



# Biodiversity target 2010

-

where are we now?

...in 2010

**Not an official position of the Commission**

# Relative to the target...

- Evidence that ecosystem commission is slowing
- No attempt by any government to make the "unprecedented effort" that is needed to change the trend
- No major publicity campaigns
- **No chance whatsoever** that we will reach the target

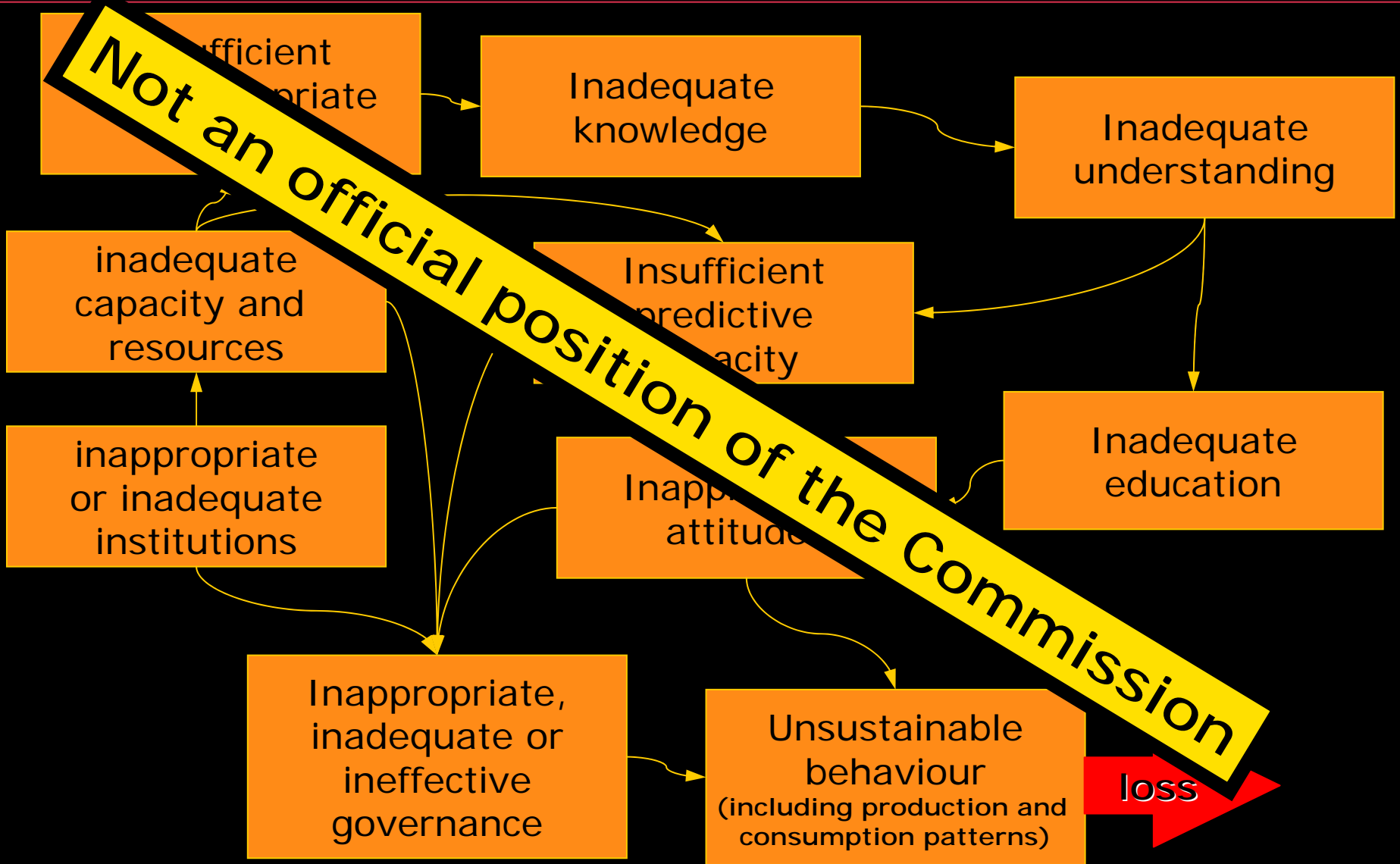
**Not an official position of the Commission**

# W. Bryson (2003)

Not an official position of the Commission  
If we were designing an organism to look after our lonely cosmos, to monitor where it is and keep a record of where it has been, you wouldn't chose human beings for the job.

We may be at the same time the universe's supreme achievement and its worst nightmare.

# What's broken?



What is the EC doing about it?



# Communication

---

- ...from the Commission to Council and Parliament

*“Halting the Loss of Biodiversity by 2010 — and beyond*

*Sustaining ecosystem services for human well-being”*

- COM(2006) 216 final
- 22 May 2006



# The million-year axe

---

- Who invented the stone axe?
- Why did nobody improve it for a million years?

# The Anthropocene

---

- > 6 billion humans, will reach 10 billion
  - humans use
    - > 50% of fresh water
    - > 30% of marine primary production
  - Sudden increase in greenhouse gasses
  - Sudden unprecedented increase in global mean temperature
  - How much space debris is enough?
- not the stable environment in which humans evolved

# Our loss: a personal view

---

- My childhood was spent in Africa
- Never visited a "game park"
  - Game = sport = shooting things
    - Not very politically astute
      - "Nature reserve"
      - "Protected Area"
- University in Scotland
  - Trips back to Kenya every 2-3 years
- None of you will ever see a pristine African savannah
  - But you know someone who did

# Biodiversity is not the issue

---

- we will (perhaps) not sterilise the planet
- please come back in 25 m.y.
  - no humans
  - few of the species, or genera, or families (or even orders?) the same as they are now
  - probably just as biologically diverse as today

# Biodiversity: a human concern

---

- biodiversity horizons
  - in 25 million years, my beliefs will be irrelevant
- human horizons
  - are not 25 million years in the future
  - are at a human scale
- it matters what you and I believe and do

# Biodiversity is about people

---

- Why conserve biodiversity?
  - intrinsic value of life?
  - morality?
  - utility?
  - stewardship and inheritance?
- we should conserve biodiversity because it concerns humans
  - biodiversity doesn't need humans
  - humans need biodiversity
- If we go on destroying life, our human future is likely to be grim

# The Anthropocene

---

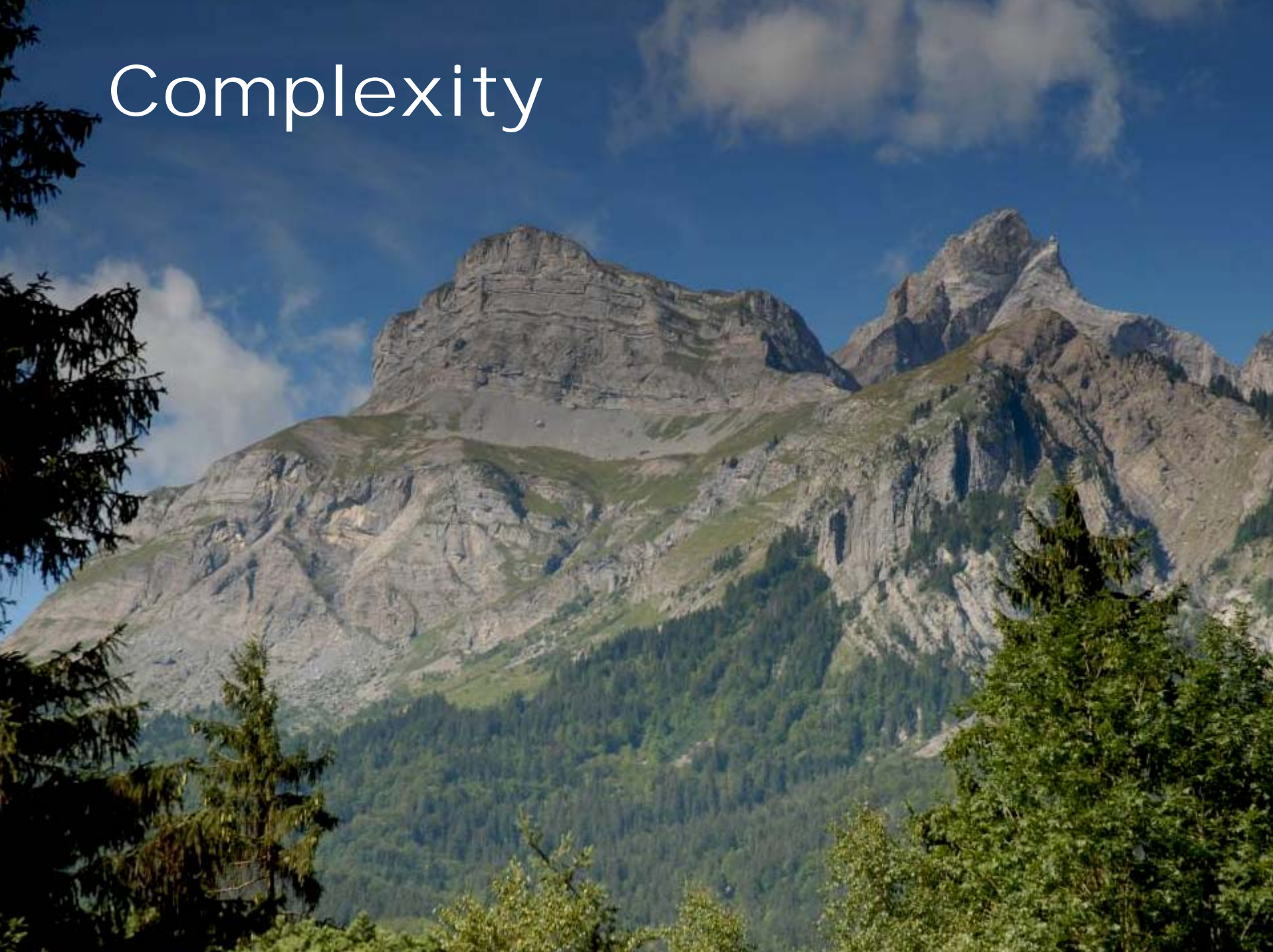
- A matter of societal choice
- Is the million-year stone axe an option?

# The collapse of chaos

---

- Complexity: the challenge
- Simplicity: the spaceship
- Simplexity: the social spaceship
- Complicity: collaboration

# Complexity



# the greatest puzzle

---

- Biodiversity management:
  - the most challenging
    - intellectual,
    - social,
    - moral,
    - economic,
    - and scientific
  - puzzle that humans have ever tried to deal with

# the greatest puzzle

---

- enormously complex ( $10^7$  or  $10^8$  species...)
- Incalculable numbers of interacting variables
- Scales in space and time cover  $n$  orders of magnitude
- Links between many elements weak (or unknown)
- Strong interaction with economic and social systems

# the greatest puzzle

- Many highly emotional **conflicts**
- **Drivers** of change largely **unmanaged** / unmanageable
- Strong **stochastic component** to drivers of change
- Biodiversity is our **lifeline** to the future

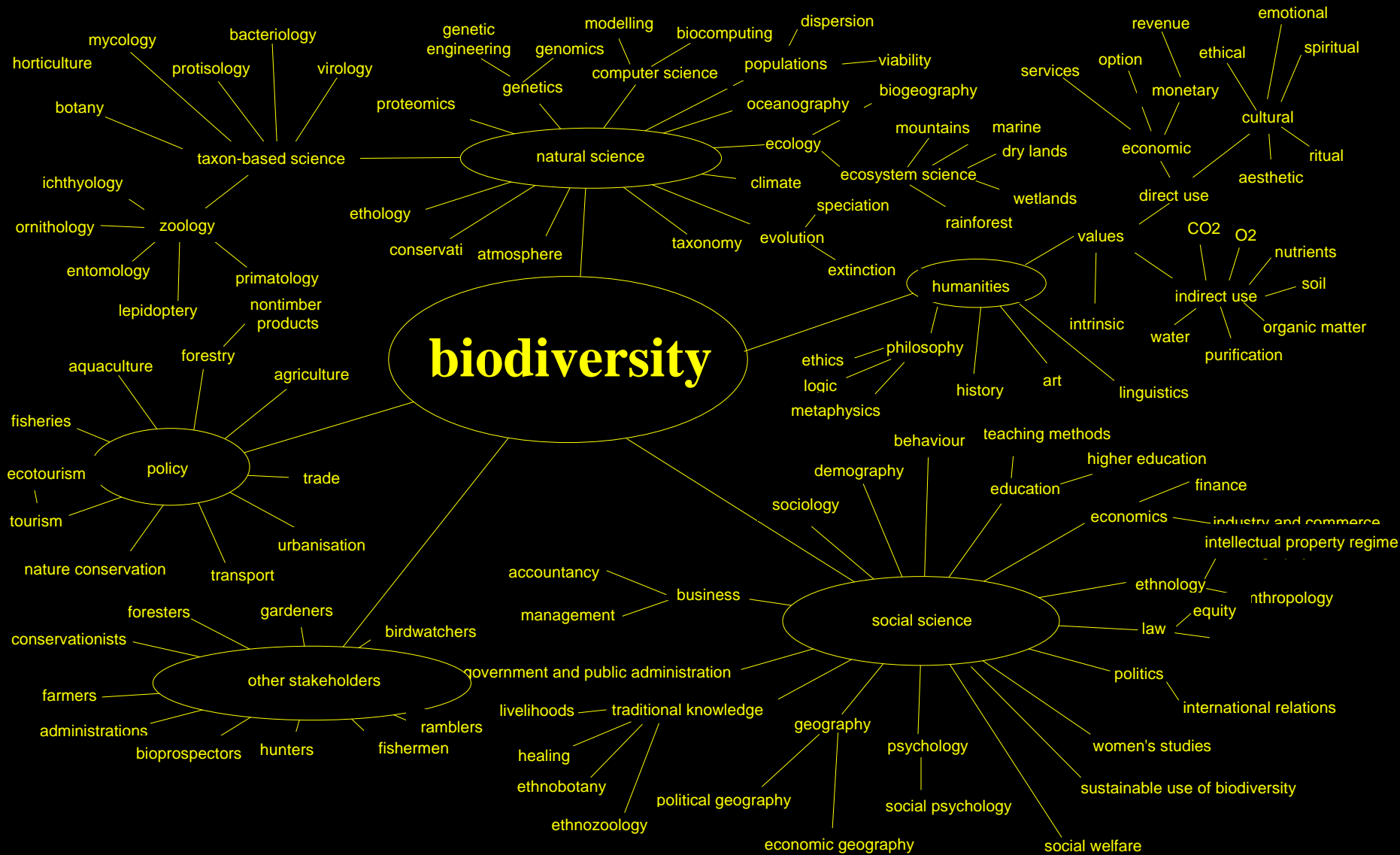


# But what is biodiversity?

---

- the diversity of living things?
- numbers of genes, species, and habitats?
- the basis of ecosystem services?
- a synonym for "nature"?
- a vision of the complex living world? (living things, their activities and properties, and their interactions)
- a synonym for "life on Earth"?
- an object of scientific study?
- a moral issue?
- a notion mixed with human well-being?
- all of these and more?

# Biodiversity issues



# Simplicity



# Spaceship ecology

---

a thought experiment

- 10 light years, 1000 year trip
- Viable population of humans
- Occam's Pod
  - How many species are needed?
    - Food
    - People
    - Decomposers
  - Eliminate all bugs
  - Stop all possible evolution

# Fly in the ointment

---

- Vulnerability and stability
  - Need for many pods
- Competition? Economic growth?
  - Life in a bottle
- Equity?
  - exporting ecological footprint
- Quality of life?

# The social spaceship

---

- Survival depends on
  - Understanding the natural systems
  - Understanding society
  - Understanding identity
  - Understanding history
  - Understanding values and goals
  - Understanding what it is to be human
  - Understanding how these interact
- Integrative research

# Spaceship ecology

---

- Analogy has limited use
  - Careful exclusion of:
    - Land use change
    - Habitat fragmentation
    - Invasive species
    - Climate change
  - Issues of scale
    - solutions may depend on scale

# Simplexity



# Biodiversity loss

---

It's not rocket science...

- If your society, culture or economic activities is causing the loss of biodiversity,

then...

- ...your society, culture or economy is not sustainable.

# Integrative research

---

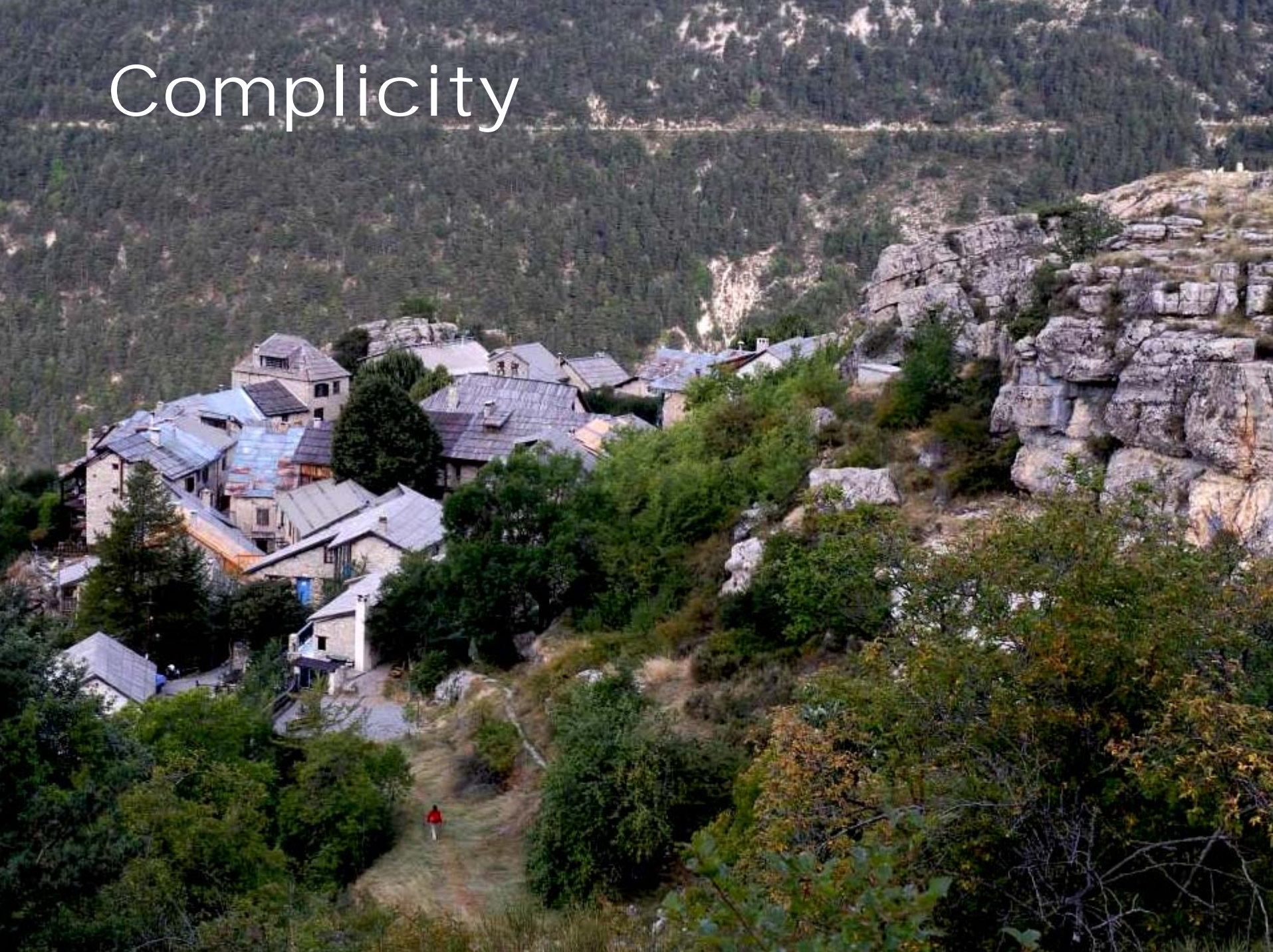
- A plan to conserve biodiversity will only work if we deal first and mainly with humans.
  - how do humans perceive and value biodiversity?
  - how to reframe our needs so that we no longer damage our biological environment?

# Ecosystem service

---

- “service” dangerously misleading
  - Everyday meaning:
    - Cannot get more service than is on offer
      - Phone service
      - Fire service
      - Water service
  - Millennium Assessment meaning:
    - Ecosystems can be forced to provide more than they can sustain
      - Very different sense of “service”
      - Psychologically unfortunate terminology
      - “Civil service”: can only push it so far
- In a spaceship, you can't live off capital

# Complicity



# Integrative research

---

- reductionist science
  - understanding the pieces and how they fit
  - requires highly specialised experts
- integrative research
  - seeing broad picture, emergent phenomena
  - requires broadly educated experts
    - trained in many aspects of conservation and wise use of biodiversity

# Biodiversity interfaces

---

- Biodiversity is inherently multi...
  - multi-disciplinary multi-competence multi-institutional multi-cultural multi-dimensional multi-faceted multi-layer multi-interactive multi-purpose multi-user multi-valued...
- ...in a way that few other subjects are
  - biodiversity covers all of life
  - and all of our attitudes and actions towards it
- therefore
  - research must be integrative
  - there are many science-policy interfaces
  - communication between stakeholders is key

# Integrative research

---

- Challenges of
  - Scale
  - Terminology
  - Training, thought pattern, world-view
  - Assumptions
  - Expectations
  - Specificity of findings (site, case)
  - Integration of findings
  - Generalisation

**“ [humans are]  
a new telluric force  
which in power and universality  
may be compared  
to the greater forces of earth”**

**Antonio Stoppani**

**1873**

# A final thought

- All ecosystems services...
  - food, clean water, shelter, oxygen, clothing, medicine, livelihoods, recreation, culture, aesthetics, solitude, companionship, climate control, money, spiritual refreshment...
  - ...can probably be provided without biodiversity
- **Halt biodiversity loss.**
- **Or let Nature take its course.**
- Humans might survive on a sterile planet
  - Well... a small population of humans...
  - ...in a technologically advanced future
    - (or briefly in a Mad Max future)



© 2015 Warner Bros. Entertainment Inc. All Rights Reserved.

# Lord Salisbury

---

No lesson seems to be so deeply inculcated  
by the experience of life,  
as that you should never trust in experts.