

37th T B Macaulay Lecture

Policy, Practice, Science and My Distant Relatives

William Sutherland, Conservation Science Group,
Department of Zoology, University of Cambridge

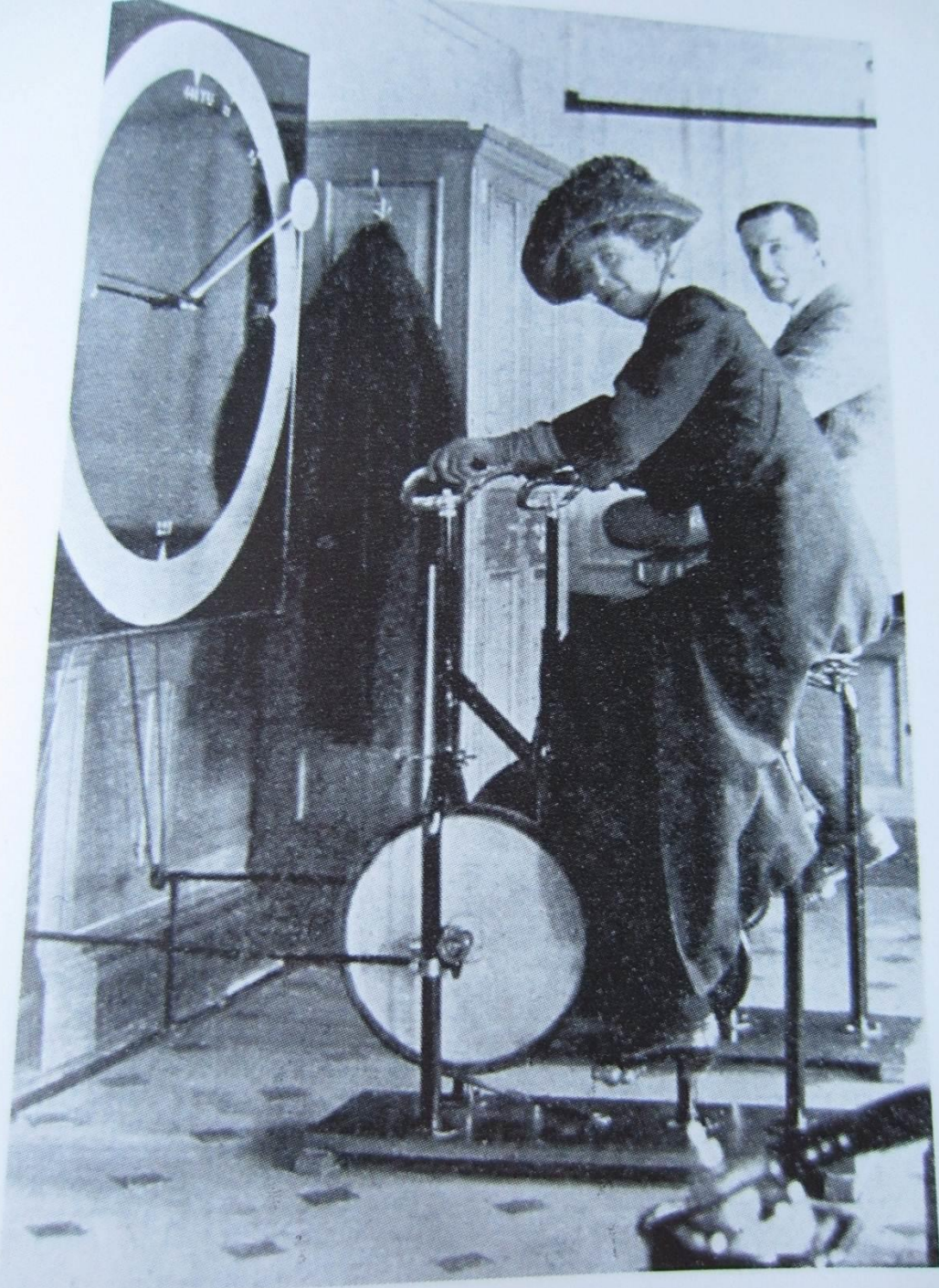












EASY READING SERIES

THE LOSS OF THE S.S. TITANIC

Its Story and Its Lessons



BY
LAWRENCE BEESLEY

Forgotten Books

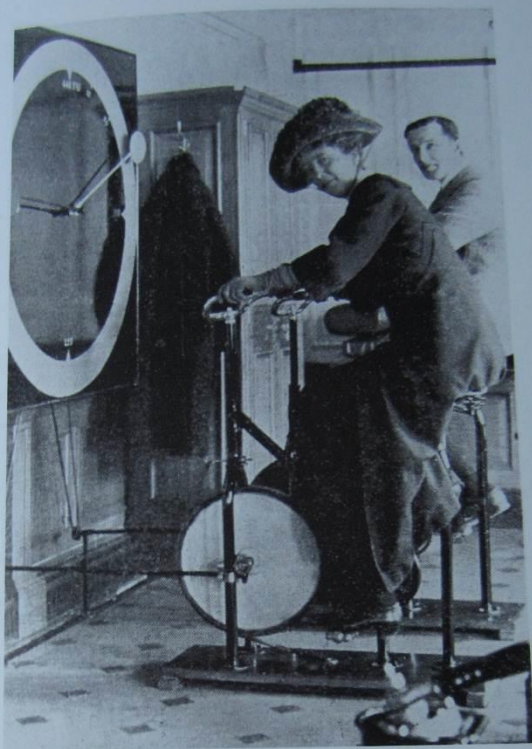
CAMBRIDGE LITERATURE

A HISTORY
of the
WORLD *in*

10¹/₂
CHAPTERS

JULIAN BARNES





Before sailing, second-class passengers were free to tour first class. Lawrence Beesley (above, in rear) was particularly impressed with the gymnasium, where he hopped onto one of the exercise bicycles. With passengers lining the rails, the Titanic slowly moves from her berth toward the River Test (below).

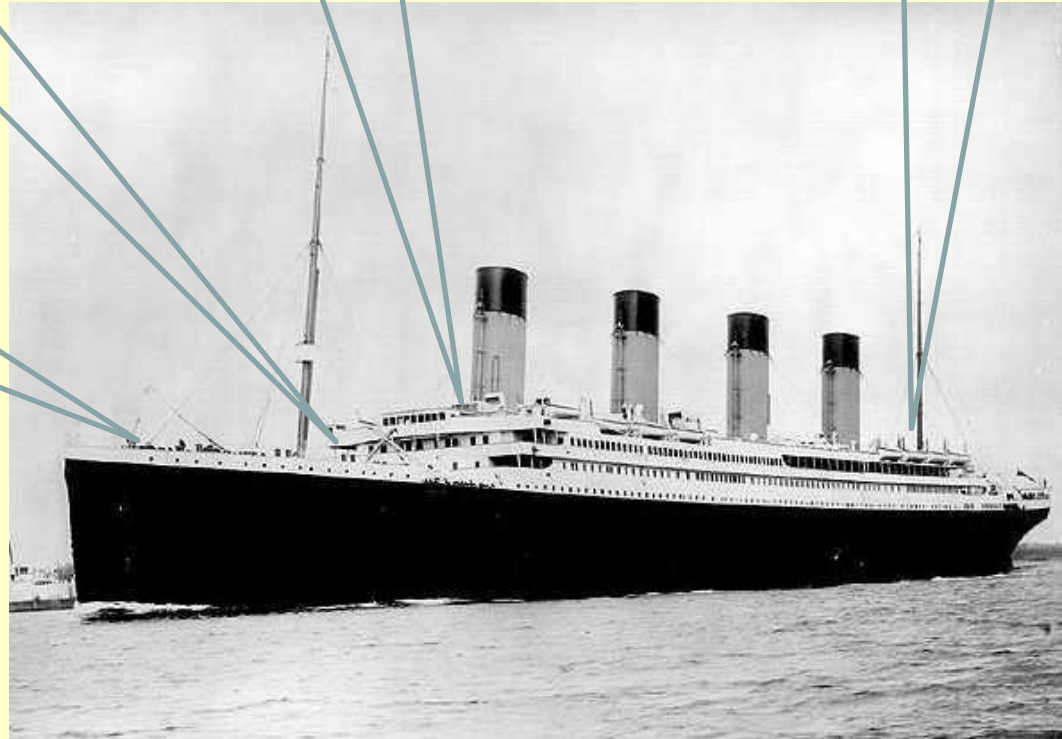


Do we know where we are going?

Are we working effectively?

Have we shared the lessons?

What is on the horizon?



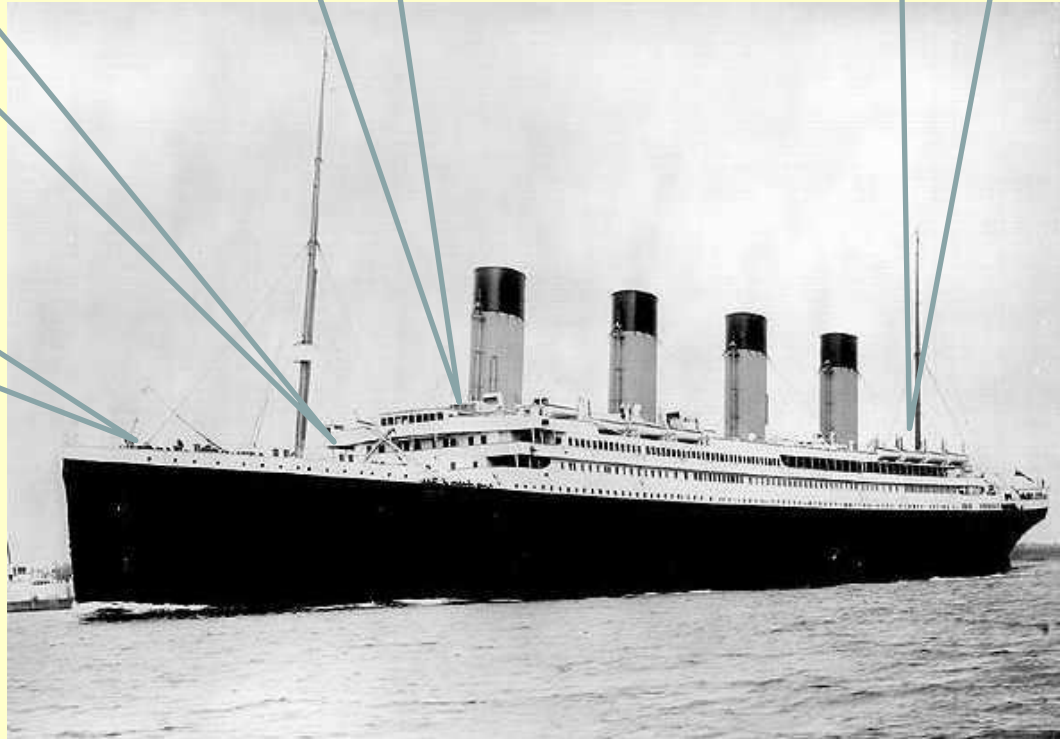
Are we on the bridge or in the gym?

Do we know where we are going?

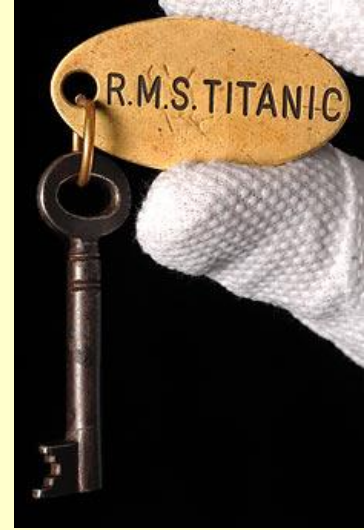
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- Senator Smith, chair of the inquiry "Suppose you had glasses ... could you have seen this black object [the iceberg] at a greater distance?"
- Fleet : "We could have seen it a bit sooner."
- Smith "How much sooner?",
- Fleet "Well, enough to get out of the way."





NEWS SCIENCE & ENVIRONMENT

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6 March 2014 Last updated at 07:45



'Carbon bubble' threatens stock markets, say MPs



By Matt McGrath
Environment correspondent, BBC News



GETTY IMAGES

Investments in coal and oil may be overvalued, according to MPs

Top Stories



Crimea MPs vote to join Russia **NEW**

- Niger extradites Gaddafi's son
- Shell boss: Scots should stay in UK
- Immune upgrade gives 'HIV shielding'
- Ruling due in legal fight over sperm

Features



On the move

How to shift a town of 20,000 down the road



Home from home

The curious Britishness of four South Atlantic islands



'We know our duty'

Why Porsche and other firms are investing in electric cars



Heart pills

Are statins a risk worth taking?



Happy days

Has a musical project found the

disease trends.

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Issues

[Vp goes global - a one health issue](#)

[China - Pushing the Envelope](#)

[International trade in ornamental fish. What are the disease risks?](#)

[Streptococcus agalactiae & Vibrio - food security & food safety 2013-15](#)

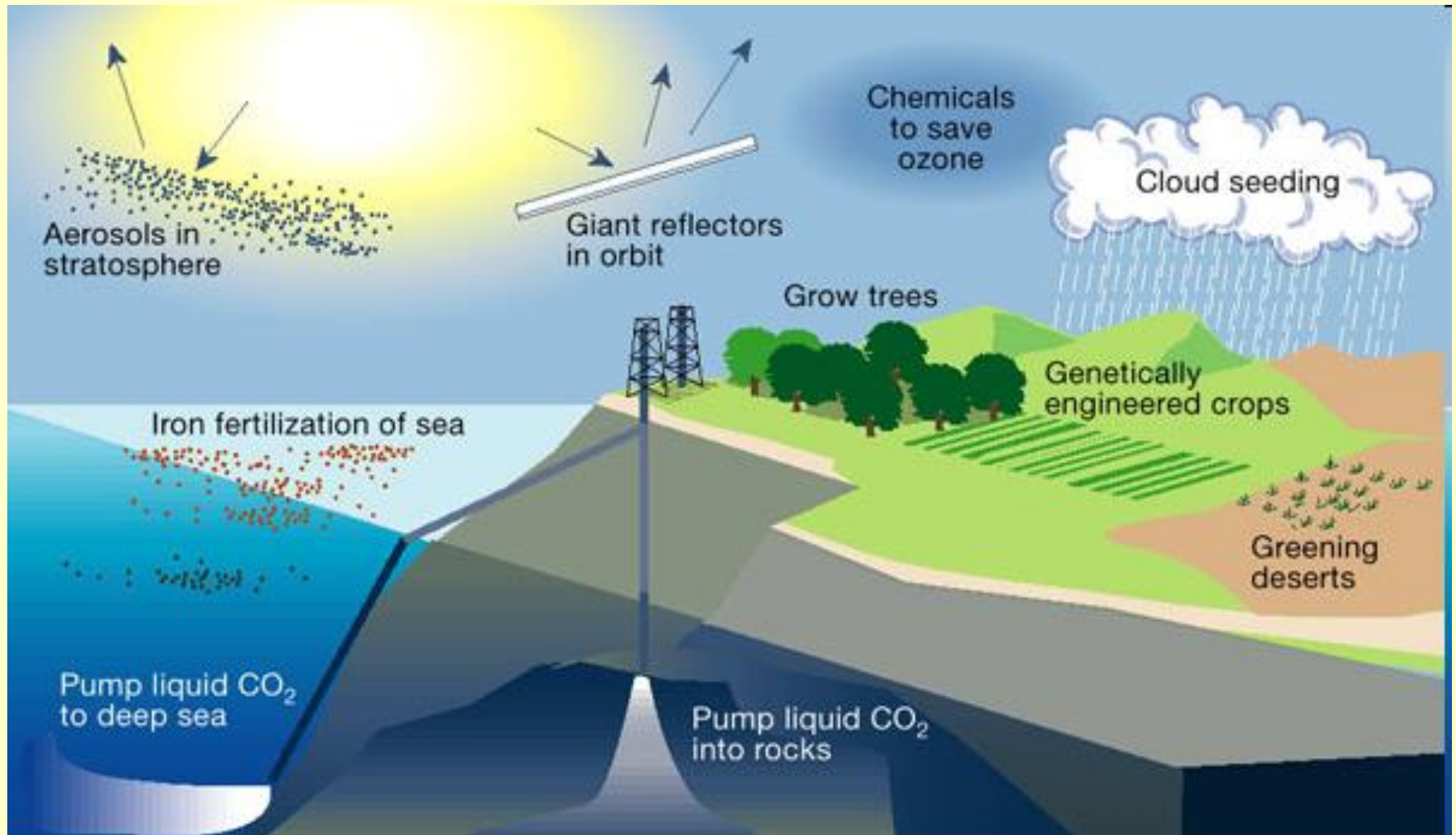
[MEXICO - SHRIMP - MYSTERY DISEASE IS EMS \[Mid-2013 - Ongoing\]](#)



Articles listed by publish date.

- 2014-09-18 [Reclamation doubles flows to prevent spread of disease in fish | KIEM.TV](#)
- 2014-09-18 [Indonesia - CP Prima Finds Antidote for IMNV](#)
- 2014-09-17 [Lice levels at two year low - Chile](#)
- 2014-09-16 [Germany reports first Vibrio vulnificus death in four years - Outbreak News Today](#)
- 2014-09-16 [Indian River Lagoon shows promising signs after 3 troubling years | News-JournalOnline.com](#)
- 2014-09-16 [New England Oyster Illnesses in High Numbers - Lifestyle | Martha's Vineyard, Massachusetts Patch](#)
- 2014-09-14 [DNR Determines Fish Kill Counts, Source of Clavix County Fish Kill](#)

Some geoengineering options



Schematic representation of various climate-engineering proposals (courtesy B. Matthews).

For general introduction and

Cambridge Conservation Initiative

transforming the landscape of biodiversity conservation

A review of potential impacts of geoengineering on ecosystems and biodiversity

2012



www.cambridgeconservation.org



Smith et al

Royal Society (2009), CBD (2012)

2012

Results

Two main outcomes:

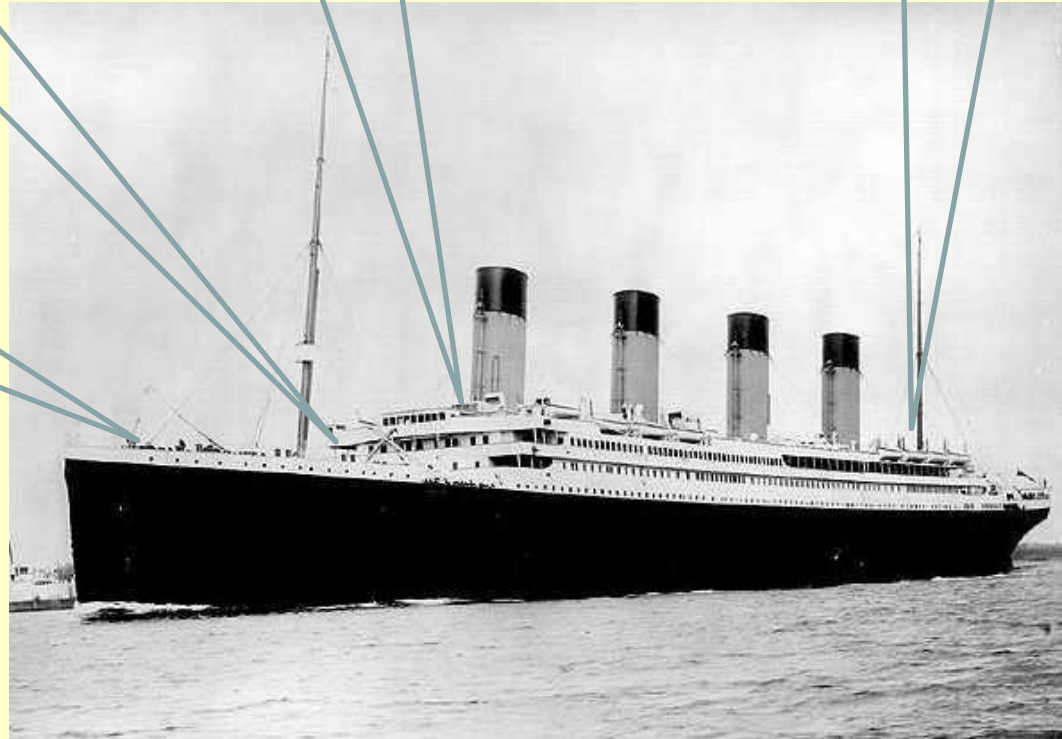
1. A ranking of all 192 environmental changes according to their 'index of research priority' score
2. For each of 7 shortlisted interventions (based on feasibility and efficacy), priority research questions for their top-ranked changes

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COMMENT

ART Albrecht Dürer's 16th century depiction of melancholy **p.26**



MENTAL HEALTH Back evidence-based therapies for treating depression **p.27**

EDUCATION University admissions policies should champion diversity **p.28**

RESEARCH ETHICS Developing rules for assessing pain in lab animals **p.28**

ETERN GREENWING/ERIC



The aurora australis over the German Antarctic research base, Neumayer Station III.

Six priorities for Antarctic science

Mahlon C. Kennicutt II, Steven L. Chown and colleagues outline the most pressing questions in southern polar research, and call for greater collaboration and environmental protection in the region.

Antarctica. The word conjures up images of mountains draped with glaciers, ferocious seas dotted with icebergs and iconic species found nowhere else. The continent includes about one-tenth of the planet's land surface, nearly 90% of Earth's ice and about 70% of its fresh water. Its encircling ocean supports Patagonian toothfish and krill fisheries, and is crucial for regulating climate and the uptake of carbon dioxide by sea water.

Antarctic scientists are unlocking the

secrets of Earth's climate, revealing lakes and mountains beneath the ice, exploring the deep sea and contemplating the origins of life and the Universe. Once seen as a desolate place frozen in time, Antarctica is now known to be experiencing relentless change. Local transformations such as the loss of ice, changes in ocean circulation and recovery of atmospheric ozone have global consequences — for climate, sea level, biodiversity and society.

In April 2014, the Scientific Committee on Antarctic Research (SCAR) convened

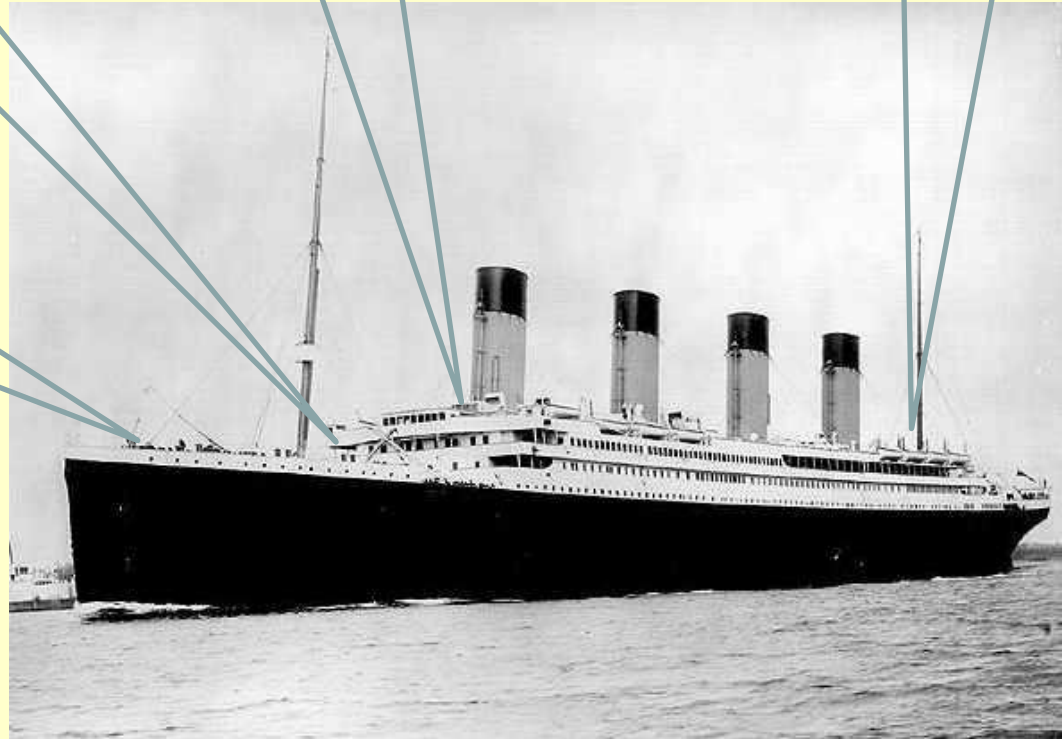
75 scientists and policy-makers from 22 countries to agree on the priorities for Antarctic research for the next two decades and beyond. This is the first time that the international Antarctic community has formulated a collective vision, through discussions, debate and voting. The SCAR Antarctic and Southern Ocean Science Horizon Scan narrowed a list of hundreds of scientific questions to the 80 most pressing ones (see Supplementary Information; go.nature.com/iilhsa). A full report will be published in August. ▶

Do we know where we are going?

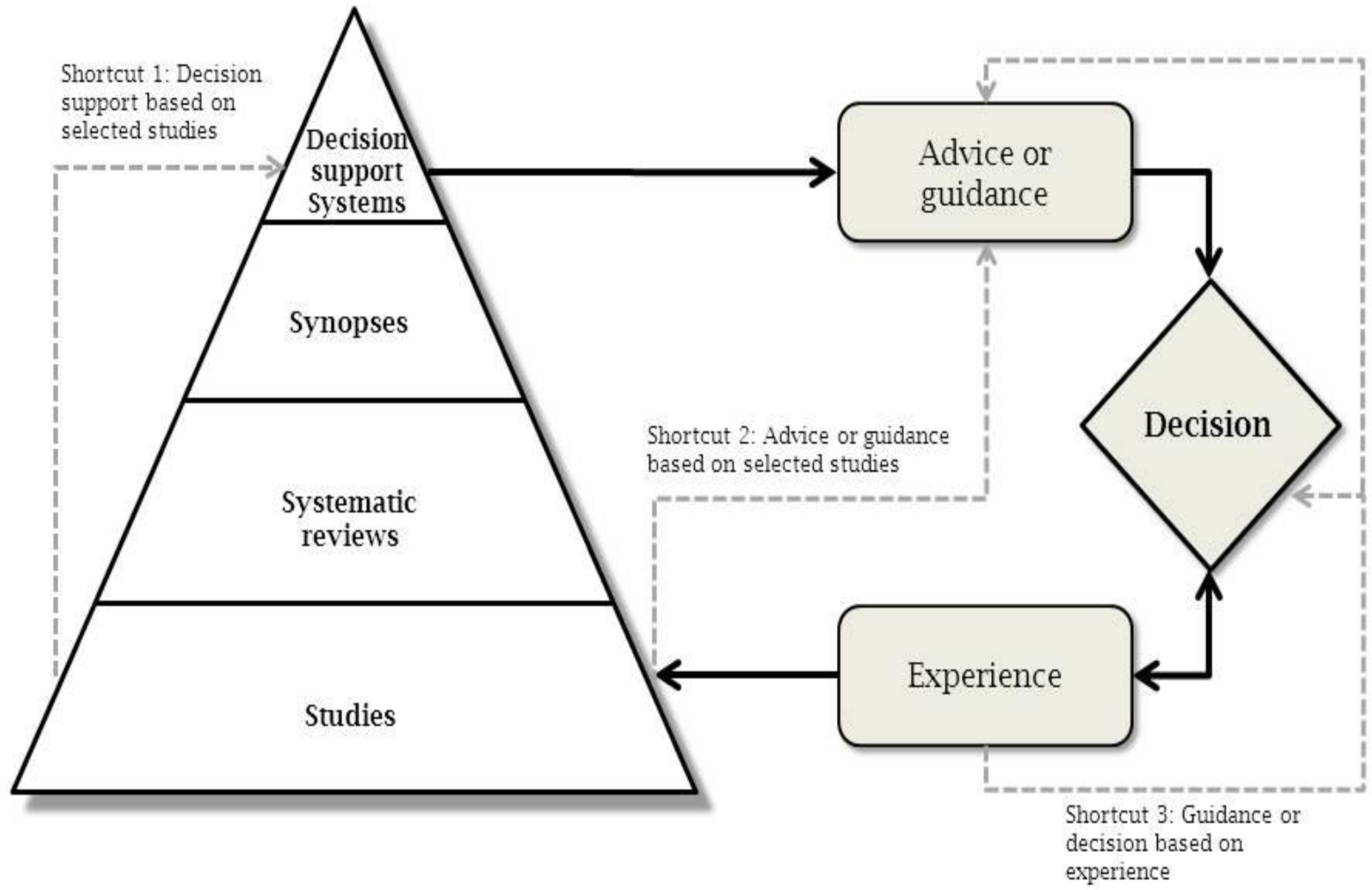
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Bird Conservation

Evidence for the effects
of interventions

Bee Conservation

Evidence for the effects
of interventions

Farmland Co

Evidence for the effects
in northern Europe

Bat Conservation

ts

Amphibian Conservation

Evidence for the effects
of interventions



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Matthew F. C



SYNOPSIS OF CON



Rebecca K. Smith & William J. Sutherland



SYNOPSIS OF CONSERVATION EVIDENCE SERIES



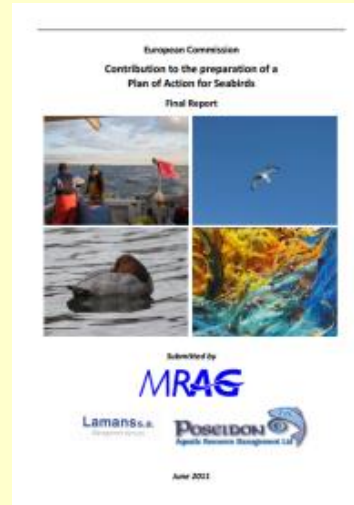
thinussen, Olivia C. Richardson
& John D. Altringham

CONSERVATION EVIDENCE SERIES



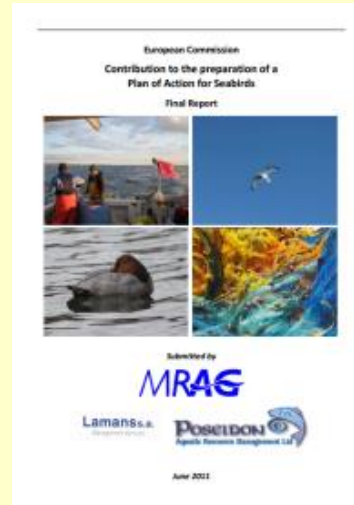
wler
and
ERIES

Comparison of traditional review and ConservationEvidence



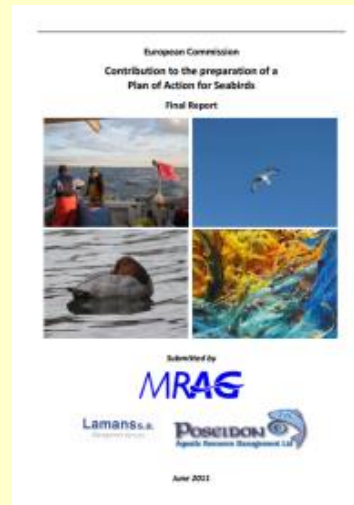
	EU report
Interventions	17
Papers testing	36
Peer reviewed	29

Comparison of traditional review and ConservationEvidence



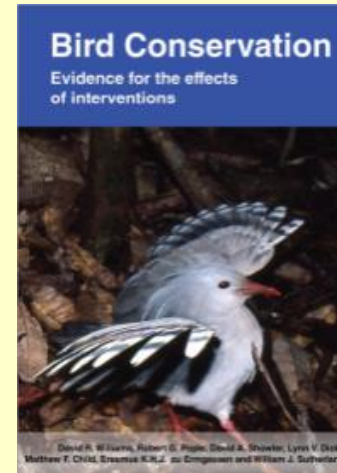
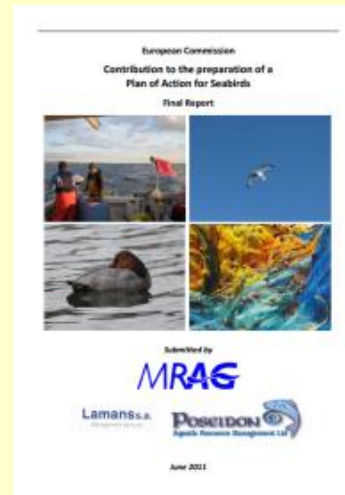
	EU report
Interventions	17
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Peer reviewed	29
Time	Months? Years?

Comparison of traditional review and ConservationEvidence



	EU report
Interventions	17
Papers testing	36
Peer reviewed	29
Time	Months? Years?
Cost	10,000s+ Euro

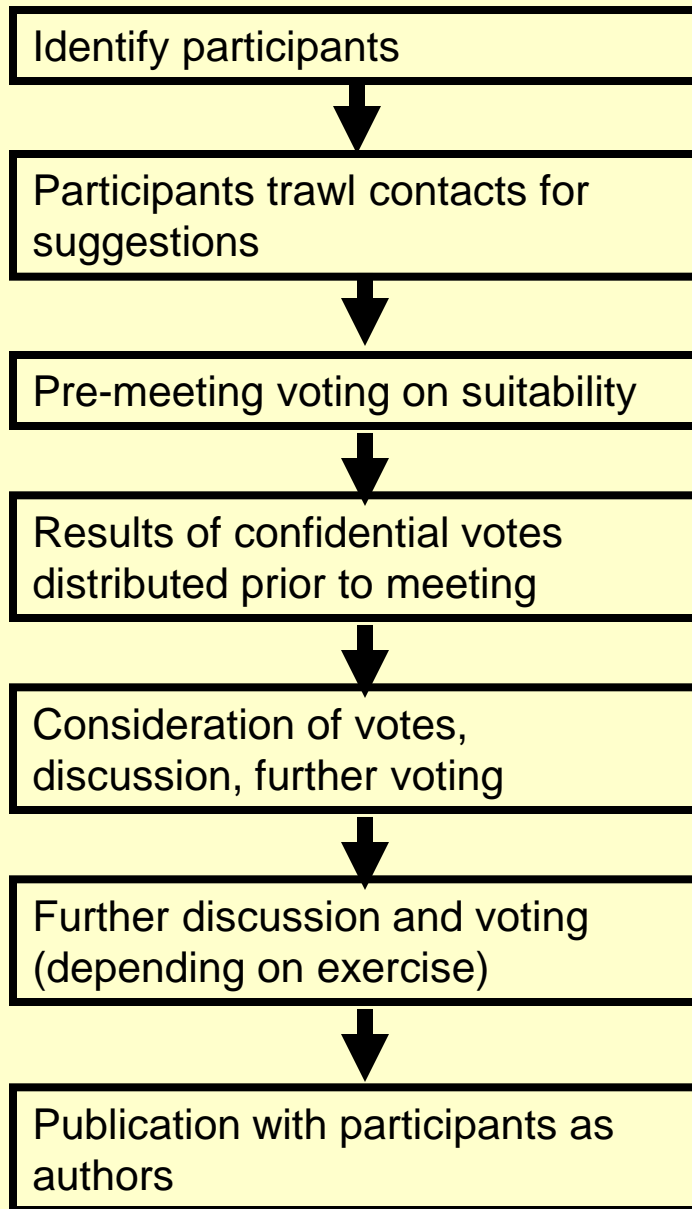
Comparison of traditional review and Conservation Evidence



	EU report	Synopsis
Interventions	17	24
Papers testing	36	40
Peer reviewed	29	35
Time	Months? Years?	Minutes
Cost	10,000s+ Euro	Free

Delphi





What is the Intelligence Game?

- Forecasting tournament funded by US Director of National Intelligence, through the **Intelligence Advanced Research Projects Activity (IARPA)**
- IARPA program aims:
"to dramatically enhance the accuracy, precision, and timeliness of forecasts for a broad range of event types, through the development of advanced techniques that elicit, weight, and combine the judgments of many intelligence analysts."
- 5 teams predict hundreds of geopolitical, economic and military events, e.g. *Will Australia formally transfer uranium to India by 1 June 2012?*
- Questions released by IARPA
- Must outperform the baseline to stay in the competition





The Intelligence Game (beta)

Engaging groups to forecast the future

- Question List
- About
- How to Play
- Question Format
- Background
- Our Publications
- Help

luke
Group 2

0 links viewed
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Will Nouri al-Maliki resign, lose confidence vote, or vacate the office of Prime Minister of Iraq before 1 April 2013?

(See resolution information for this question)

Predictions

Round 1

When you think of reasons that make this **likely** to happen, what is the **highest** ↑ **probability** you would assign to this event occurring? (0-100)

When you think of reasons that make this **unlikely** to happen, what is the **lowest** ↓ **probability** you would assign to this event occurring? (0-100)

Consider the balance of evidence. If you had to put a **single figure** on your opinion of this outcome, what would it be? (0-100)

[Save](#)

Recommended Links

No recommendations yet!

[+ Add Link](#)

[More](#)

New Links

[Coordinated bombings and shootings in Iraq kill 103](#)

[Syria Crisis: Iraq To Open All Borders To Refugees](#)

[Iraqi PM orders all borders open to Syria refugees: Iraqi general](#)

[Iraq PM to take necessary steps over Exxon deal](#)

[Nuri Kamal al-Maliki News - The New York Times](#)



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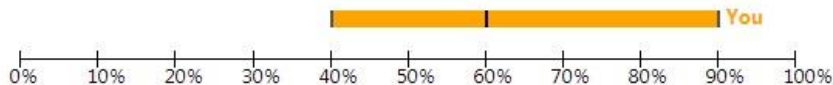
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Predictions

Round 1



Change My Estimate

Recommended Links

No recommendations yet!

+ Add Link

More

New Links

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- Iraqi PM orders all borders open to Syria refugees: Iraqi general
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More

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The Intelligence Game (beta)

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luke
Group 2

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Will Nouri al-Maliki resign, lose confidence vote, or vacate the office of Prime Minister of Iraq before 1 April 2013?

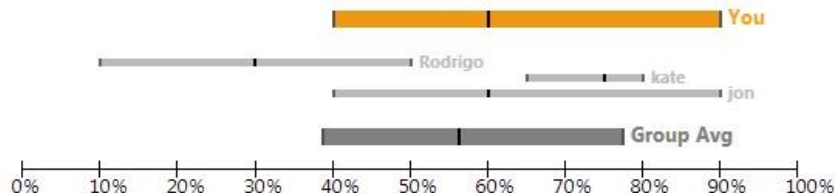
(See resolution information for this question)

Predictions

Round 2

Enter Prediction

Round 1



Recommended Links

Syria Crisis: Iraq To Open All Borders To Refugees

+ Add Link

More

New Links

Coordinated bombings and shootings in Iraq kill 103

Syria Crisis: Iraq To Open All Borders To Refugees

Iraqi PM orders all borders open to Syria refugees: Iraqi general

Iraq PM to take necessary steps over Exxon deal

—+ Australia should defend neighbours in Trans Pacific Partnership negotiations 1

—+ Trans-Pacific countries agree to allow Mexico into trade talks

+ Add Link

More

New Links

—+ Noda may scrap policies to halt defections

—+ Noda may scrap policies to halt defections

—+ Senators from car states ask Obama to keep Japan out of TPP negotiations

—+ Senate Democrats express opposition to Japan joining trade talks

—+ US biz leader wants Japan in TTP talks

More

Google Search

Discussion

9 comments

Yung on [Japan's Bid to Joi...](#) : Some useful details about the process of "joining" TPP talks. Apparently, each country that seeks to join TPP MUST seek the support of ALL the other negotiaing countries. This number currently stands at 11 (altho'according to this article 4 of the members—Vietnam, Brunei, Peru and Chile—have already approved Japan's participation. That leaves 7 other countries and the US is probably Japan's toughest challenge. Can they get there in 8 months? (Jul 12 17:33)

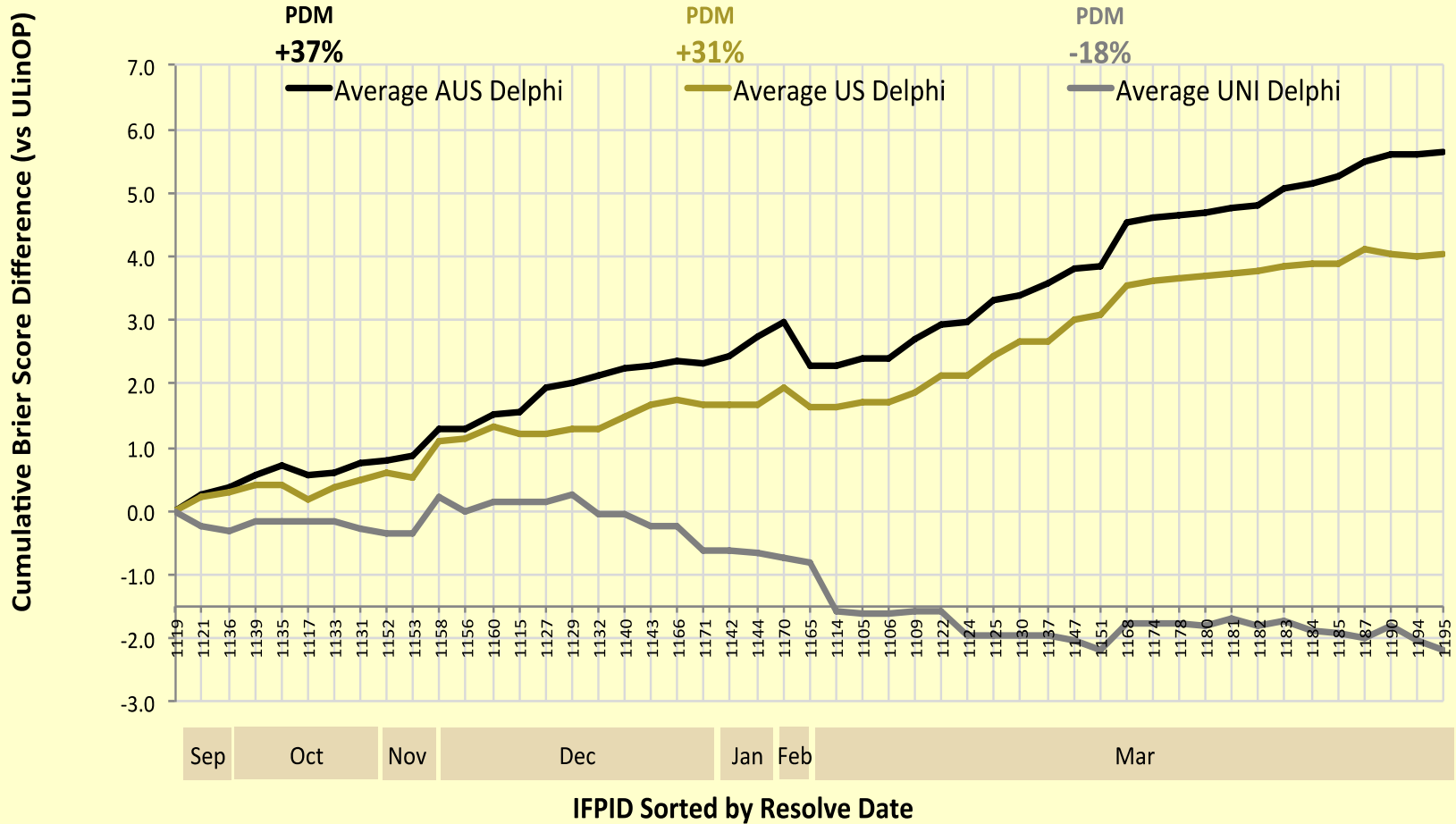
Linda: i think the key is the US approval isn't it -- with the president seeking re election I don't think it is going to happen any time soon? (Jul 12 17:44)

Yung on [Why Japan is laggi...](#) : Wish I found this earlier! Meticulous and well-argued exposition of why Japan's lagging on the TPP. Covers Japan's poor record on signing Free Trade Agreements, challenges with the major sticking point of agricultural policy, lack of mandate for the bureaucratic aspect of TPP negotiations and political divisions within the ruling party on the TPP. I'm dialing down my belief that this event will come to pass. (Jul 16 18:07)

Add comment...

Results - Year 2 Delphi Groups

Average performance (cumulative gain over ULinOP)

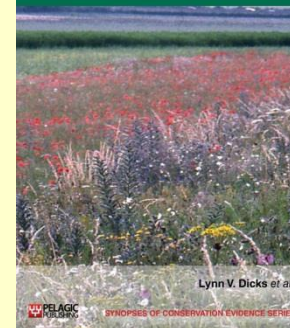


Evidence for CAP reform

Compulsory greening payment element	Relevant intervention for which compiled evidence was assessed by experts	Number of studies	Certainty of knowledge (%)	Proportion of experts who said 'yes this benefits wildlife'
Retain permanent grassland	Revert arable land to permanent grassland	9	20	0
Crop diversification	Increase crop diversity	5	9	0
Ecological Focus Areas	Increase the proportion of semi-natural habitat in the farmed landscape	5	22	0.2
- Hedges	Manage hedgerows to benefit wildlife	20	50	0.7
- Buffer strips	Plant grass buffer strips/margins	74	69	0.9
	Create uncultivated margins around intensive arable or pasture fields	52	67	1
	Provide buffer strips alongside water courses	7	17	0.1
- Land left fallow	Provide (or retain) set-aside areas in farmland	58	68	0.9

Farmland Conservation

Evidence for the effects of interventions in northern Europe



Lynn V. Dicks et al.

WU PELAGIC

SYNOPSIS OF CONSERVATION EVIDENCE SERIES

Evidence for CAP reform

Intervention	Number of studies	Certainty of knowledge	Proportion of experts who said 'yes this benefits wildlife'
Create skylark plots	13	77	1
Restore or create species-rich semi-natural grassland*	53	74	1
Use mowing techniques to reduce bird/mammal mortality	6	71	1
Reduce fertilizer, pesticide or herbicide use generally*	53	69	1
Plant nectar flower mixture/wildflower strips*	101	67	1
Use organic rather than mineral fertilizers*	16	66	1
Plant wild bird seed or cover mixture*	52	63	1
Leave cultivated, uncropped margins or plots (includes 'lapwing plots')	20	63	1

What is the current assessment of the effectiveness of interventions for arable farming systems?	
Beneficial	<ul style="list-style-type: none"> • Leave uncropped, cultivated margins or plots (includes 'lapwing plots') • Create skylark plots
Likely to be beneficial	<ul style="list-style-type: none"> • Leave overwinter stubbles • Create beetle banks • Undersow spring cereals, with clover for example • Reduce tillage
Unknown effectiveness (limited evidence)	<ul style="list-style-type: none"> • Increase crop diversity • Implement 'mosaic management', a Dutch agri-environment option • Take field corners out of management • Plant nettle strips • Plant crops in spring rather than autumn • Create rotational grass or clover leys by undersowing spring cereals • Convert arable land to permanent grassland • Plant cereals in wide-spaced rows • Plant rare or declining arable weeds • Plant more than one crop per field (intercropping)
Unlikely to be beneficial	
Likely to be ineffective or harmful	

No evidence (or assessment)	<ul style="list-style-type: none"> • Leave unharvested cereal headlands within arable fields • Add 1% barley into wheat crop for corn buntings • Create corn bunting plots • Use new crop types to benefit wildlife (such as perennial cereal crops)
-----------------------------	--



What if no evidence?

e.g. Terrorism

- Gang culture
- Football violence
- Alternative livelihoods

e.g. Geoengineering

- Break down into components

Conservation practice

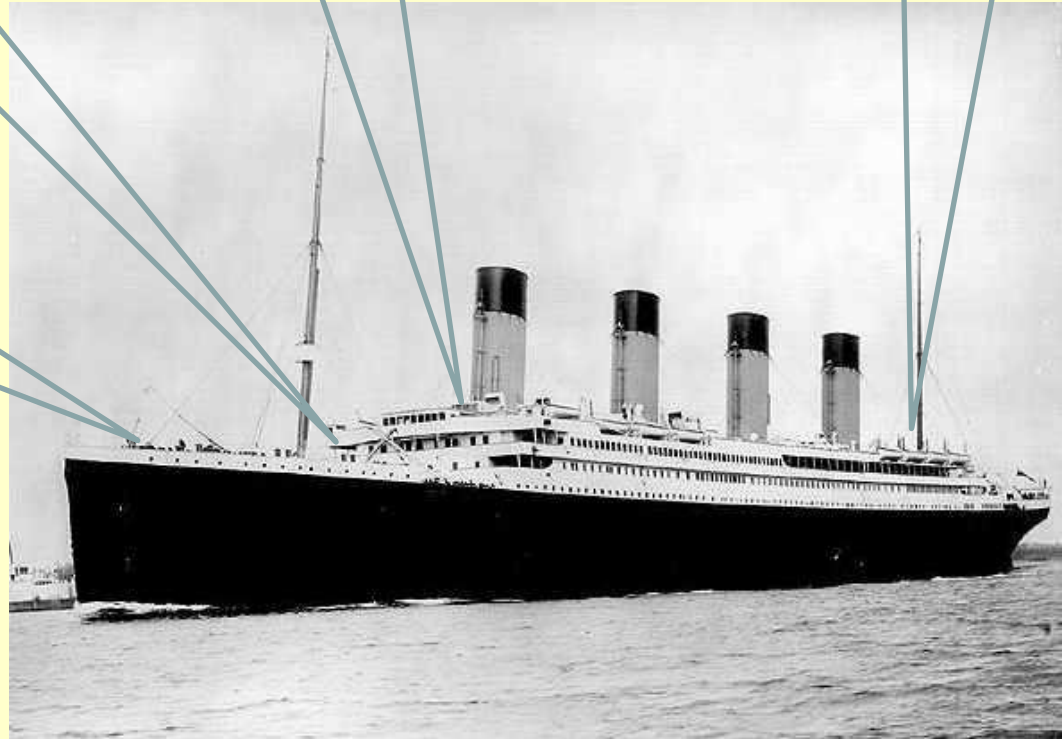
- Collate anecdotes

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Are we on the bridge or in the gym?

Deadwood fencing used to protect broadleaved trees from deer browsing in the Cairngorms, Scotland

Tom Bradfer-Lawrence* & Shaila Rao

The National Trust for Scotland, Mar Lodge Estate, Braemar, Aberdeenshire, AB35 5YJ

* Corresponding author: tlawrence@nts.org.uk

SUMMARY

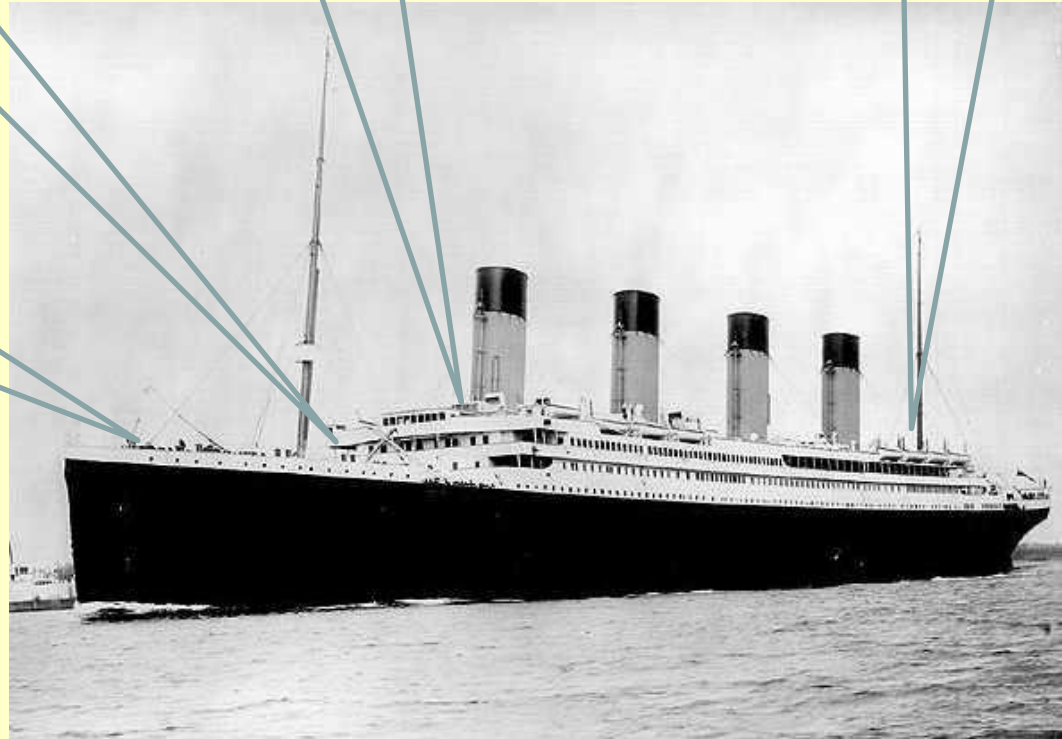
At a site on Mar Lodge Estate, Scotland, a number of broadleaved trees were planted during the early 1990s. After fifteen years these trees were still barely higher than the tree tubes protecting them due to heavy browsing by deer. In 2004 a series of small enclosures were constructed around some of the trees using timber felled from a nearby conifer plantation. Fences were constructed with logs, which proved to be longer-lasting and sturdier than the woody debris used for protection elsewhere. The trees inside the enclosures are significantly higher than those which remain unfenced, and the ground vegetation has

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Google images 'economy Scotland'



~~Ecological Restoration Zones~~

Nature Improvement Areas





Celabrate success





Scottish Natural Heritage
 All of nature for all of Scotland

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Home	About Scotland's nature	Enjoying the outdoors	Protecting Scotland's nature	Managing land and sea	Planning and development	Climate change
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 [Protecting Scotland's nature](#) »
 [Reintroducing native species](#) »
 Scottish Code for Conservation Translocations

▶ Protected areas
▶ Protected species
▶ Species licensing
▶ Species Action Framework
▶ Non-native species
▼ Reintroducing native species
▶ The National Species Reintroduction Forum
Scottish Code for Conservation Translocations
▶ Scottish Beaver Trial
▶ Looking after our landscapes
▶ Safeguarding geodiversity
▶ Priority Marine Features
▶ Protecting nature outwith protected areas

The Scottish Code for Conservation Translocations

[The Scottish Code for Conservation Translocations](#)  and the accompanying [Best Practice Guidelines for Conservation Translocations in Scotland](#) were launched by Paul Wheelhouse MSP, Minister for Environment and Climate Change, on the 4th July 2014. They have been produced by the [National Species Reintroduction Forum](#) (NSRF).

Conservation translocation refers to the deliberate movement and release of living organisms for conservation purposes. Translocations represent just one type of conservation action. In most circumstances, management of species in their current localities, and wider habitat management, will be more cost-effective and lower risk. However, there are some situations where conservation translocations are appropriate. The Code and Best Practice Guidelines provide a framework for evaluating whether and how to undertake such conservation translocations in Scotland.

We believe that the Code and Best Practice Guidelines are the first of their type. They are based on the International Union for the Conservation of Nature's 2013 [Guidelines for Reintroductions and Other Conservation Translocations](#) , but they provide a special focus on both Scottish socio-economic and biological issues. The significant involvement and approval of 26 different members of the NSRF also means that they represent an approach that has

Related links

- ▶ [Press release for the launch](#)
- ▶ [National Species Reintroduction Forum](#)
- ▶ [IUCN Translocation Guidelines](#)





Reasons to be cheerful



Anna Sutherland (aged 10) school report for Science

'Anna is progressing well, but must take a more evidence-based approach.'

This is a global collaboration.

Delighted to chat to those interested in:

Identifying horizon scanning issues

Working on a synopsis

Converting review into practice

Help develop 'What works'

Finding means of funding!

With grateful thanks for funding to
Arcadia, NERC, ESRC, Synchronicity Earth,
Natural England