



# Environmental stewardship: pathways for people, nature and cultures

Dr Ro Hill | 1<sup>st</sup> October 2019

Acknowledgements: Kurna People,  
Partners, Wakefield Futures  
Group/Hawke Centre, Photographers

Australia's National Science Agency



*Jitirapa Bumroongchai*

# Ecosystem stewardship – to a sustainable future

- Nature – ecosystems, biodiversity, Country, Mother Earth – in rapid decline e.g. 1 million species face extinction
- Urgent and concerted efforts to leverage transformative change required to meet our nature conservation goals
- New visions of a good quality of life provide key leverage point for change – ecosystem stewardship
- *From IPBES Global Assessment Summary for Policy Makers, adopted by Plenary of 132 Member Nations in May 2019*

# Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

- Role analogous to the IPCC (Intergovernmental Panel on Climate Change)
- Established in 2012 by a UN resolution
- Now has 132 Members (Nation-states)
- Global, thematic and regional assessments
  
- *A story about nature is a story about people and cultures*





Joyce Mpanju

Deputy Executive Director of  
the United Nations  
Environment Programme



Response to IPBES Global Report:

*Across cultures, humans  
inherently value nature. The  
magic of seeing fireflies flickering  
long into the night is immense.*



Photo by Rei Ohara - D800 / AF-S NIKKOR 85mm F1.8



Joyce Mpanju



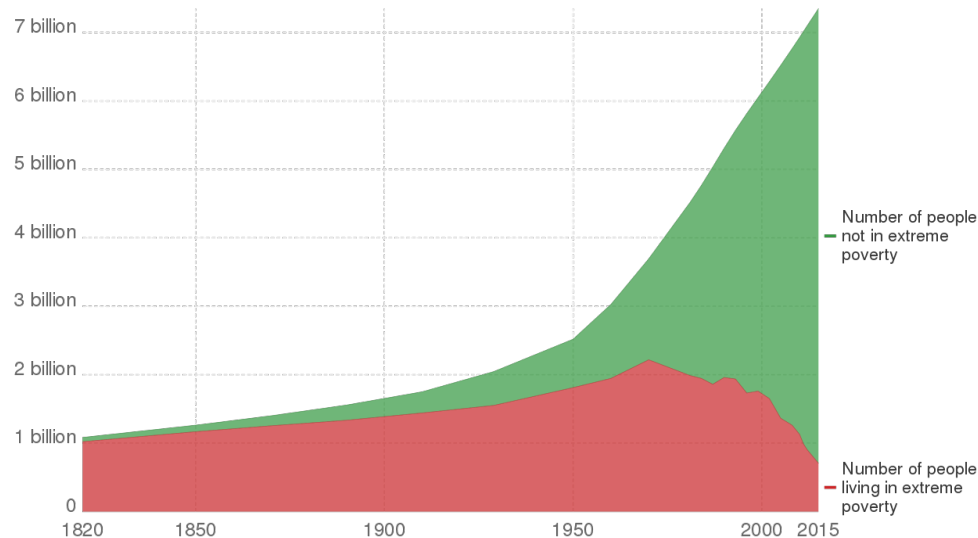
## *A new deal for nature and people*

- Recognise that 1.1 billion fewer people are in extreme poverty than 1990
- Human Development Index measures - life expectancy, literacy, education, gross domestic product - *are not enough*

### World population living in extreme poverty, 1820-2015

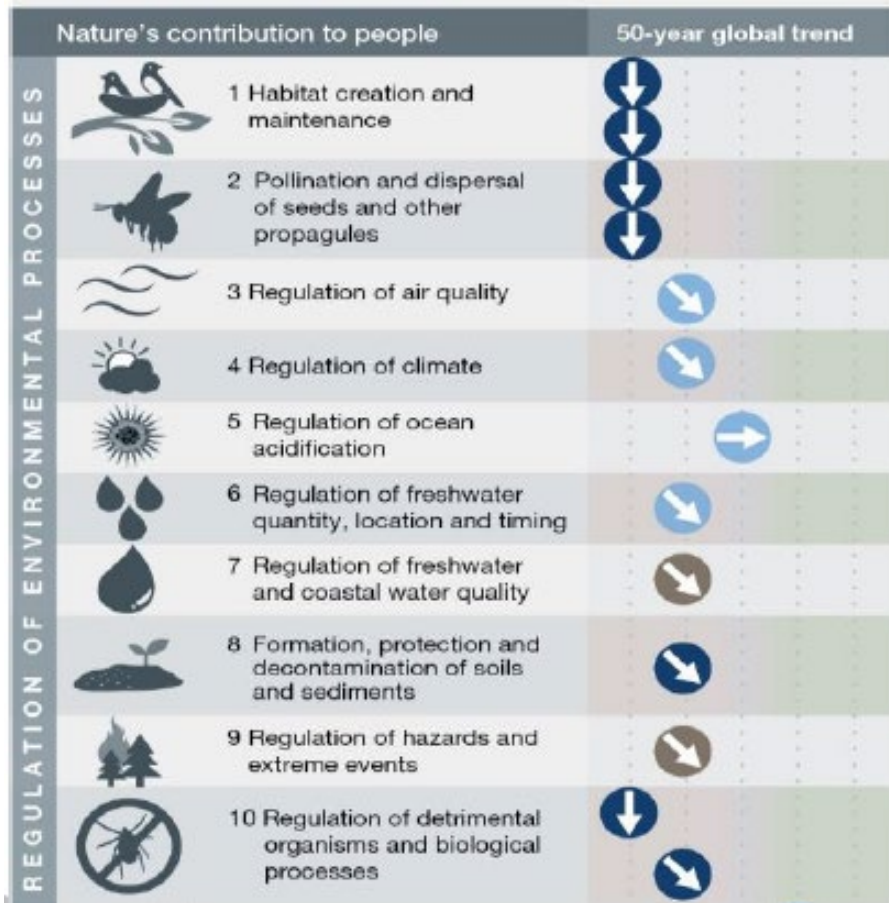
Extreme poverty is defined as living at a consumption (or income) level below 1.90 "international \$" per day. International \$ are adjusted for price differences between countries and for price changes over time (inflation).

Our World  
in Data



Source: World Poverty in absolute numbers - OWID based on World Bank (2016) and Bourguignon and Morrisson (2002)

# Nature's contributions to people





# Nature's decline by numbers in 2019

- From the IPBES Global Assessment
  - 47%: average decline in ecosystems
  - 25%: of species are threatened with extinction – 1 million
  - 23%: decline in abundance of terrestrial species in their natural ranges
  - 82%: decline in the biomass of wild animals
  - 72%: of indicators developed by Indigenous peoples and local communities showing declines



## DRIVERS

### INDIRECT DRIVERS

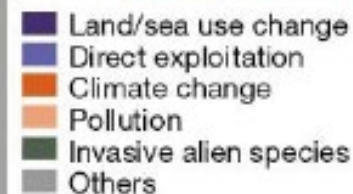
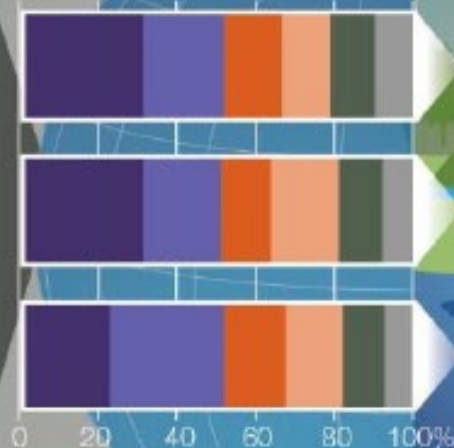
Demographic  
and  
sociocultural

Economic  
and  
technological

Institutions  
and  
governance

Conflicts  
and  
epidemics

### DIRECT DRIVERS



## EXAMPLES OF DECLINES IN NATURE

### ECOSYSTEM EXTENT AND CONDITION

47%

Natural ecosystems have **declined by 47 per cent** on average, relative to their earliest estimated states.

### SPECIES EXTINCTION RISK

25%

Approximately **25 per cent of species are already threatened with extinction** in most animal and plant groups studied.

### ECOLOGICAL COMMUNITIES

23%

Biotic integrity—the abundance of naturally-present species—has **declined by 23 per cent** on average in terrestrial communities.\*

### BIOMASS AND SPECIES ABUNDANCE

82%

The global biomass of wild mammals has **fallen by 82 per cent**.\* Indicators of vertebrate abundance have declined rapidly since 1970

### NATURE FOR INDIGENOUS PEOPLES AND LOCAL COMMUNITIES

72%

72 per cent of indicators developed by indigenous peoples and local communities show **ongoing deterioration** of elements of nature important to them



# How to address such complex drivers?

- IPBES scenarios highlight important choices
  - “Global sustainability”: proactive environmental policy, sustainable production/consumption, low greenhouse gas (GHG) emissions
  - “Regional competition”: strong trade and other barriers, growing gap between rich-poor, high GHG emissions
  - “Economic optimism”: rapid economic growth, low environmental regulation with very high GHG emissions
- None of these scenarios work for our nature conservation goals, for keeping fireflies glimmering in the dark

# ‘Bending the curve’ scenarios

- Transformational change is required
  - Circular economy necessary but insufficient – AND lower consumption
  - Equity essential - inequalities drive ongoing population growth, but also insufficient – AND lower population
  - Catch 22 - time lag between ecosystem degradation and impacts on people
  - Lag ends when key thresholds are crossed



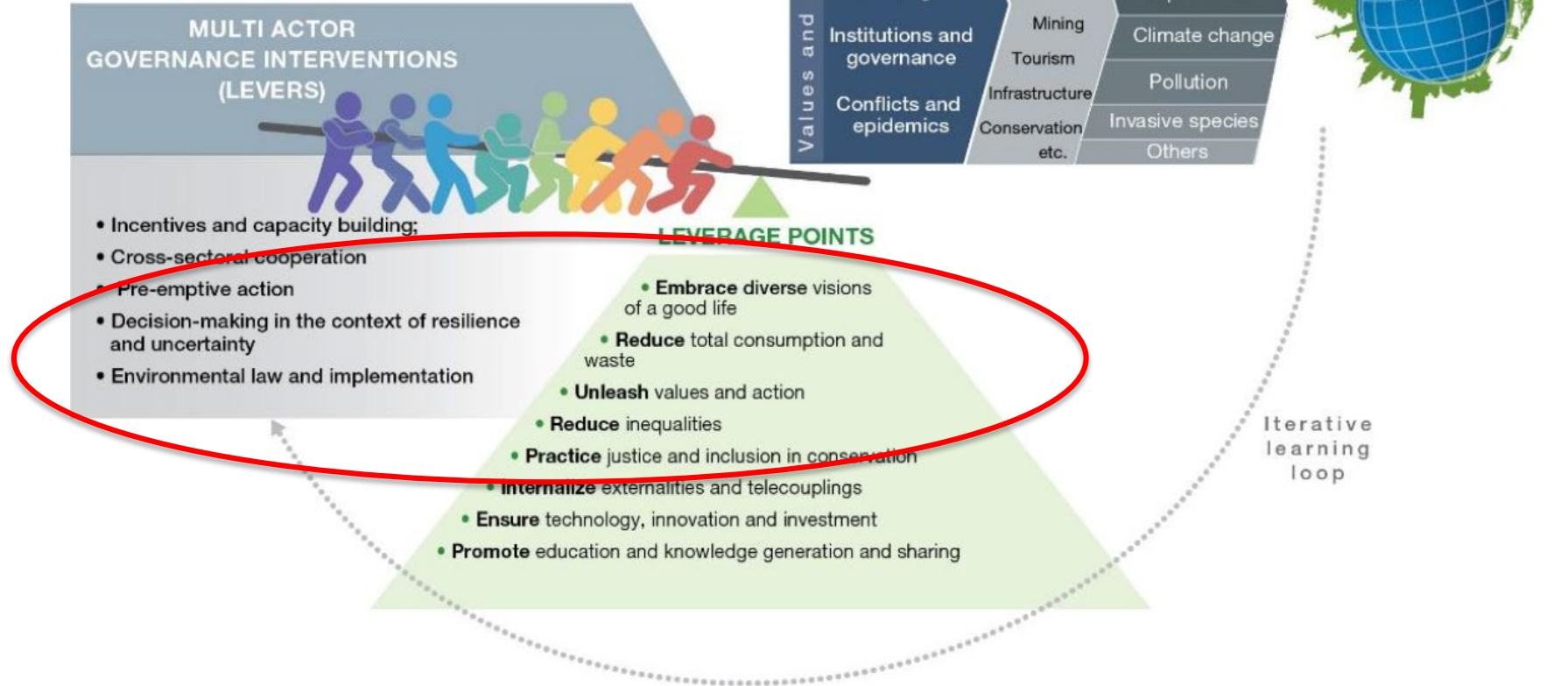
# Systems and leverage

- Archimedes of Syracuse (c. 287 BC – c. 212 BC) Greek mathematician, philosopher, scientist and engineer.
- **‘Give me a place to stand and with a lever I will move the whole world’**



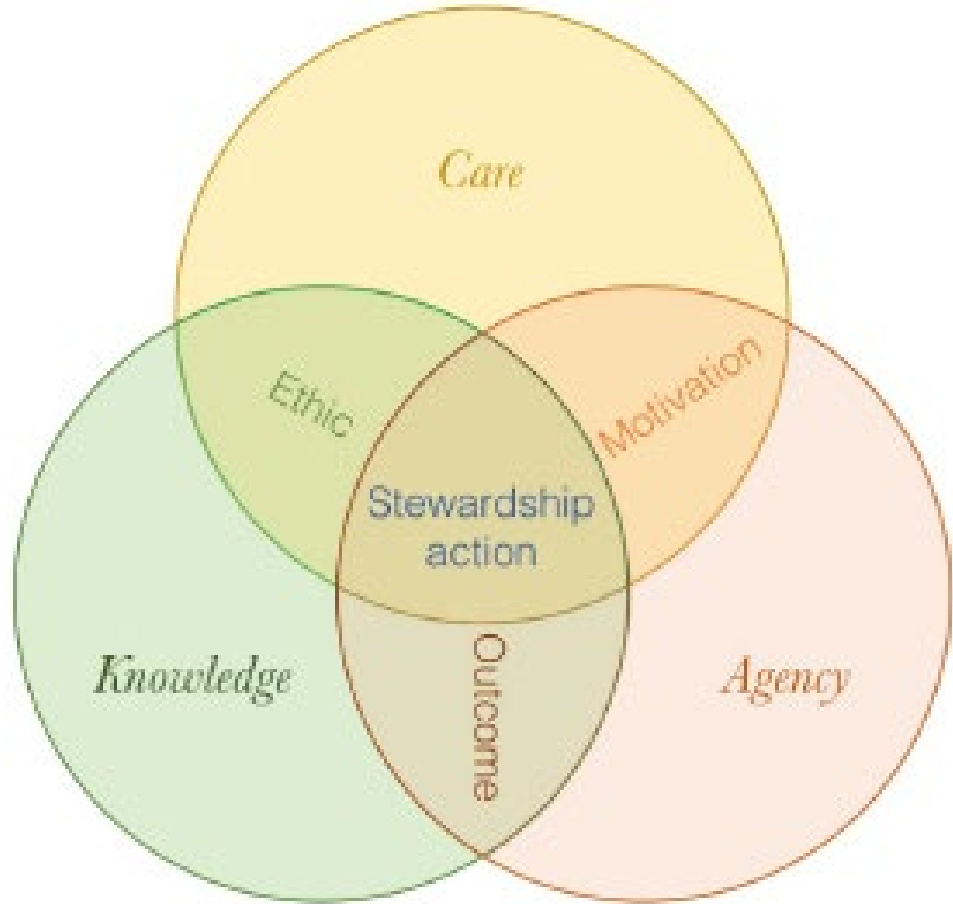


# People's leverage for transformation



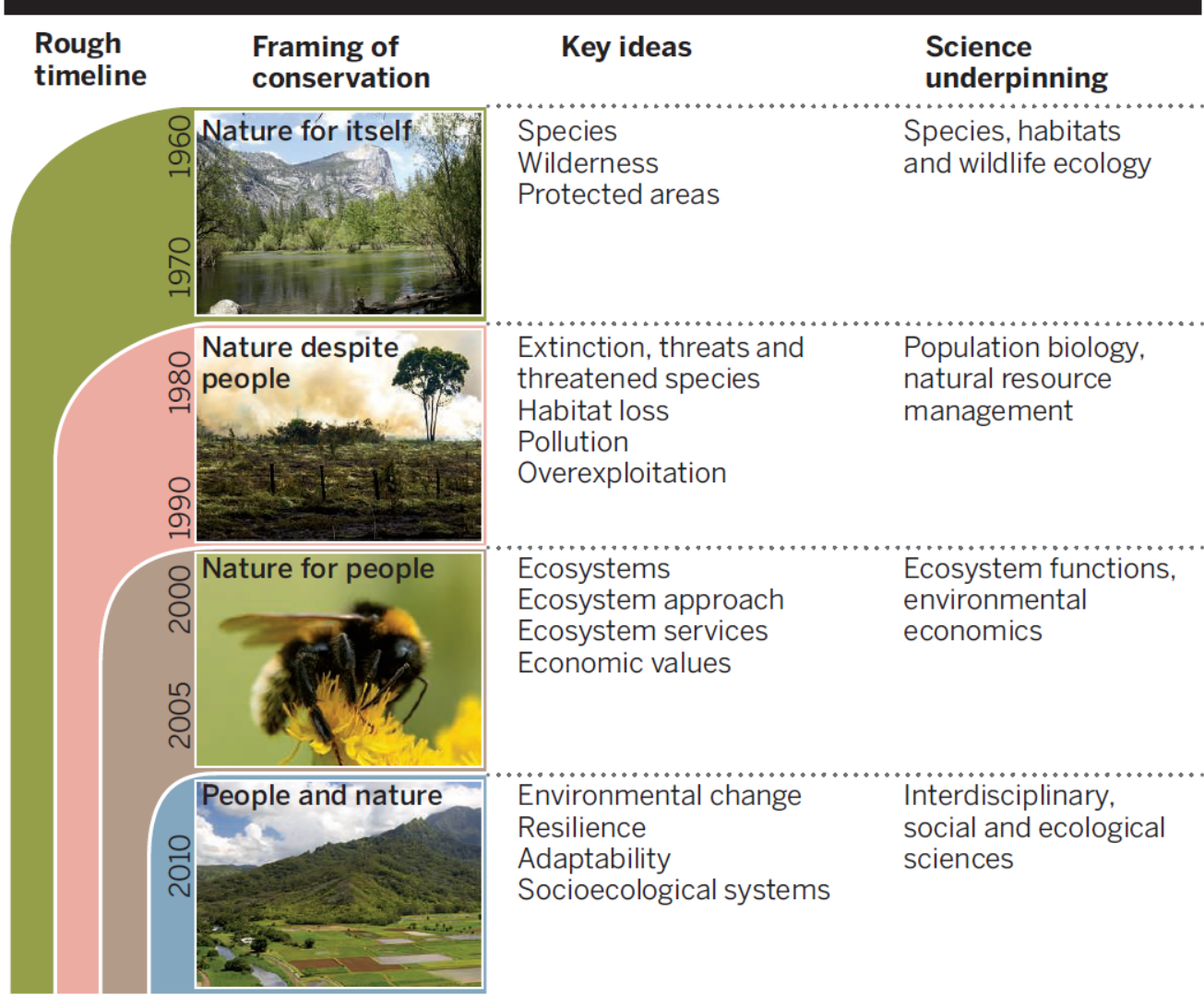
# What is ecosystem stewardship?

- Stewardship linking care, knowledge and agency
- Diversity of ethic, motivations and outcomes sought
- Enqvist et al. 2018. L & Urb Planning, 179



# Stewardship: multiple approaches

- Allowing collaboration and dialogue between different actors
- Encompassing different views on nature conservation
- Still western...
- Mace et al. 2014 *Science*, 6204, 1558-1560





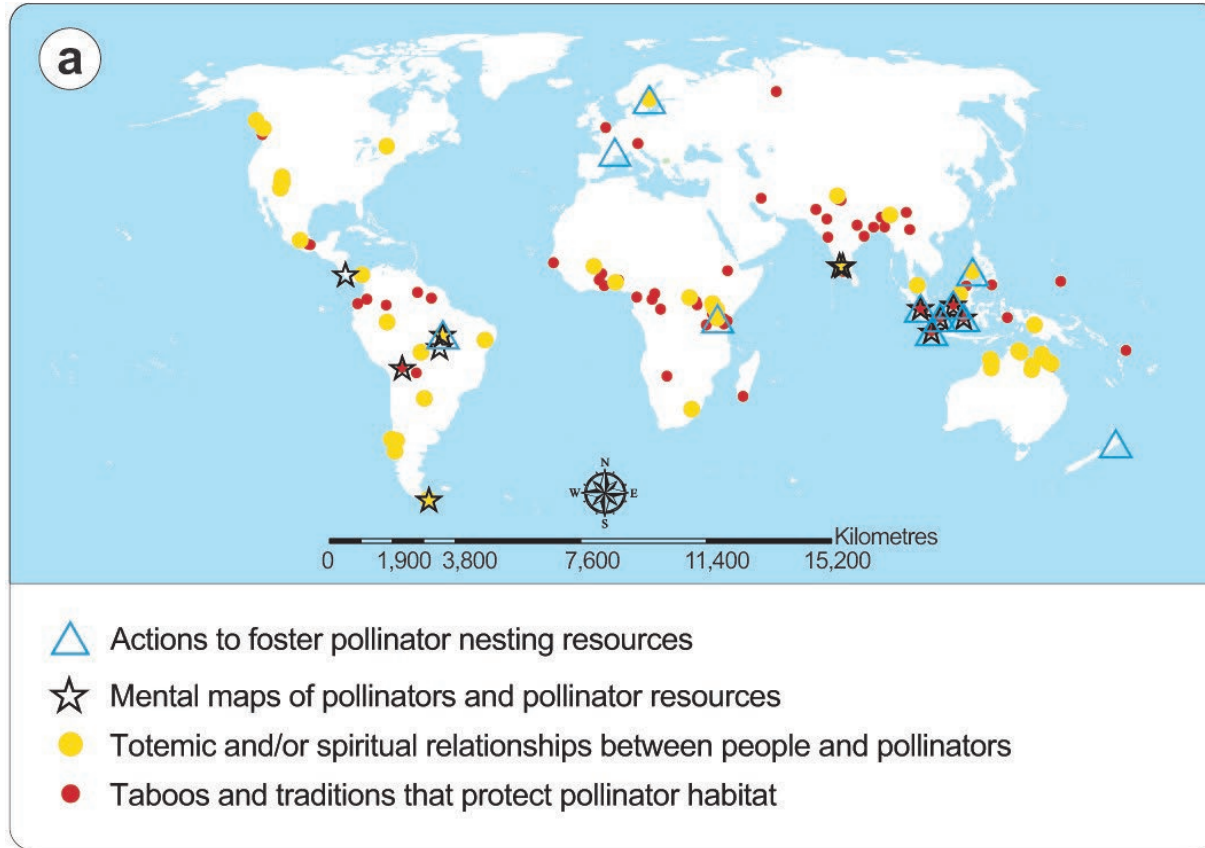
# Ecosystems as stewards of people

Tagbanua people of Palawan  
Island view ultimate authority  
for their swidden-honey  
complex lies with two bee  
deities, diwata and panya'en,  
living in the forest and karst

IPBES Pollination Assessment



# Two-way ecosystem stewardship



- Biocultural connections with pollinators
- Hill et al. 2019 Nature Sustainability, 2, 214-222

# Indigenous stewardship matters

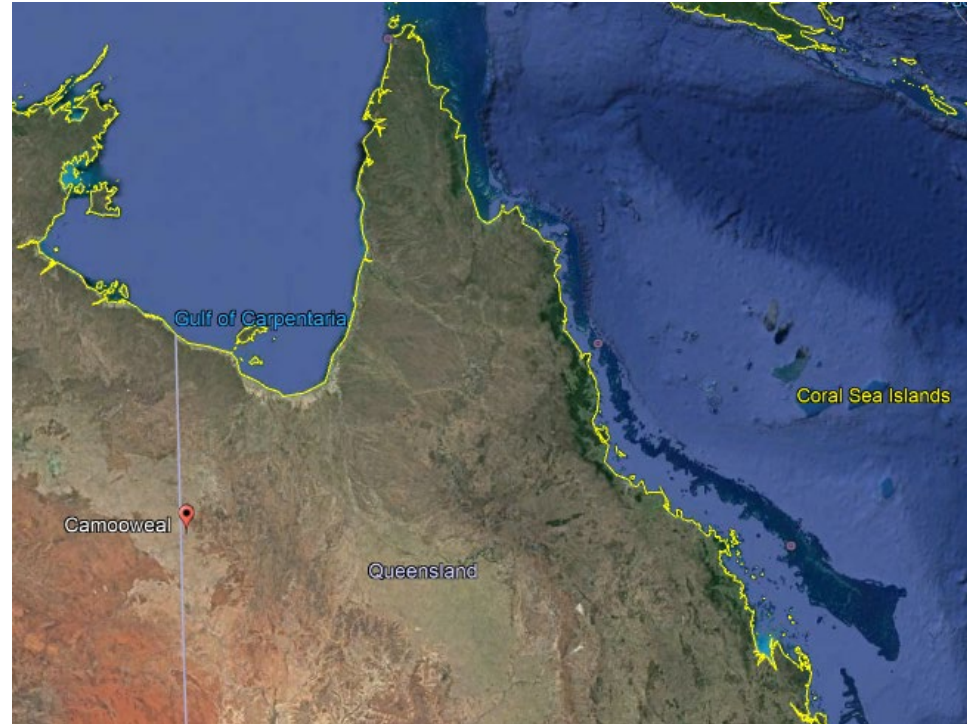
- ~35% of remaining areas with low human intervention are owned/managed by Indigenous peoples and local communities
- ~35% of protected areas owned/managed (IPBES)
- >25% of the world's land surface Garnett et al. 2018 Nature Sust., 1, 369-374
- Increasing threat





# Spinifex stewardship: a new bio-factory Camooweal

- Spinifex sacred and practical, managed by fire
- **Indjalandji-Dhidhanu people and University of Queensland**
- Several agreements
- Thinner, stronger condoms
- Latex manufacturing uses
- Bio-processing plant at Camooweal
- High-end at U of Q
- Science-Indigenous knowledge



# Deep coupling nature-people-cultures



Jean and Fred



terry priest

Joyce Mpanju

Deputy Executive Director of  
the United Nations  
Environment Programme



*A new deal for nature and people  
... magic of seeing fireflies  
flickering long into the night ...*

- World Economic Forum
- Asia & the Pacific Policy Society
- World Wildlife Fund WWF
- Sir David Attenborough

*A new deal where the highest  
levels of government, business and  
members of society work together  
for urgent, decisive global action*

- Post-2020 framework under  
Convention on Biological  
Diversity

# Roosevelt's New Deal

- The **New Deal** was a series of programs, public work projects, financial reforms, and regulations enacted by President Franklin D. **Roosevelt** in the United States between 1933 and 1936. It responded to needs for relief, reform, and recovery from the Great Depression.
- New story about all people's rights to a good quality of life

*"The only thing we have to fear is fear itself ...*

*the forces of 'organized money' are unanimous in their hate for me ... the forces of selfishness and of lust for power met their match ... [now] these forces have met their master"*

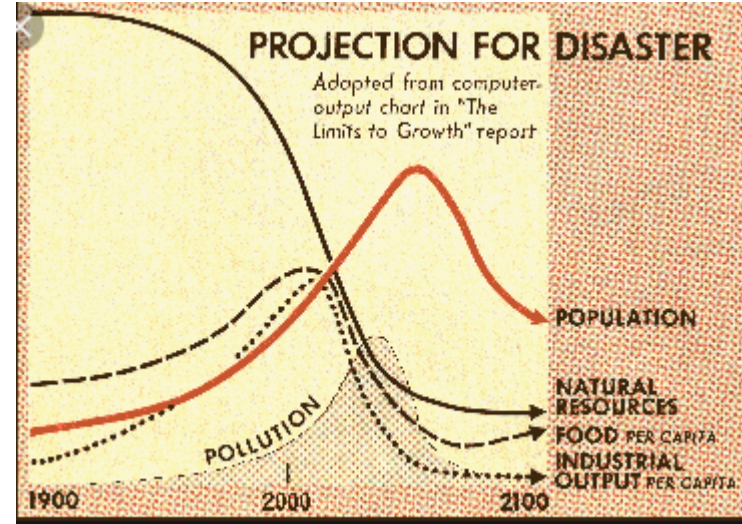


# New deal for nature and people through the *CBD*

- New story about a good quality of life for nature as well as people
- Ambitious package of measures:
  - Vision and mission
  - Targets and commitments (voluntary)
  - Protocols (binding)
  - Indicators
  - Financial mechanisms ....
    - international currency tax of 0.005 percent would yield around \$40 billion annually
    - Cost of implementing current biodiversity conservation plan under CBD estimated at \$76 billion annually
- Hill et al. 2015 *Global Environmental Change* **34**, 22-34

# Ecosystem stewardship: new deal for nature and people

- Pathway may not be fully clear
- Building block of care, action, understanding, values
- Foundation for what comes next
- 2020 major year for decisions



On track for this...

Turner, G.M. 2008. Global Environmental Change, **18**, 397-411

# Conclusion

- Nature is declining at an accelerating rate
- Direct drivers include land clearing, pollution, invasive species
- Indirect drivers complex set of factors: demographic, economic, governance, conflicts
- Underpinned by societal values and behaviours
- Transformation is needed and can be achieved through collective efforts applied at key leverage points
- Ecosystem stewardship – based on care, agency, and knowledge – values that recognise our deep, two-way connections with nature provides a building block

*A new deal for nature and people*



# Thank you

## **Land and Water**

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