

# Developing and piloting a UK Natural Capital Stress Test

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- The value of nature is invisible
- Taken for granted hence over-exploited
- We need to embed the value of nature in economic decision-making

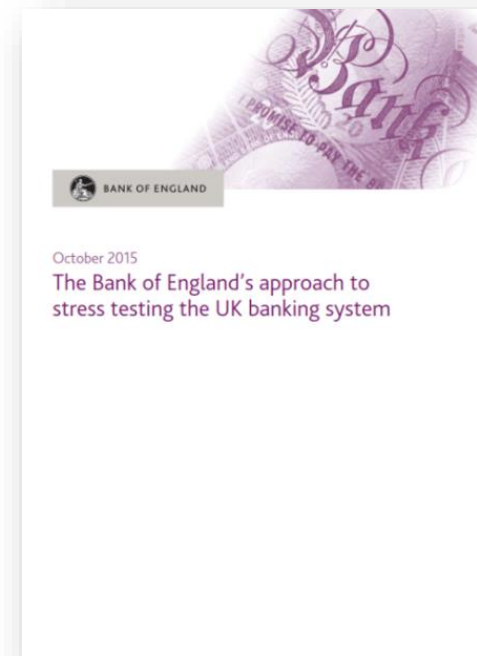


# Natural Capital Committee research recommendation

- “The impact of changes in natural capital upon conventional measures of UK economic performance remains an open empirical question”
- “Key questions:
  - How do changes in our natural capital affect measures such as national income, growth and jobs both directly and indirectly?
  - What sort of frameworks do we need to examine, measure and model these links effectively?
  - How do these changes vary across the short- and long-term?”

# Would a stress test approach help?

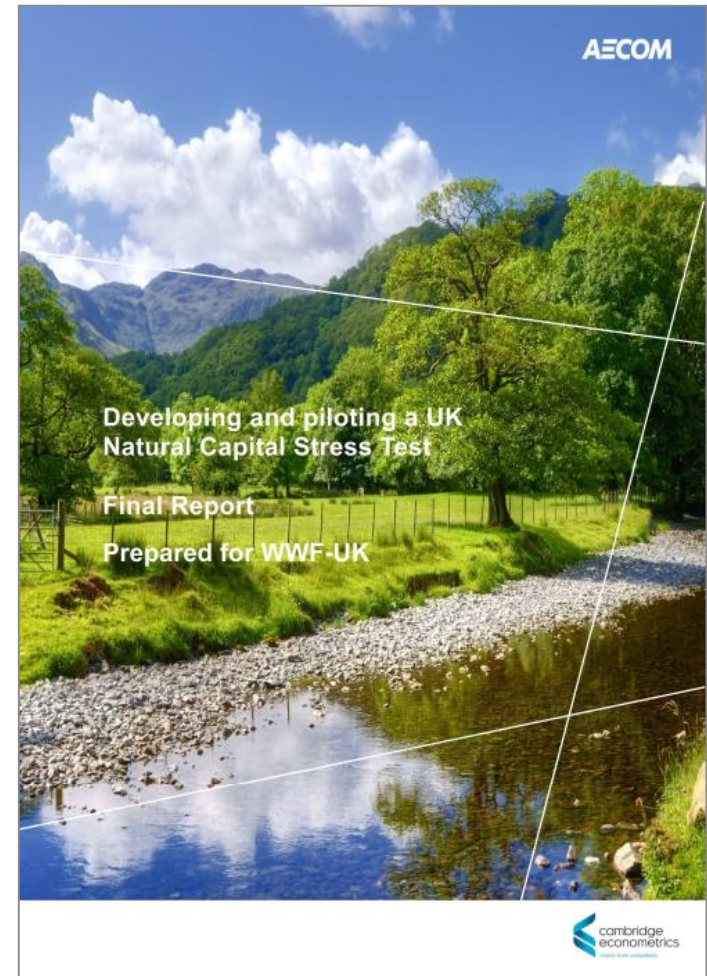
- Examines the potential impact of a plausible but adverse scenario
- On the health of the banking system and individual institutions within it
- Helps to identify and manage risks and gauge resilience





# Developing and piloting a UK Natural Capital Stress Test

- WWF-UK commissioned AECOM and Cambridge Econometrics to:
  - Develop an approach to undertaking a Natural Capital Stress Test;
  - Pilot the approach
- Download the report at:  
[www.wwf.org.uk/updates/developing-and-piloting-uk-natural-capital-stress-test](http://www.wwf.org.uk/updates/developing-and-piloting-uk-natural-capital-stress-test)



# Our approach

Determine the **scope** of the stress test, including the ecosystem services to focus on

Identify and quantify the **impacts on ecosystem services** that would arise under that scenario

“ultimately, the issues that keep decision makers awake at night are **GDP, unemployment, and inflation**” – workshop participant

Formulate a plausible, adverse **scenario**

Identify and value the **economic impacts** of those changes in ecosystem services

“a stress test is only as good as the **scenarios on which it is based**”  
(Hassani, B (2016). Scenario Analysis in Risk Management: Theory and Practice in Finance. Springer)

# An adverse but plausible scenario for three ecosystem services...

## 1. Crops and livestock

- *Acute* shock: temporary reduction in UK agricultural output, falling largely on crops resulting from disease outbreaks, flooding, wildfires, poor weather events and heat waves
- *Chronic* degradation: long-term productivity decline resulting, for example, from land use change, decline in pollinator populations, falling soil productivity

## 2. Water supply

- *Acute* shock: impact of a three-month UK-wide drought that pushes some regions of the UK into water deficit

## 3. Hazard regulation (flood risk)

- *Acute* shock: impact of a sustained series of flood events similar to the winter 2013-14 floods in England and Wales with assumed population growth and limited climate action

# Headline results

Ecosystem service	Scenario	Estimated impacts in 2050
<b>Crops and livestock</b>	Output shock in 2050 from disease outbreaks, flood events, wildfires, poor weather events, and heatwaves	0.9% reduction in GDP 347,000 jobs lost
	Productivity losses over time to 2050 from changes in growing conditions and land use, declines in pollinators, and falling soil productivity	0.2% reduction in GDP 66,000 jobs lost
<b>Water supply</b>	Three-month UK wide drought in 2050, if there had been continued depletion of water reserves from now until 2050	1.0% reduction in GDP 354,000 jobs lost
	Three-month UK wide drought in 2050, if water reserves had been protected and maintained at current levels	0.5% reduction in GDP 156,000 jobs lost
<b>Flood regulation</b>	Repeat in 2050 of the 2013/14 floods with continued population growth and limited action on climate change	70% increase in damages to £2.2bn



## How can a Natural Capital Stress Test help?

- Track emerging environmental risk ‘hot spots’ in the economy
- Pinpoint which business sectors are most at risk
- Facilitate the need to identify and prioritise policy responses
- Talk the language of decision-makers - GDP, unemployment, prices
- Help businesses to gauge their resilience



# Thank you



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