

# The multifaceted relationships between ecosystems, conservation action, and human health



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## Outline of this talk

People's health and wellbeing outcomes are tied to the health of the ecosystems, both positive and negative

This relationship is scaled to define people's lived experience. Place-based, locally relevant

Many opportunities available to integrate public health and environmental conservation actions.

Our governance arrangements must adapt to allow these benefits to accrue.

The age of extinction is supported by



About this content

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# 'We did it to ourselves': scientist says intrusion into nature led to pandemic

Leading US biologist Thomas Lovejoy says to stop future outbreaks we need more respect for natural world

- [Coronavirus - latest updates](#)
- [See all our coronavirus coverage](#)



The vast illegal wildlife trade and humanity’s excessive intrusion into nature is to blame for the coronavirus pandemic, according to a leading US scientist who says “this is not nature’s revenge, we did it to ourselves”

# Public health and wetland ecosystems (as an example)

Cholera, typhoid and other water borne diseases

Provision of drinking water (in this light)

Malaria and other vector borne diseases

Infrastructure responses to flooding  
(building, roads, drains)

Sewerage

Waste management

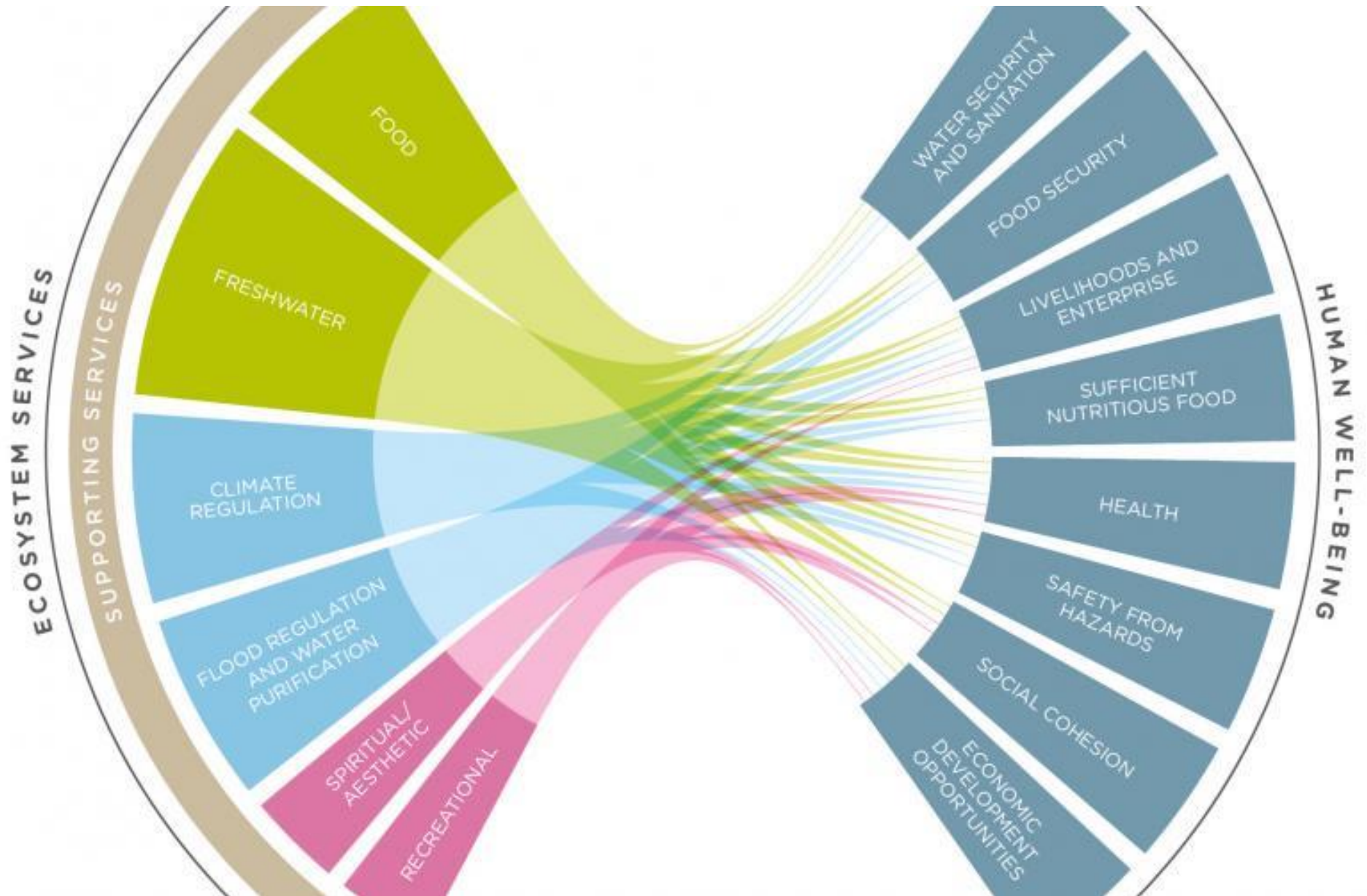


# The public health legacy and cultural baggage

*And our challenges*

- for reasons including our very own behaviours, ecosystems pose a risk to human health as a source of exposure
- public health, infrastructure development and planning are intimately entwined with ecosystem management
- profoundly affects how we see ourselves in relation to ecosystems.
- (how) to balance this - ecosystems as beneficial to health as well.
- to recognise interdependencies, and ecosystems as living entities

# Ecosystem Services--Human Well-being



# Ecosystems as settings for human health

Both –ve and +ve  
health outcomes

1. core contribution to personal aeration and hydration
2. core contribution to personal nutrition and microbiomes
3. sites of exposure to pollution or toxicants
4. sites of exposure to infectious diseases
5. sites of physical hazards
6. settings for psychosocial well-being
7. places where people derive their livelihoods
8. lifestyle places that enrich people's lives,  
enable them to cope, and to help others
9. sites where medicinal products can be derived

Sustain life

Exposures  
to hazards

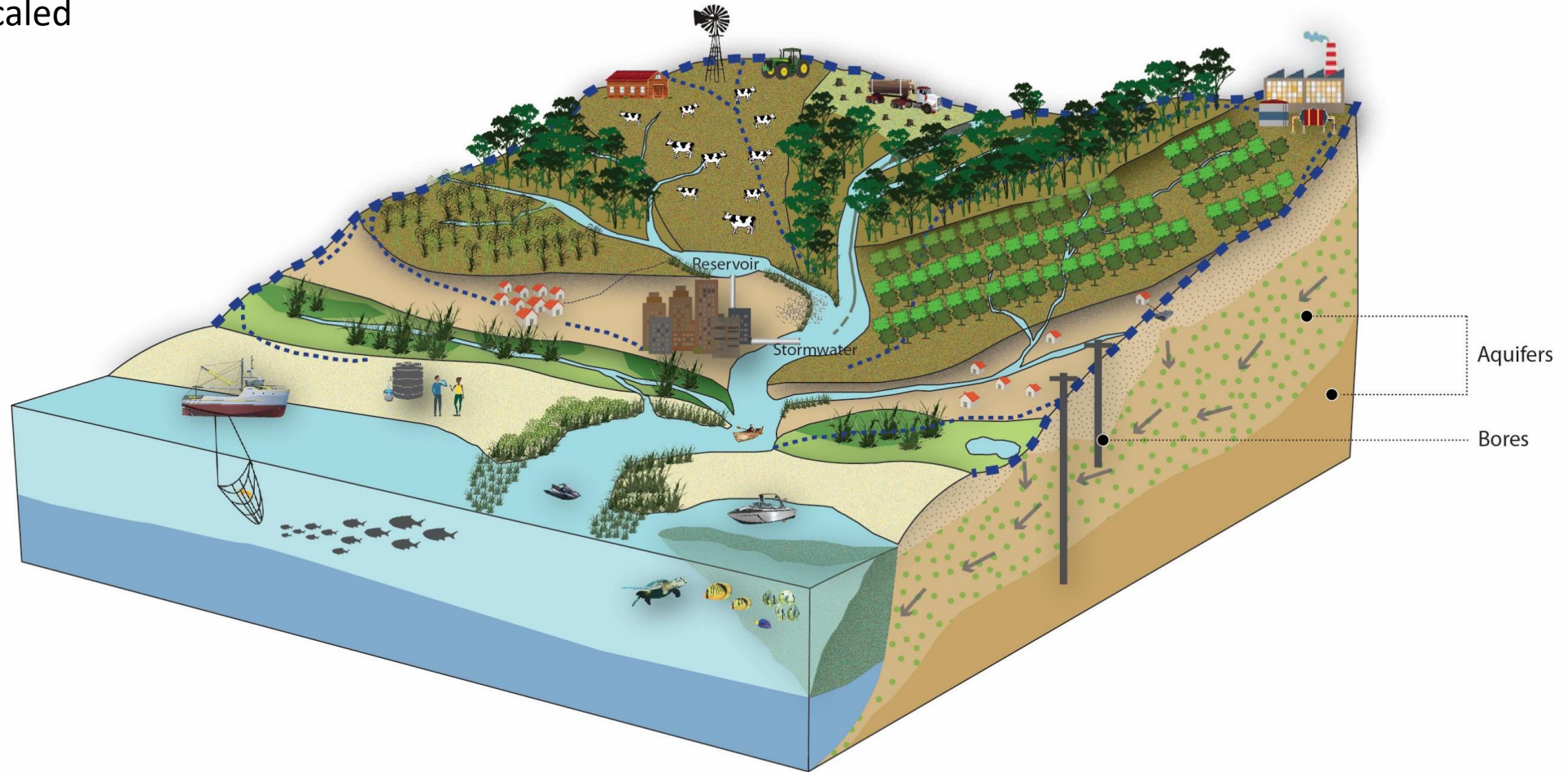
Benefits

## Ecosystems as settings

-Upstream ← → Downstream

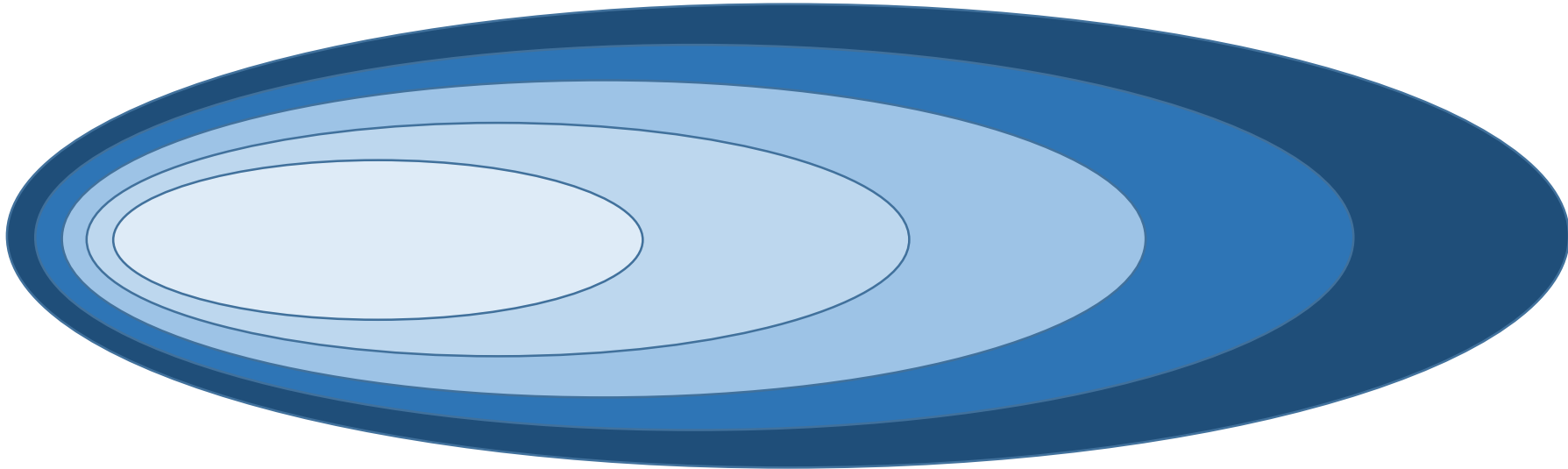
-Nested

-Scaled



# Scaled nature of systems

(Microbes) ← Individuals   Households   Communities   Watersheds   Global regions → (Planet)







Water Quality Data				
Sample No.	Location	pH	Temp (°C)	Notes
1	Well 1	7.2	28	
2	Well 2	7.5	29	
3	Well 3	7.1	27	
4	Well 4	7.3	28	
5	Well 5	7.4	29	
6	Well 6	7.2	28	
7	Well 7	7.3	29	
8	Well 8	7.1	27	
9	Well 9	7.4	28	
10	Well 10	7.2	29	
11	Well 11	7.3	28	
12	Well 12	7.1	27	
13	Well 13	7.4	29	
14	Well 14	7.2	28	
15	Well 15	7.3	29	
16	Well 16	7.1	27	
17	Well 17	7.4	28	
18	Well 18	7.2	29	
19	Well 19	7.3	28	
20	Well 20	7.1	27	
21	Well 21	7.4	29	
22	Well 22	7.2	28	
23	Well 23	7.3	29	
24	Well 24	7.1	27	
25	Well 25	7.4	28	
26	Well 26	7.2	29	
27	Well 27	7.3	28	
28	Well 28	7.1	27	
29	Well 29	7.4	29	
30	Well 30	7.2	28	

# Scaled nature of systems – the WISH Fiji project



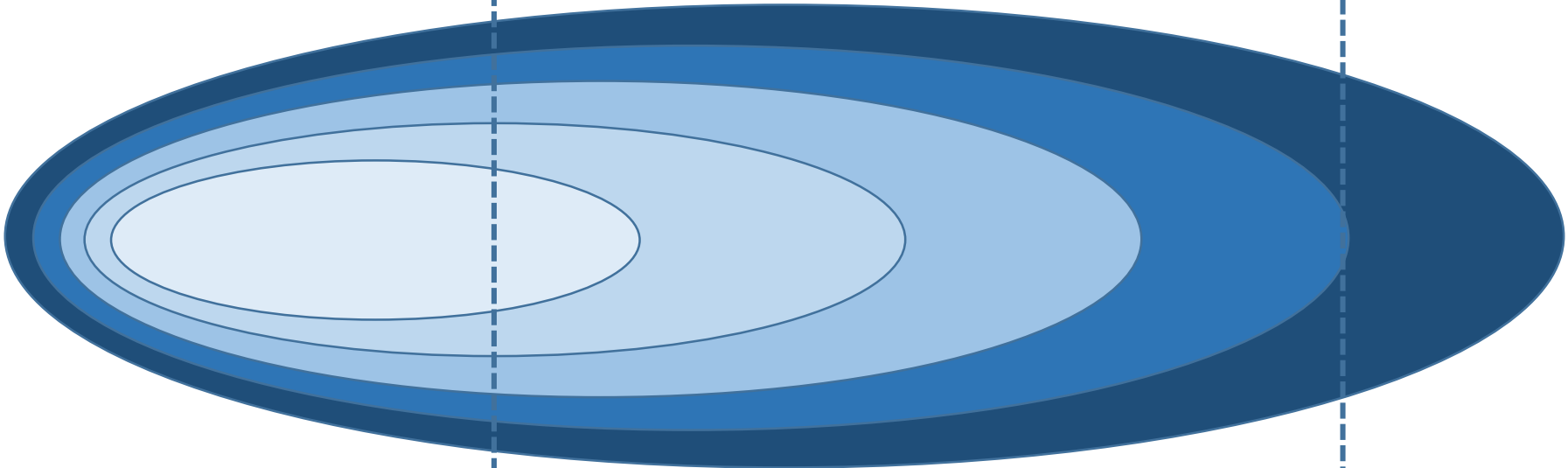
THE UNIVERSITY OF SYDNEY



Australian Government



(Microbes) ← Individuals    Households    Communities    Watersheds    Global regions → (Planet)



Dengue    ← Individuals    Households    Communities    Watersheds    Global regions → (Planet)  
Typhoid    N=431    N=29    N=5  
Leptospirosis



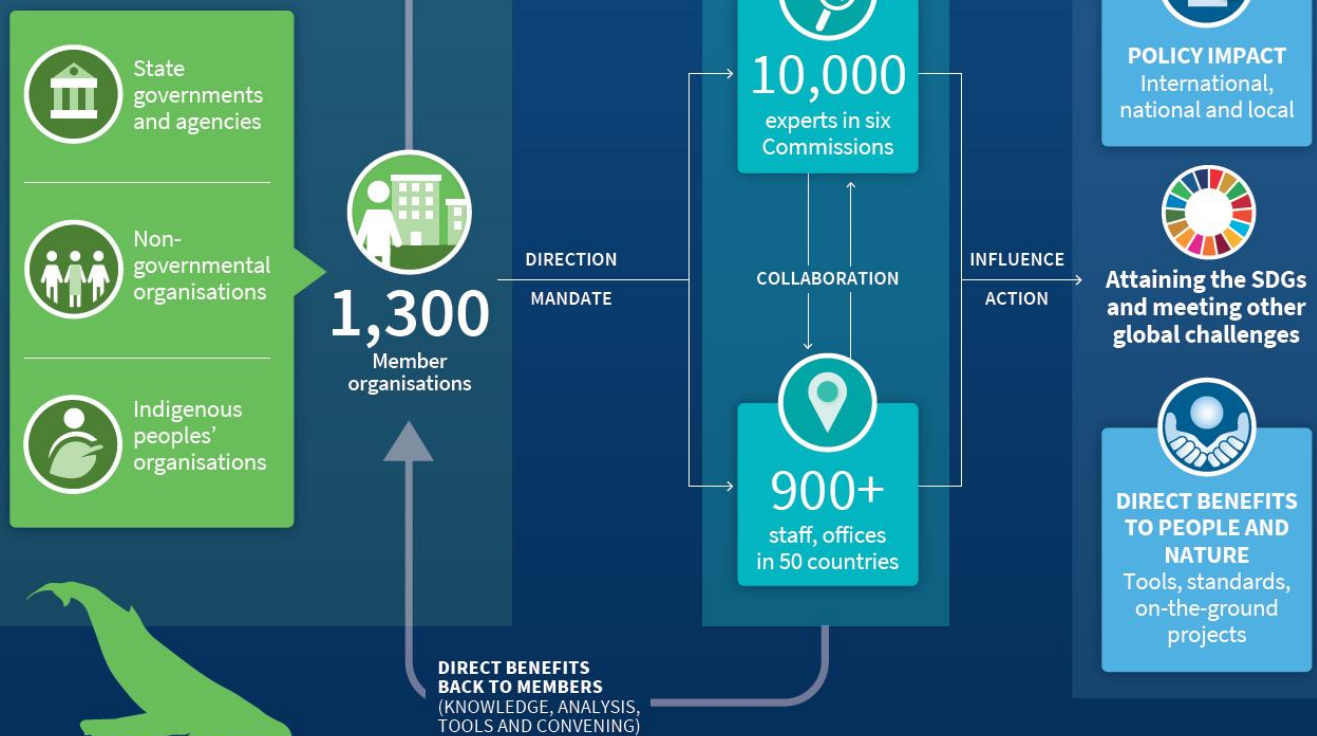
# UNITED FOR LIFE AND LIVELIHOODS



International Union for Conservation of Nature

## A powerful Union for sustaining life and livelihoods

IUCN is a democratic membership Union which brings together the world's most influential organisations in a combined effort to conserve nature and accelerate the transition to sustainable development.



# Constitution of Arid Lands Environment Centre Incorporated

The central object of ALEC is to **protect the environment and ensure healthy futures for arid lands and peoples**

by:

(a) recognising Aboriginal people as the traditional owners and custodians of Central Australia and acknowledging that sovereignty was never ceded.

(b) **By making every effort to ensure that, building on the knowledge of Aboriginal people, the air, lands and waters of Central Australia and elsewhere are used with wisdom and foresight, and that the competing demands upon them are resolved in the best long term interests of this region and nation.**

(c) Energy policies

(d) By working to create resilient communities...

(e) By educating, advocating and modelling strategies for climate change mitigation and adaptation

(f) By advocating for social equity ...

(g) By co-operating with and fostering co-operation [for] conservation and sustainability, including traditional owner groups

(h) **By taking such actions that are considered necessary or appropriate to promote conservation and sustainability of the natural environment**

(i)...

*our vision: healthy  
futures for arid  
lands and people*



**Arid  
Lands  
Environment  
Centre**

*tackling the major environmental  
threats Central Australian  
communities face head on, like  
climate change, fracking, land  
clearing and species extinction*

Ecosystems as settings: win-wins from environmental conservation

**Nature Conservation – reservation and protection of diverse ecosystems**

Health-related outcomes from the products of the systems, & from being there

**Domain of Governments and private corporations**



Ecosystems as settings: win-wins from environmental conservation

## Active landcare, bushcare and watercare

Health-related outcomes from doing it, from being there

NGOs, relied upon, (under-)resourced by governments, volunteer efforts



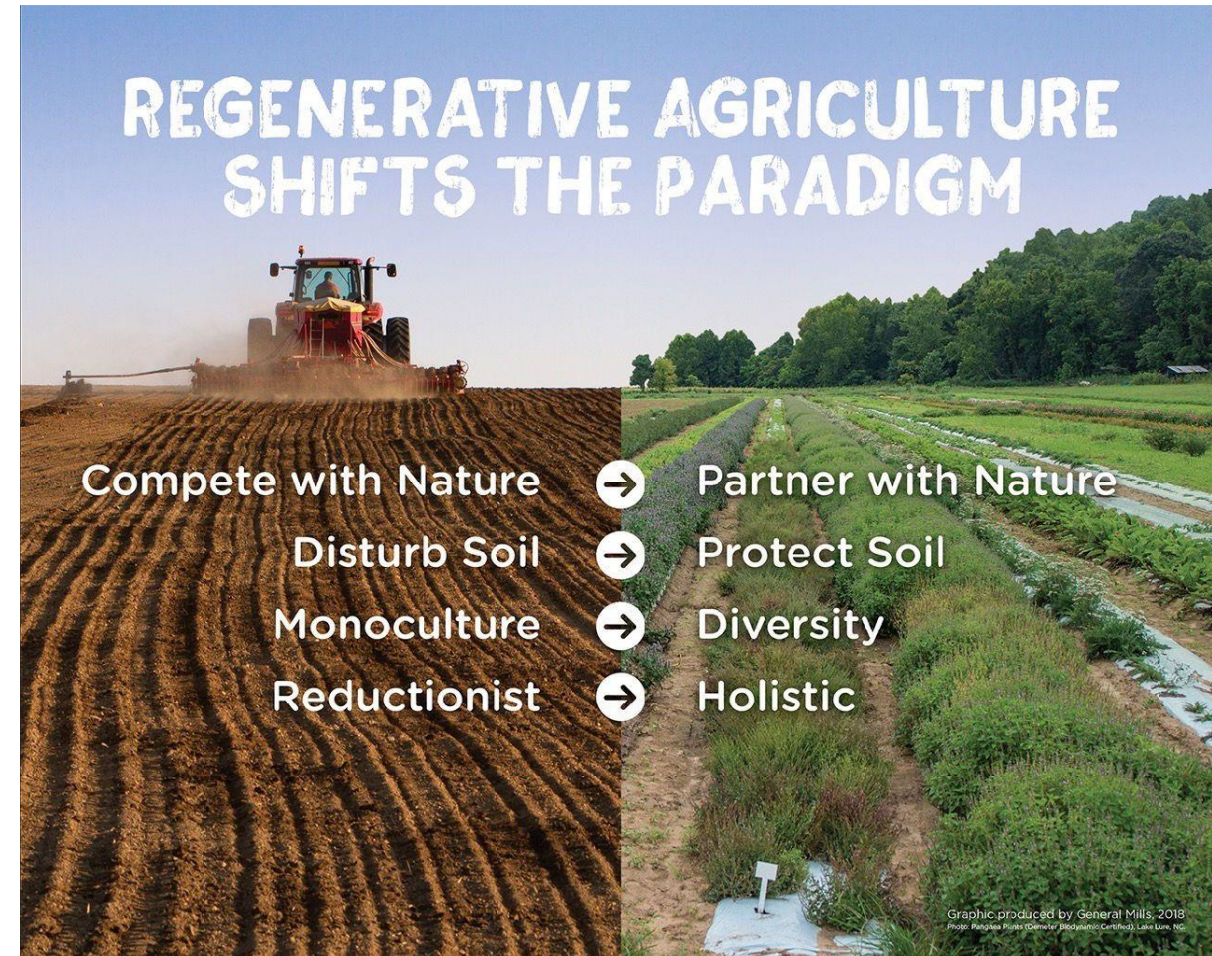
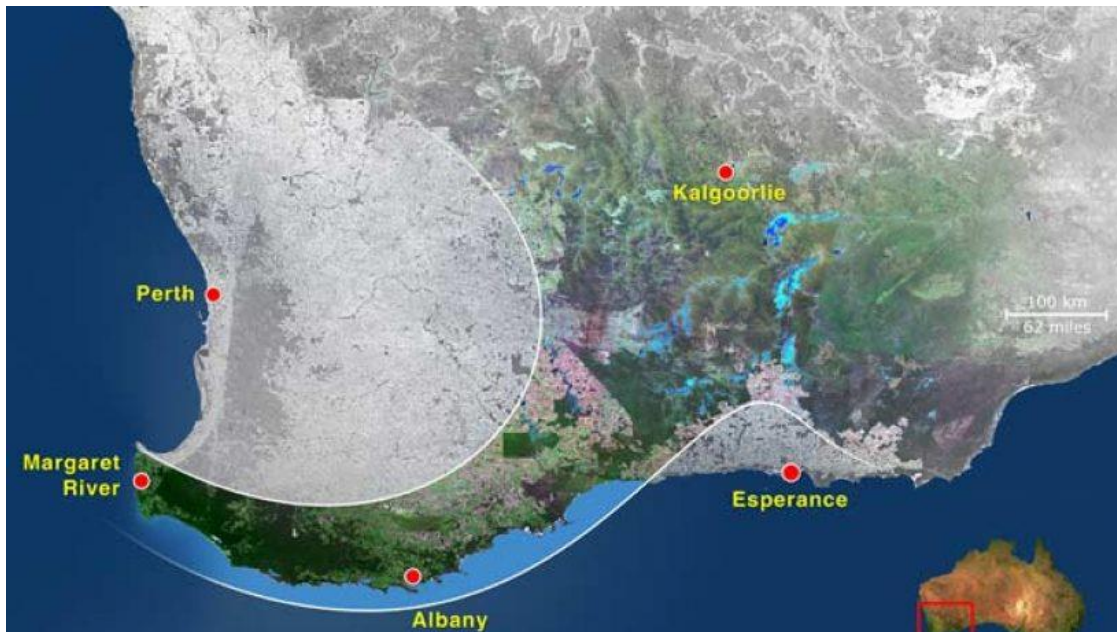
# Ecosystems as settings: win-wins from environmental conservation

## Regenerative agriculture and transformational ecology

Inspired and insurgent landowners and land/water managers

Health-related outcomes all the above

Has the capacity to restore the  
human-microbe mutualism



# Complicating factors for the evidentiary basis:

Irrespective of exposures to nature or the environment *per se*, the benefits to health outcomes of active environmental engagement *could* come from:

- physical exercise
- companionship (doing it with others)
- control over one's own destiny
- esteem and rewards of achievements
- self-selection (those who do are the ones who would benefit)
- socio-economic status

## Our challenges

- ecosystems as beneficial to health as well
- to govern - the cross-sectoral nature of environment and health (and other sectors)
- to recognise interdependencies, and ecosystems as living entities

Place-based actions

Economic frameworks that incorporate ecosystem services

Then health economics to include environmental benefits

Health impact assessment framing

Indigeneity, Indigenous languages

X-sectoral champions and organisations

Paradigmatic change