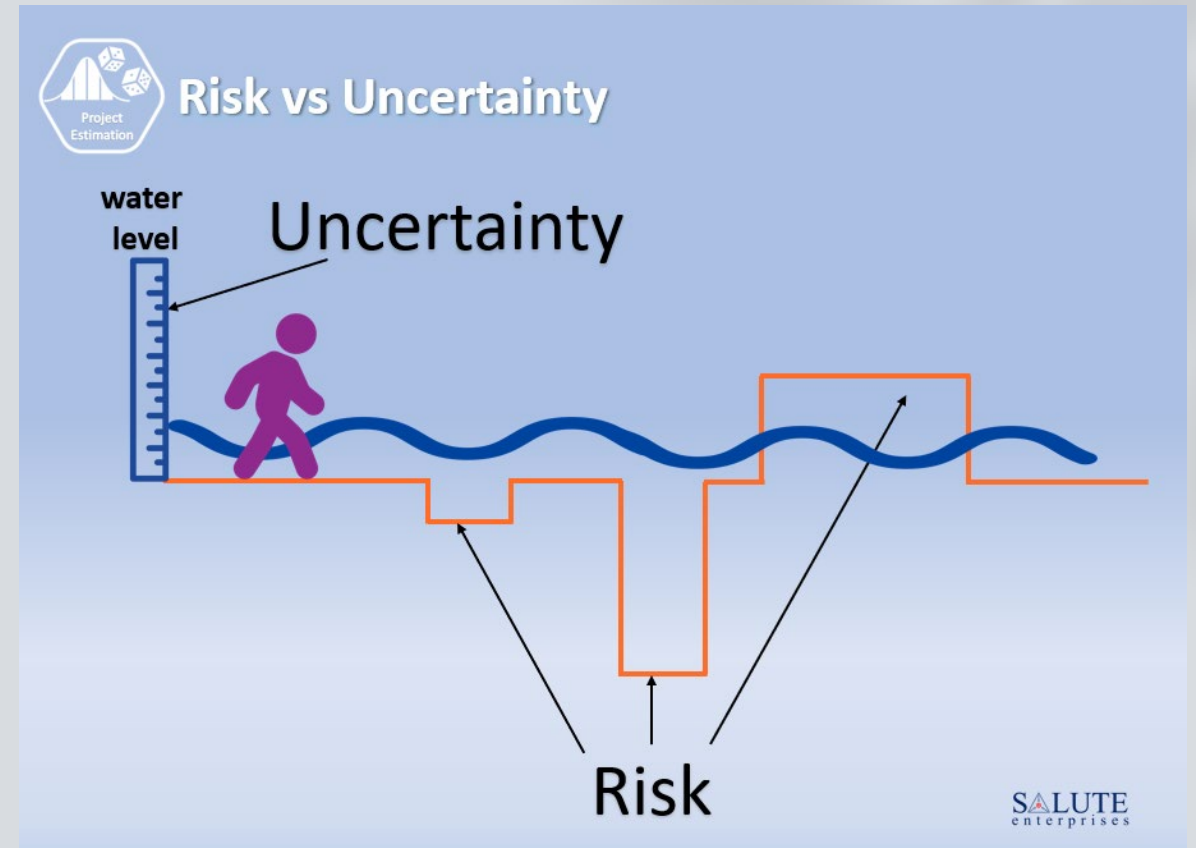
Assuming a constant discount rate does not recognize volatility in the cost of debt

Ferguson recommended a risk-free discount rate combined with stochastic analysis to indicate variation due to changing discount rates

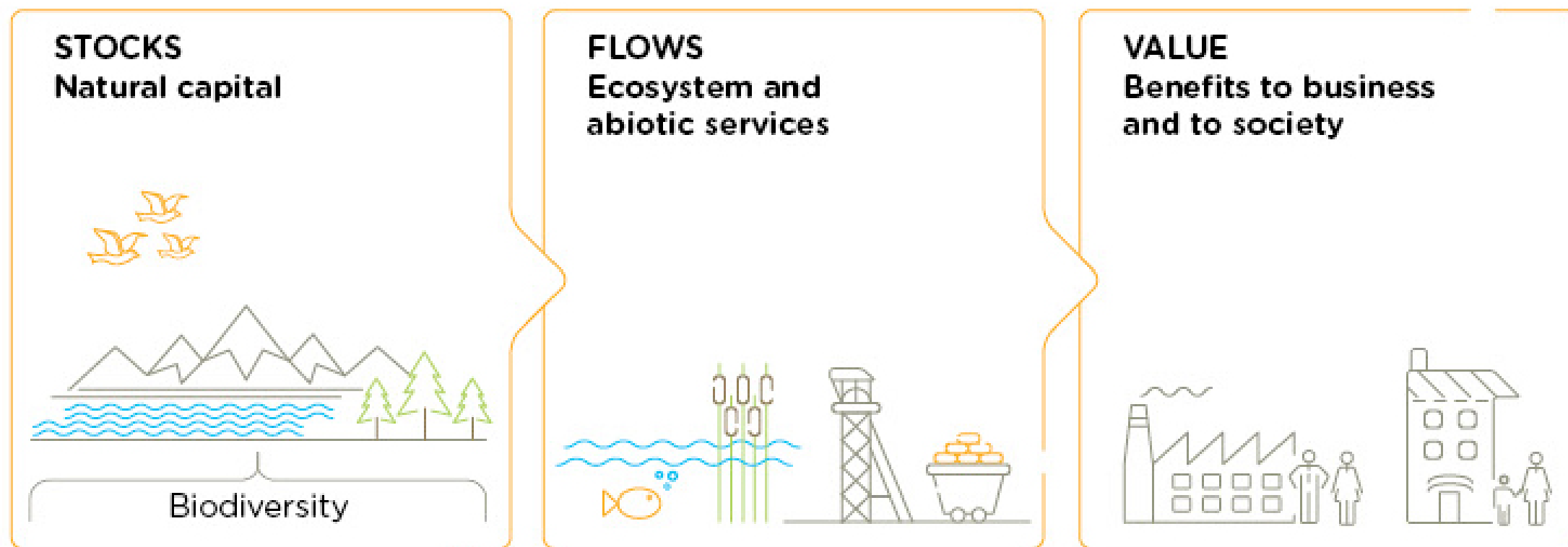


Uncertainty and risk

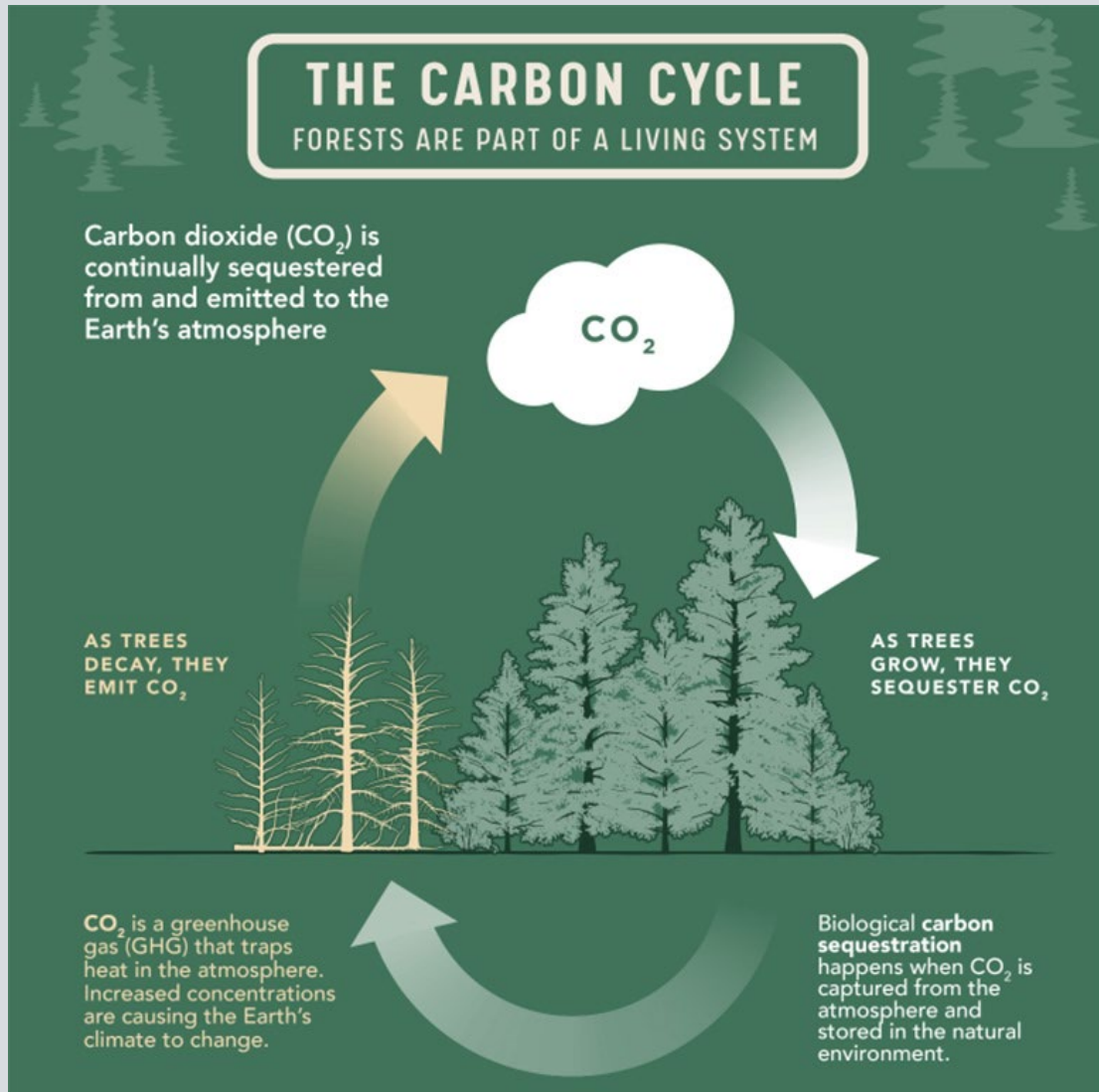
- Future markets, input costs, fire, pests, diseases
- Future sale of large assets due to few buyers
- Sovereign risk
- Climate change dependencies and impacts on asset values (financial materiality)



Natural capital and environmental values



Carbon value



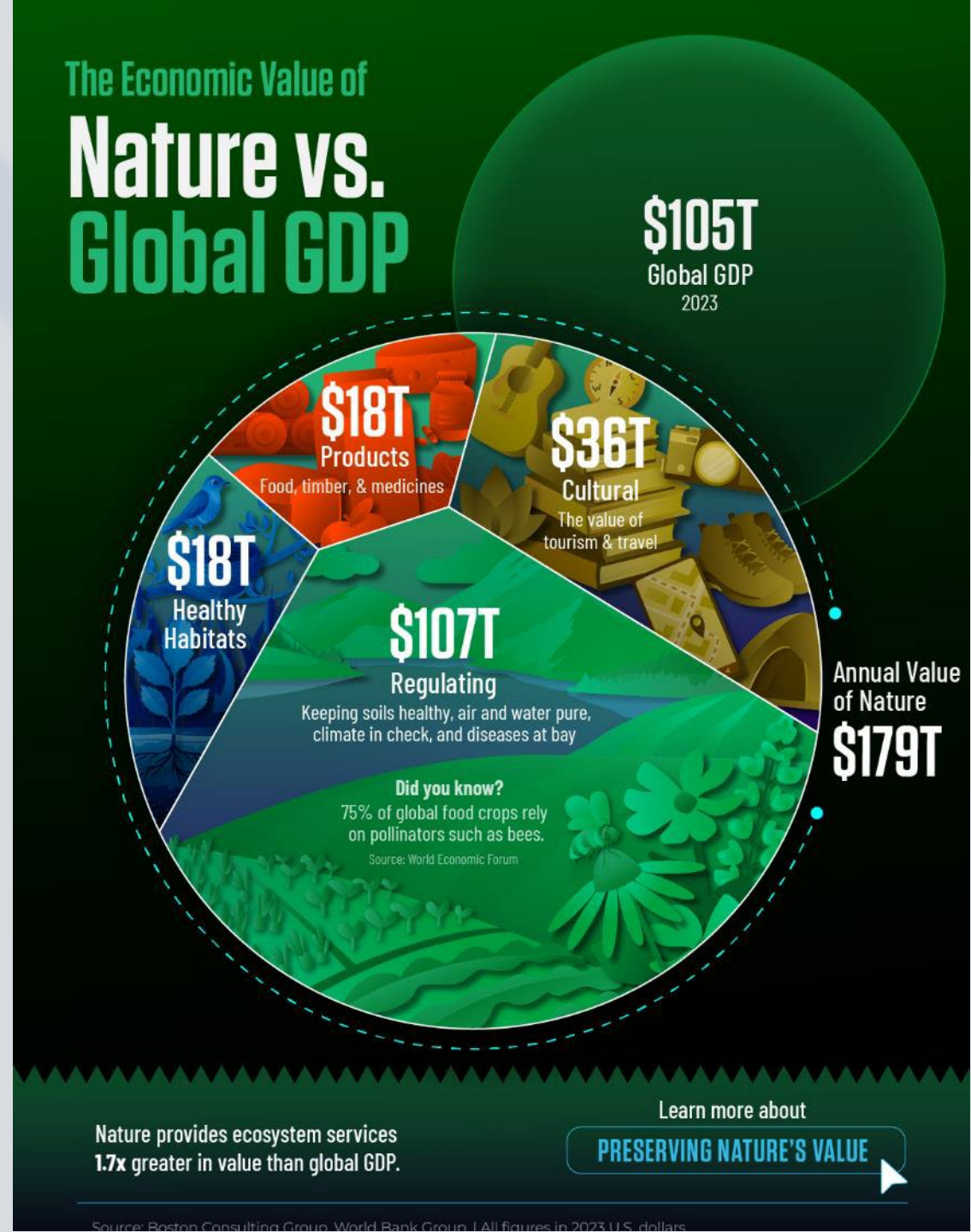
- Increasingly factored into forest valuation and investment decisions
- An opportunity but also need to consider climate risks and dependencies
- Carbon may represent an alternative *highest and best use* for marginal timber production forests or agricultural land
- Offset markets have incomplete coverage (limited methods), high compliance and transaction costs, uncertain future prices
- Insets: How is this carbon value represented on balance sheets?
- How to incorporate carbon stored in wood products?

Image from Natural Resources Canada

Valuing nature and culture

- Can we put a value on nature?
- Are rare or threatened species an asset or liability for forest managers?
- Calls to put 'nature on the balance sheet' – not clear how
- New asset classes are emerging. Need finance models for investing in forestry with climate community and biodiversity benefits

Image from
<https://www.visualcapitalist.com/sp/charted-the-economic-value-of-nature-vs-global-gdp/>

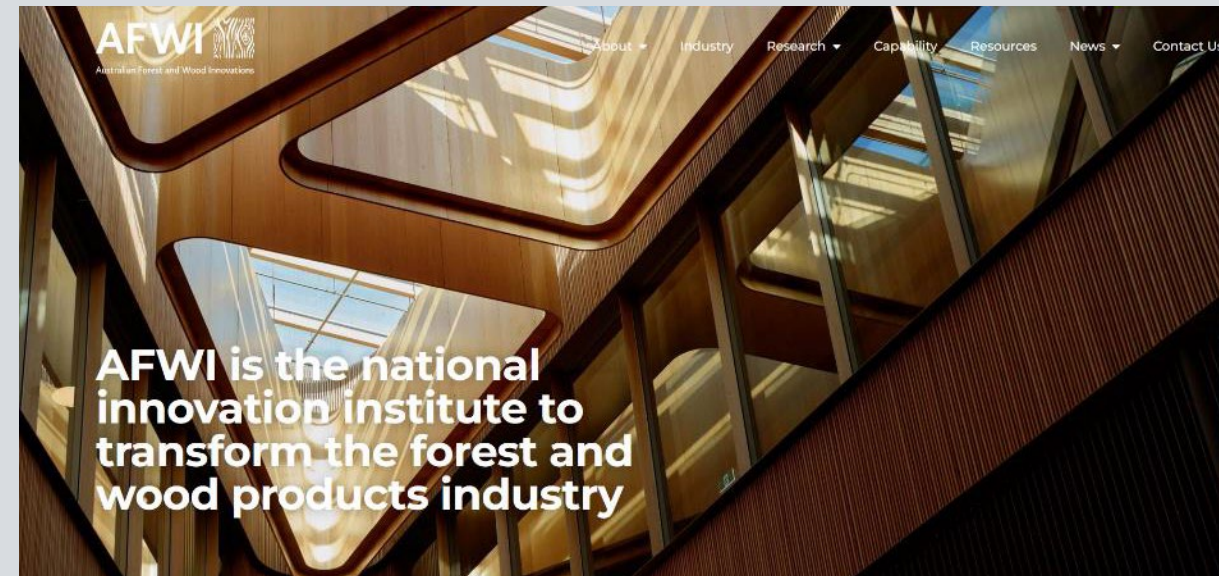


The value of research and innovation

- **Improve forest management and product sustainability, address environmental challenges**
- **Technological innovations, data-driven practices, integrated land use strategies, and adaptive approaches**
- **Innovative forestry and processing practices can increase production and profitability, industry growth and resilience to change**
- **Need whole systems thinking, new partnerships, and long-term capacity to serve those partnerships**
- **Value spend on research as an investment in future growth and resilience, not a cost of production**



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Conclusions

- Forest valuation is becoming more complex and multi-dimensional
- Risks, compliance demands and societal pressures are increasing
- Emerging options for forest owners and investors for realizing higher value and higher returns
- Opportunities to invest in research and innovation to drive forest value, new product and service options and adapt to future change

Questions

- How do personal and corporate values impact on financial valuation?
- How can we bring Indigenous thinking (care, stewardship, reciprocity, regeneration) into valuation?
- How we better value and drive investment in native forests?
- Is biodiversity an asset or liability for forest owners?
- What is the right discount rate for different types of ownerships

