Pollinators, Pollination and Food Production

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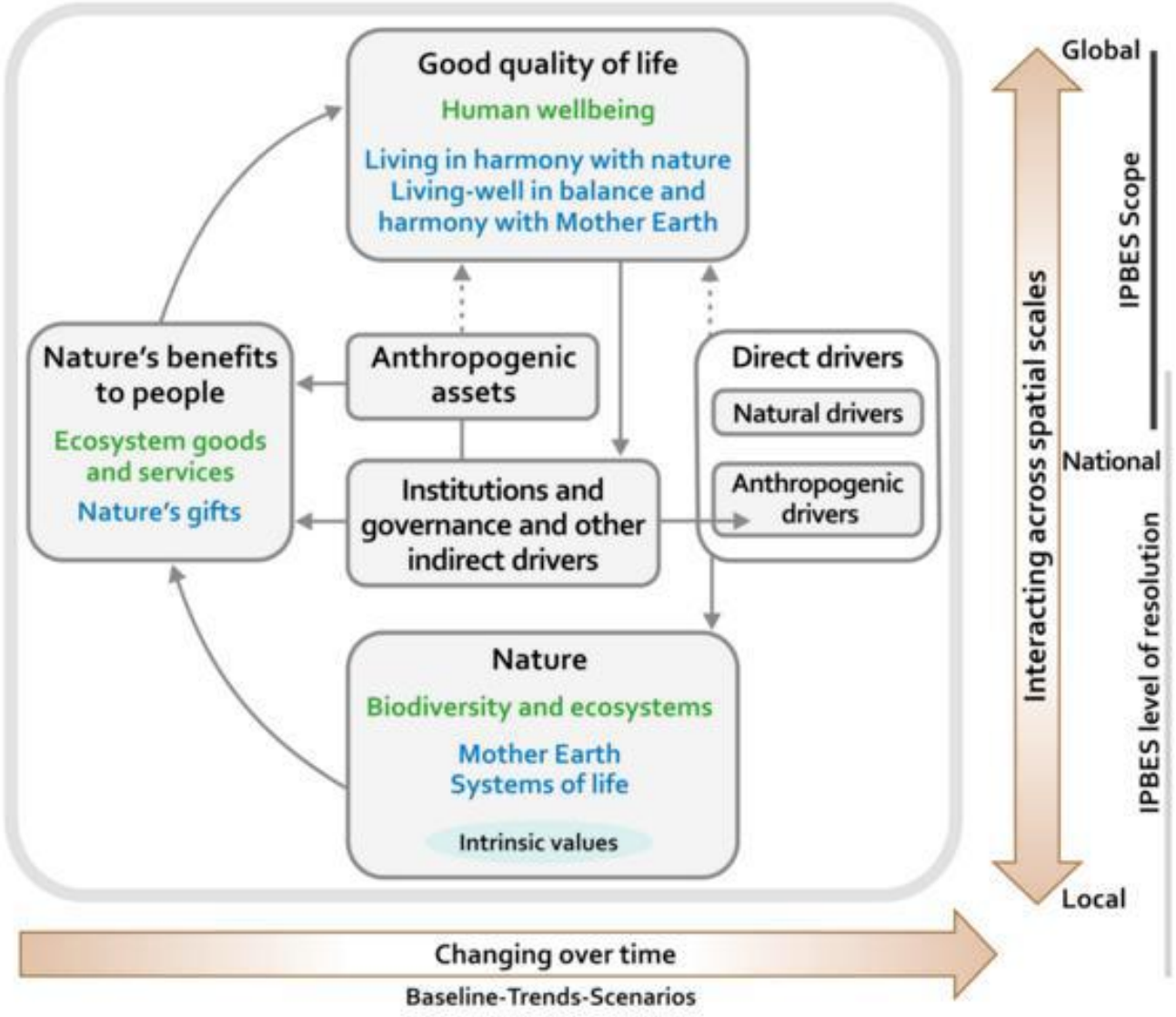
The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

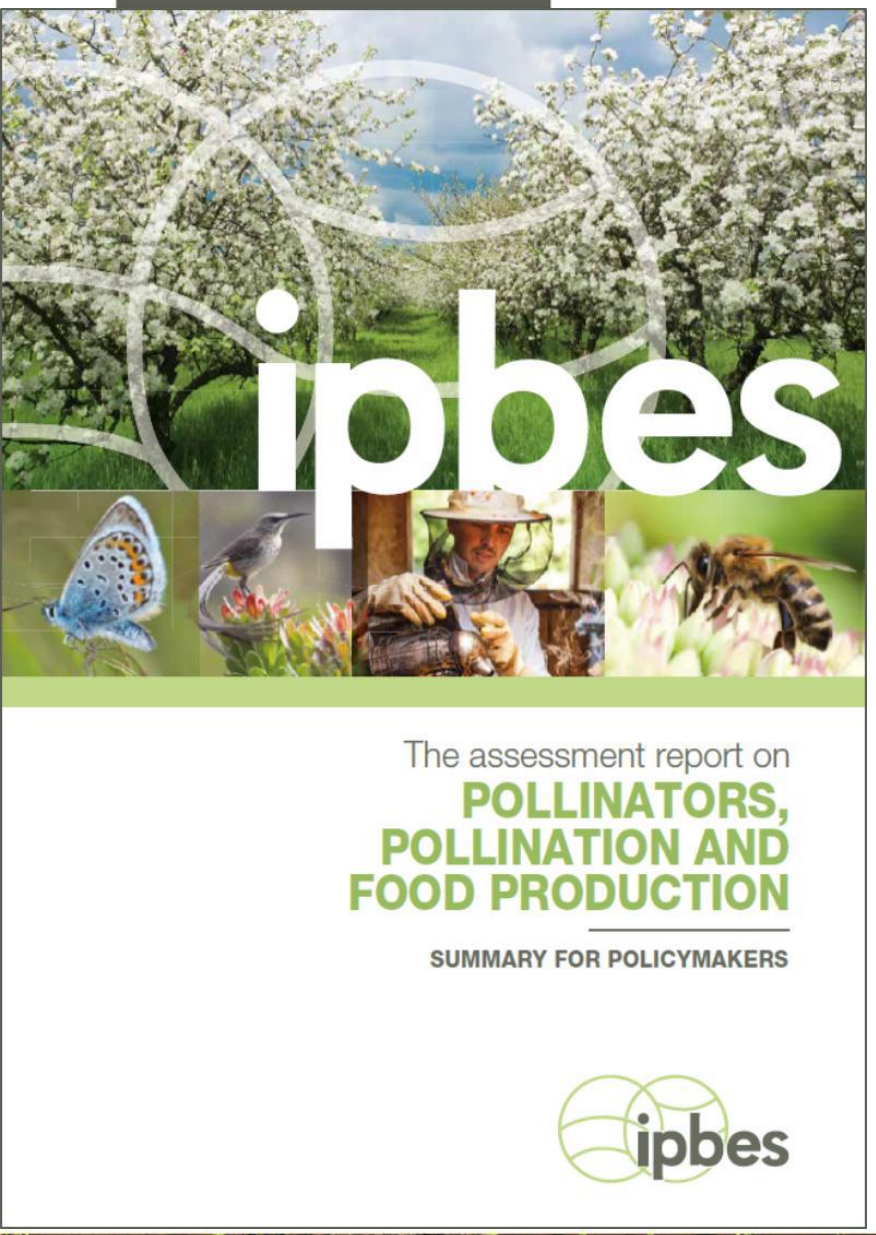
- **Objective**: To provide policy relevant knowledge on biodiversity and ecosystem services to inform decision making, established 2012
- Currently **125** Members (Governments)
- Collaborative partnership with UNEP, FAO, UNESCO &UNDP
- Implementing first Work Programme (2014-2018)

4 Functions of IPBES

• Assessment	Deliver global, regional and thematic assessments on biodiversity and ecosystem services
• Knowledge catalysis	Catalyse efforts to generate new knowledge
• Policy support	Identify policy relevant tools & methodologies, facilitate their use, and promote their further development
• Capacity building	Prioritize capacity building needs, promote allocation of resources

Conceptual framework





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Chapters

- Summary for policy makers
- Background
- Drivers of change
- Status and trends
- Economic valuation
- Biocultural diversity and sociocultural values
- Responses to risks and opportunities

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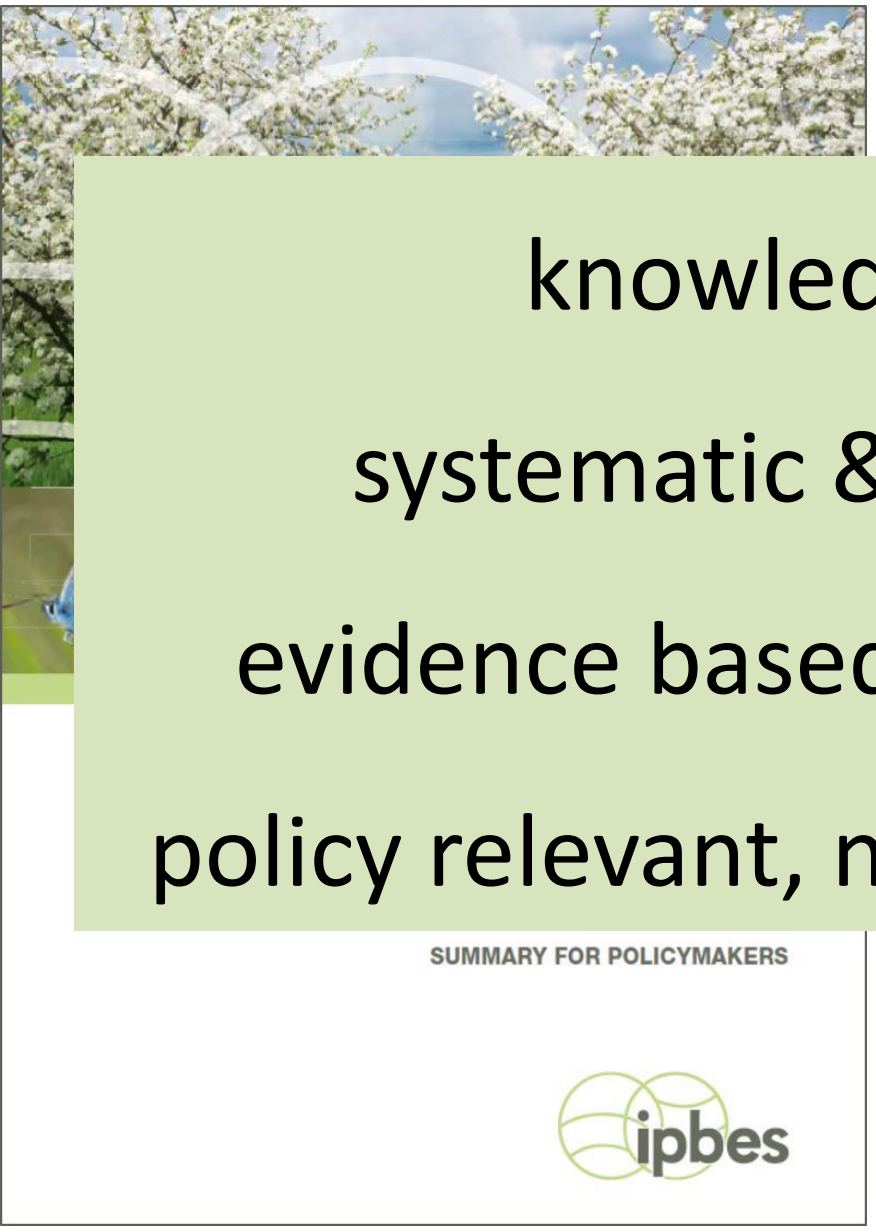

Chapters

knowledge synthesis

systematic & comprehensive

evidence based & fully referenced

policy relevant, not policy prescriptive

- Responses to risks and opportunities

Process

- 2 Co-chairs, >60 authors
- Major author meetings in July 2014 & 2015
- A number of smaller meetings
- Thousands of emails….
- 10,300 comments, 280 expert reviewers
- Report delivered Feb 2016

Authors: global

- Argentina, Australia, Bolivia, Brazil, Canada, Chile, China, Colombia, Estonia, Ethiopia, France, Germany, Ghana, Guatemala, Hungary, India, Indonesia, Japan, South Korea, Sweden, Kenya, Mexico, Nepal, Netherlands, New Zealand, Nigeria, Pakistan, Panama, Poland, Serbia, South Africa, Spain, Switzerland, Thailand, Uganda, UK, USA,

- Some of the messages…

Animal pollination benefits

More than **75%** of leading food crops

Almost **90%** of flowering plants

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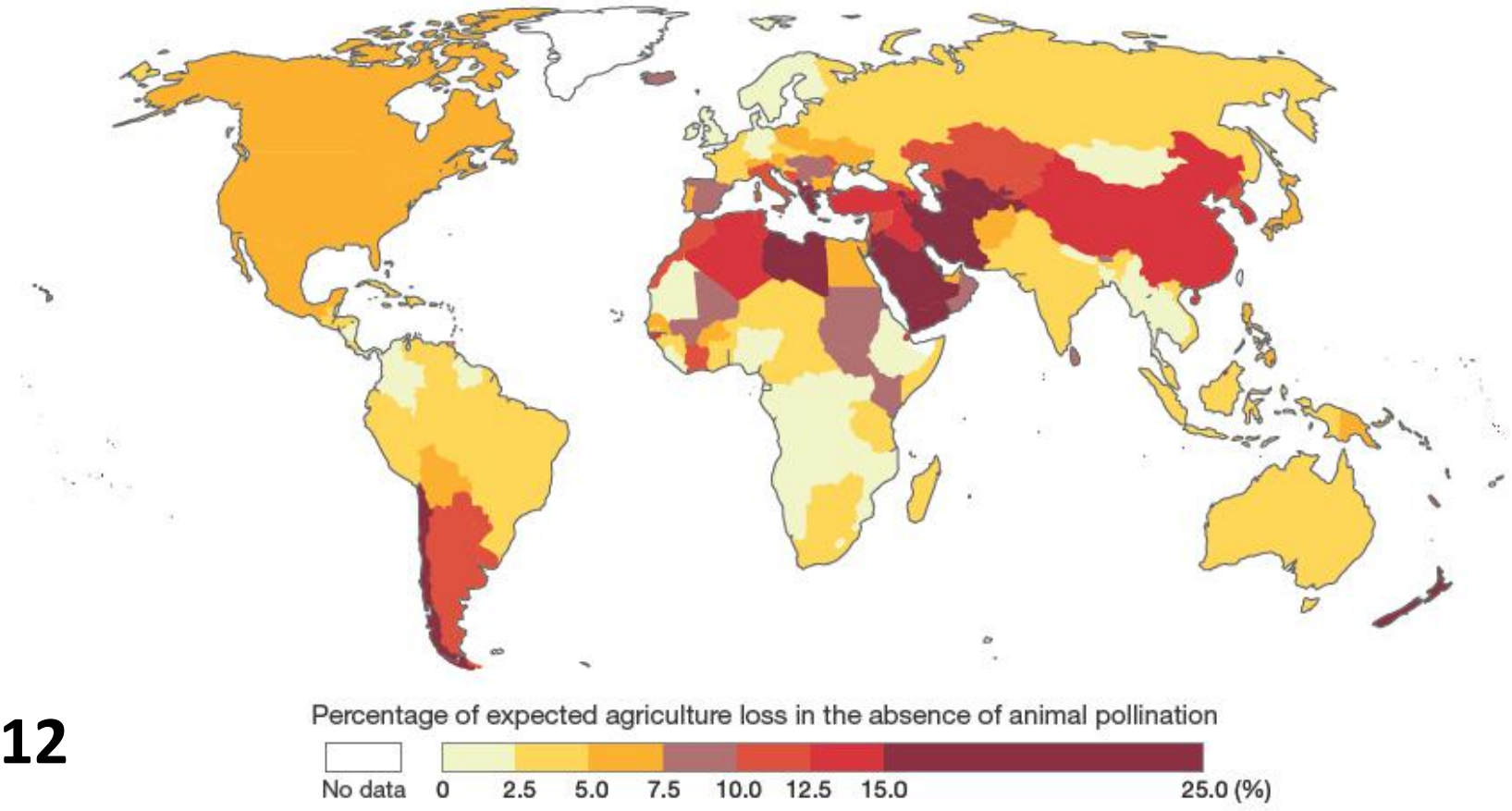
Global agriculture

is increasingly reliant on pollinators

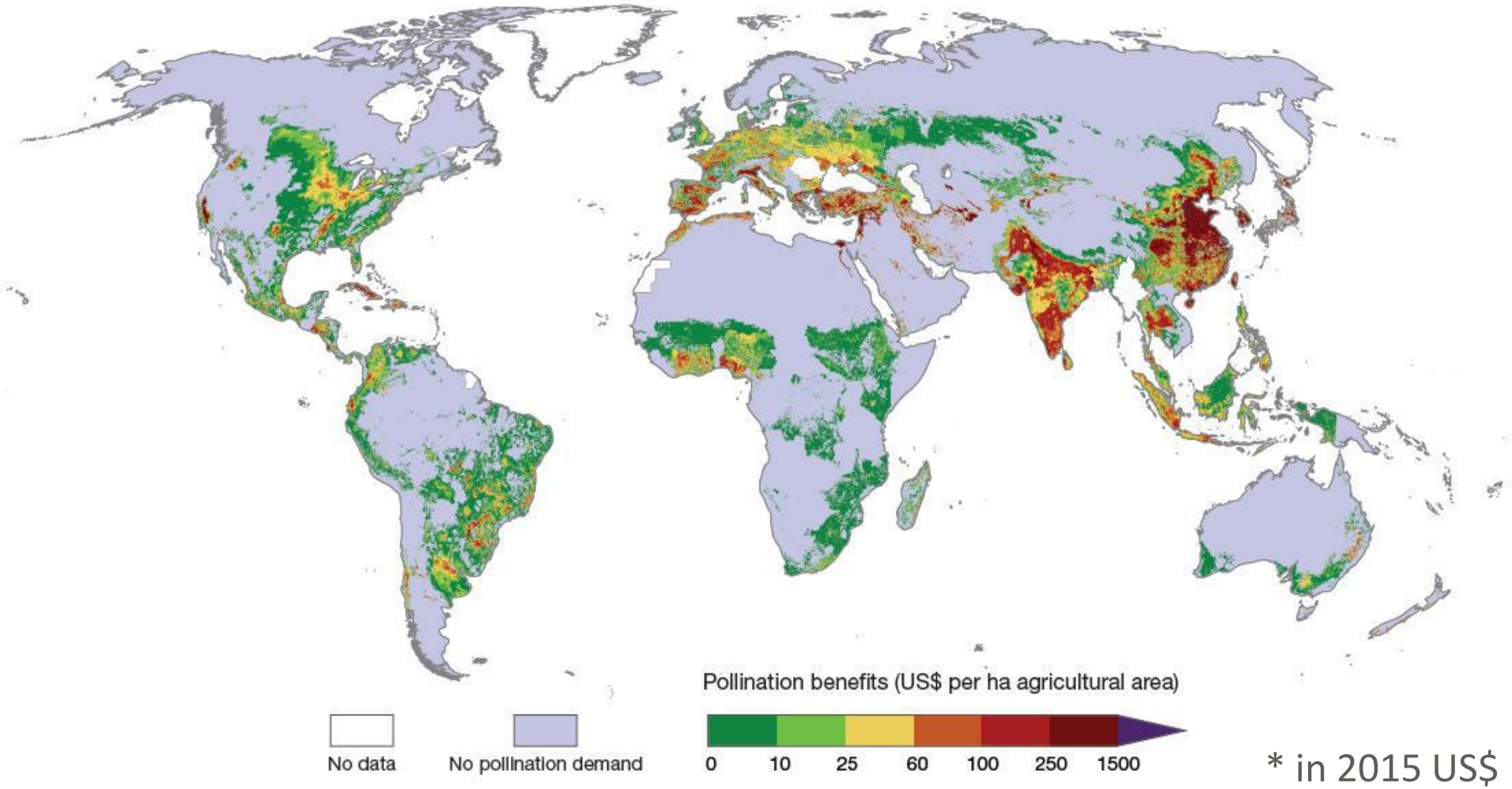
More than 300% increase in volume of agricultural production dependent on pollinators since 1961



2012

Economic value

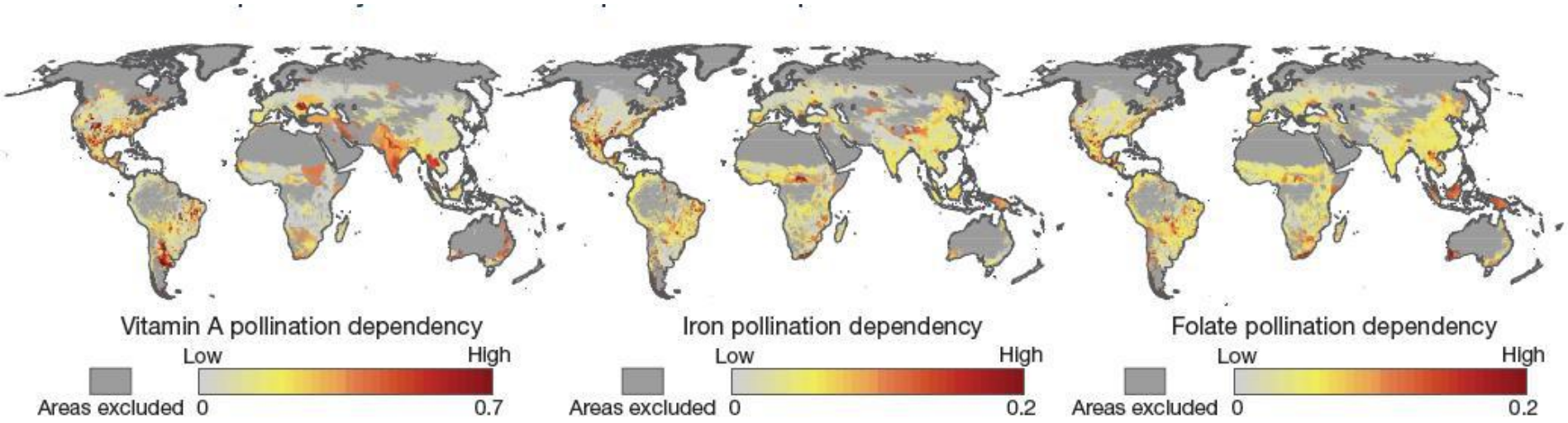
Annual market value linked to pollinators is US$ 235 – 577 billion*



* in 2015 US$

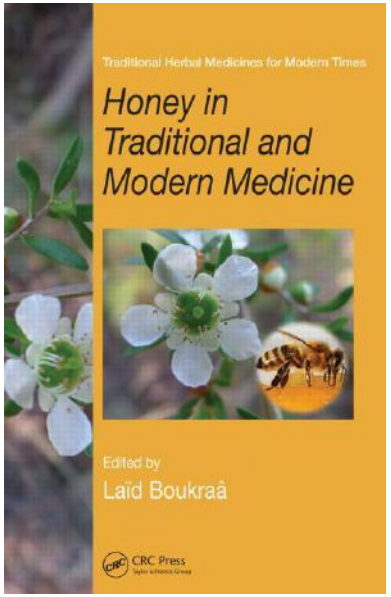
Healthy human diets

Animal pollinated crops: a key source of vitamins & minerals

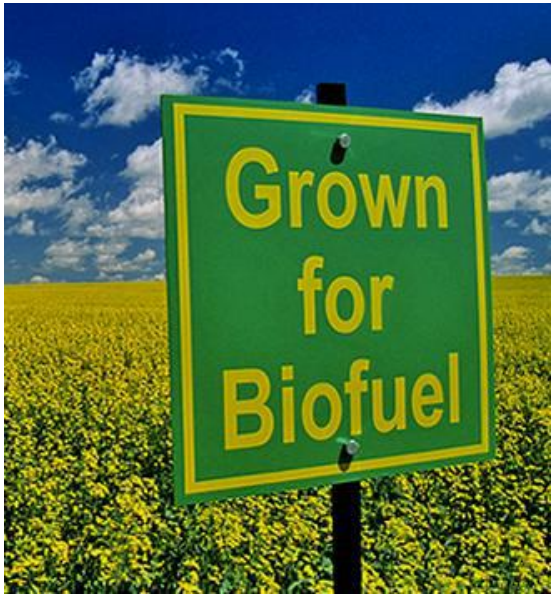


Values beyond food

- Medicines, biofuels, fibres and construction materials



Honey



Canola

Cotton

Eucalyptus

- Sources of inspiration for art, music, literature, religion and technology

Status and Trends

- Vertebrate pollinators (bats and birds):
  17% threatened with extinction
- Western honeybee (managed)
  - **45% increase globally over last 50 years, but**
  - **Severe losses in N. America and parts of Europe**
- Wild insect pollinators:
  Declines in Europe & N. America
- Lack of data for other regions, but some reports of declines

Causes of declines

- Multiple threats to pollinators:
  - **Land use change**
  - **Intensive agriculture**
  - **Pesticides**
  - **Pathogens and pests**
  - **Climate change**
  - **Invasive alien species**
- Threats interact
- Often difficult to link specific drivers to observed declines

RESPONSES?

Land use

Responses

- Provide food & nesting resources:
  - Manage or restore native habitat patches
  - Establish protected areas
  - Increase habitat heterogeneity
- Indigenous & Local Knowledge: a source of solutions
  - Heterogeneous landscapes
  - Low impact farming methods
  - Kinship relationships (taboos, totems)

Pesticides

- Improve risk assessment and regulation
- Reduce use
- Seek alternative control (IPM)
- Train extension workers in best practices
- Adopt technologies to reduce contamination

Genetically Modified Crops

- Raise risk assessment standards for approval
- Quantify indirect & sublethal effects

Responses

Pests and Diseases

Responses

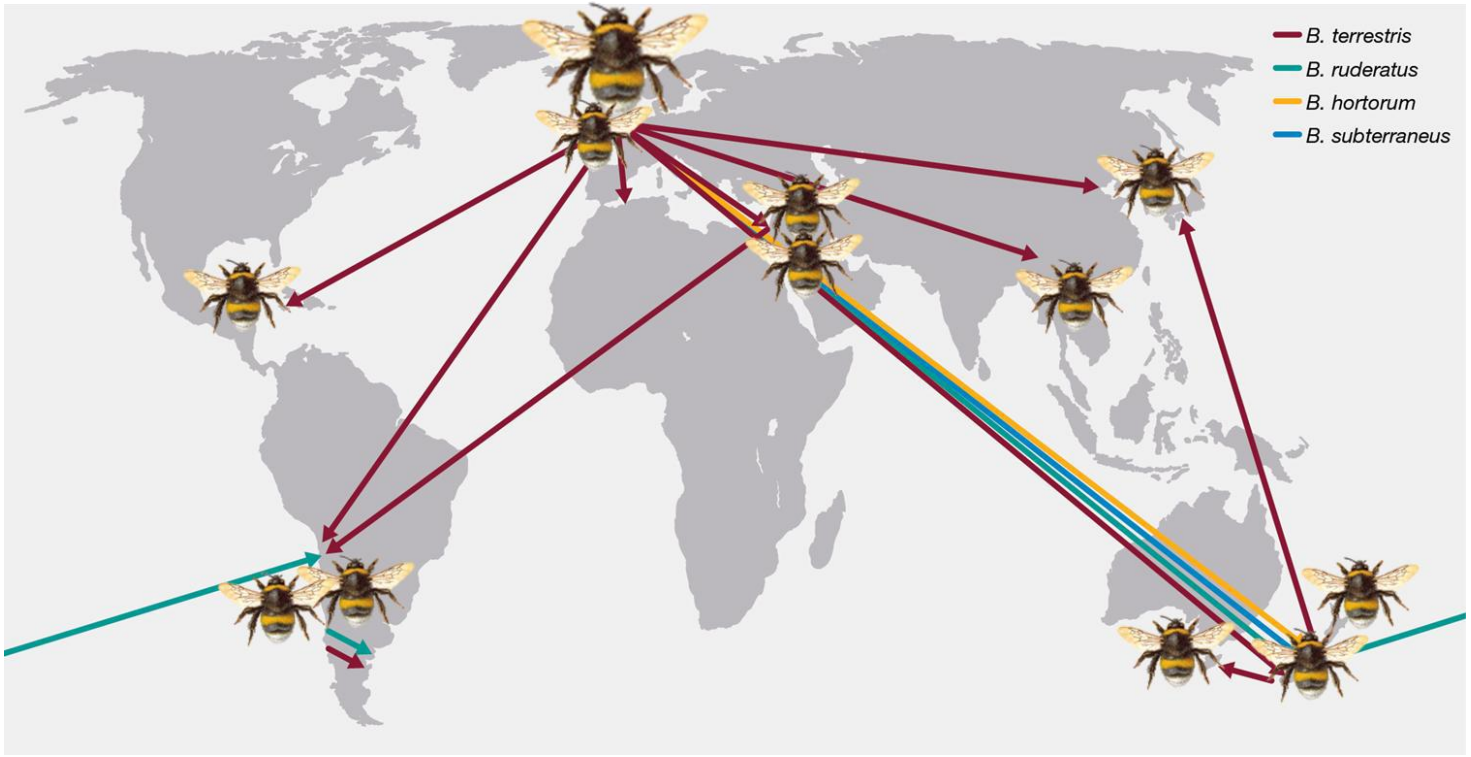
- Improve bee husbandry:
  - **Disease detection and management**
  - **Breeding for disease resistance**

Pests and Diseases

Responses

Improve regulation:

- **Trade and mass breeding**
- **Nationally and international movement**



Enabling policies & practices

Responses

- Public education
- Knowledge exchange with practitioners
- Incentives for land managers
- Protect & promote traditional knowledge

Research and monitoring

- Monitoring of pollinators and habitats
- Build taxonomic capacity
- Research to address knowledge gaps

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The assessment report on

POLLINATORS, POLLINATION AND FOOD PRODUCTION

SUMMARY FOR POLICYMAKERS

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Intensive agriculture

Responses

- Create patches of flower rich habitat
- Support low pesticide farming practice
- Strengthen existing diversified farming systems
- Reward farmers for good practices