

Role of biodiversity science for the Convention on Biological Diversity

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Diversity

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Convention on biological diversity (42 articles)

Article 1: Objectives

- ❑ Conservation of biodiversity
- ❑ Sustainable use of its components
- ❑ Sharing the benefits arising from the commercial and other utilization of genetic resources in a fair and equitable way

A contract between people and nature



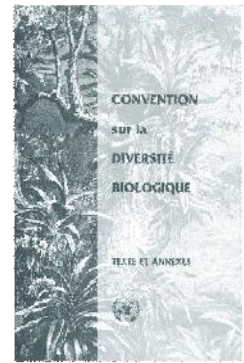
1992: Adoption

1993 : Entry into force

193 Parties



Preamble of the Convention text



- ❑ Scientific information and knowledge regarding biological diversity is necessary for the basic understanding upon which to plan and implement appropriate measures for the conservation of biodiversity and its services
- ❑ Our knowledge of biodiversity is limited
- ❑ Where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat

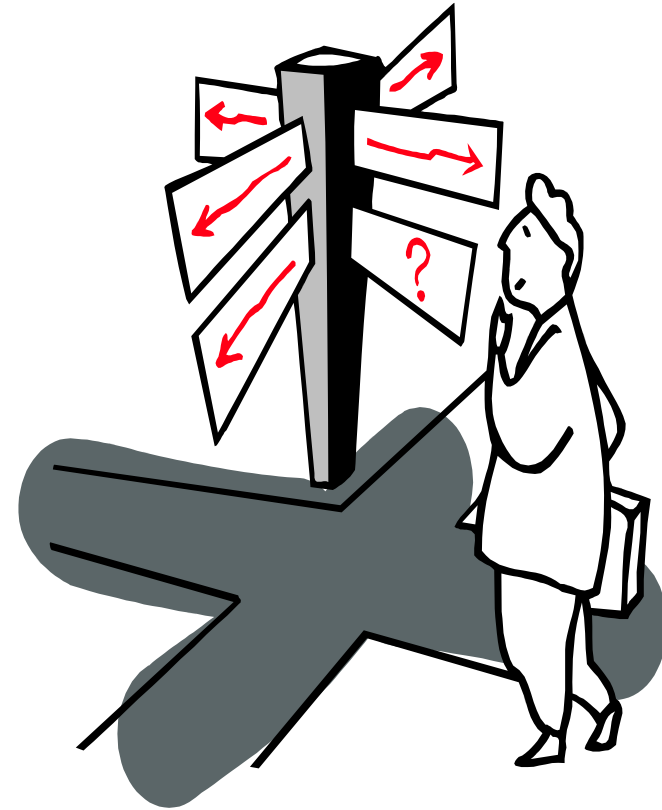


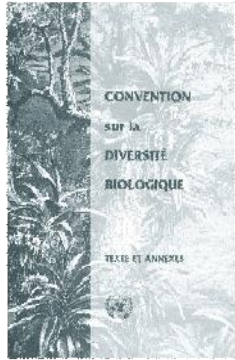
Need for scientific information

- ❑ **What kind of scientific information?**
 - The text of the Convention on Biological Diversity
 - COP decisions

- ❑ **How to get?**

- ❑ **How to communicate?**





Scope of biodiversity is wide
(ref definition of biodiversity in
Article 2 of the Convention)

	Plants	Animals	Micro-organisms
Genetic level			
Species level			
Ecosystem level			



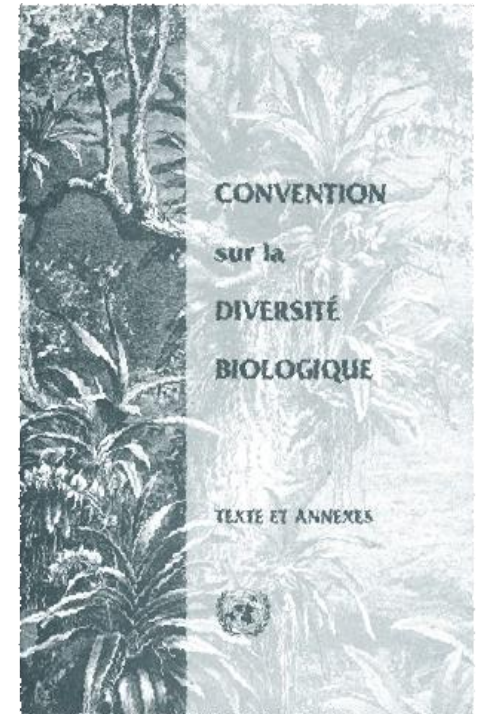
For what biodiversity components is scientific information particularly needed?

See Article 7 of the Convention and its annex:
Identification and monitoring

- ❑ **Components of biodiversity that need** to be conserved and used sustainably. See categories in Annex I of the Convention: particularly components requiring **urgent conservation measures** and those which **offer the greatest potential** for sustainable use through their services

Particular attention to

- endangered species and genetic resources, and dangerously degraded ecosystems
- Components of importance e.g. for human wellbeing (MDGs), required by migratory species (CMS), over-traded (CITES)

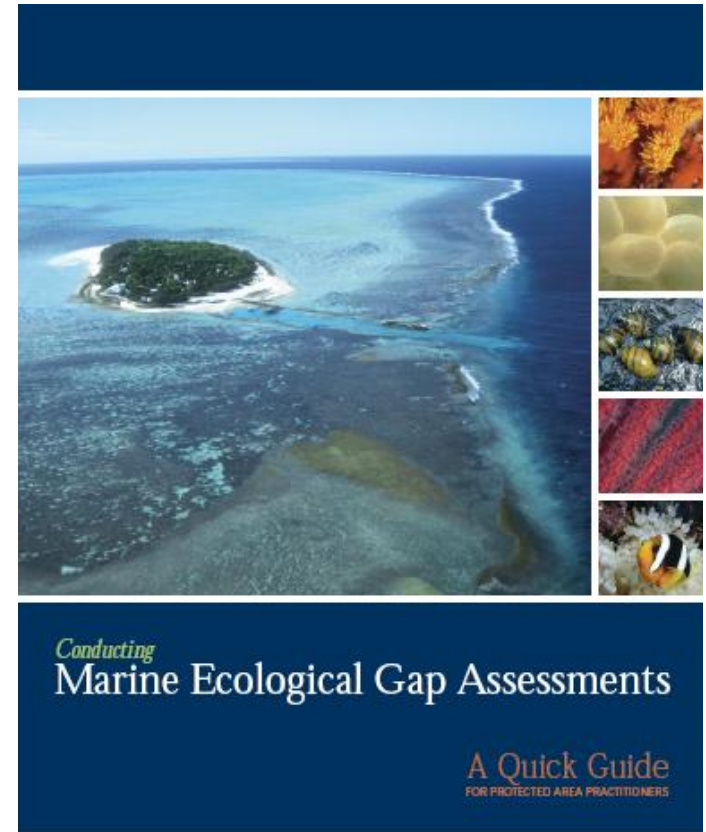


- ❑ **Processes and categories of activities** which have or are likely to have significant adverse impacts on biodiversity and their services

Marine sites to be protected

(Decision IX/20 in 2008)

1. Unique or rare
2. Of special importance for life history stages of species
3. Important for threatened, endangered or declining species and/or habitats
4. Vulnerable, fragile, sensitive or of slow recovery
5. With high biological productivity
6. With high biological diversity
7. Natural



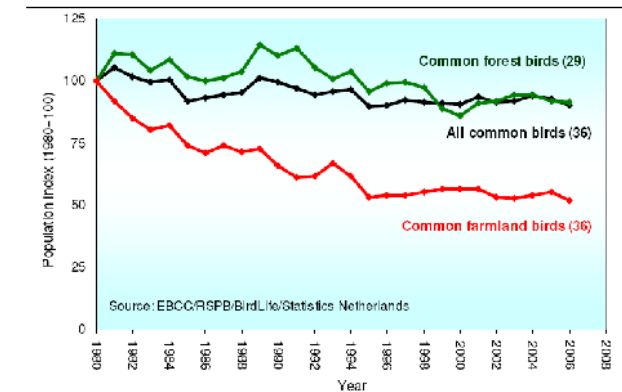
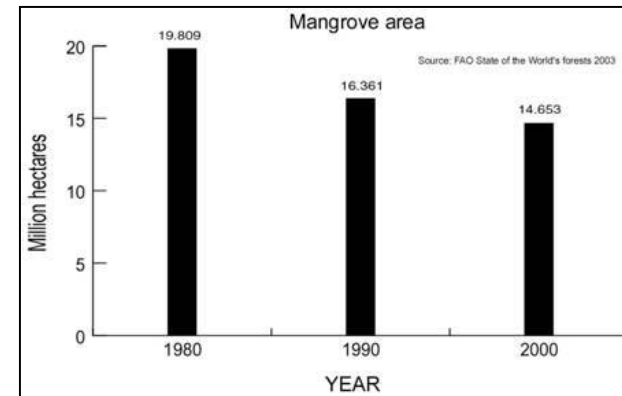
Concretely speaking, what scientific information is needed?

Components of biodiversity that need to be conserved and used sustainably: particularly components requiring **urgent conservation measures** and those which **offer the greatest potential** for sustainable use through their services?

- Status and trends of biodiversity and their services (MA, FRA, GEO-BON etc.)
- Valuation: economic values (TEEB)
- Scenarios (e.g. tipping points)

Processes and categories of activities which have or are likely to have significant adverse impacts on biodiversity and their services?

- Status and trends of threats to biodiversity and their services



	Habitat change	Climatic change	Invasive species	Over-exploitation	Pollution (nitrogen, phosphorus)
Forest	↘	↑	↘	→	↑
Temperate	↘	↑	↑	→	↑
Tropical	↘	↑	↑	↘	↑
Dryland	↘	↑	→	→	↑
Temperate grassland	↘	↑	→	→	↑
Tropical grassland and savanna	↘	↑	↑	→	↑
Desert	→	↑	→	→	↑
Inland water	↘	↑	↘	→	↑
Coastal	↘	↑	↘	↘	↑
Marine	↑	↑	→	↘	↑
Island	→	↑	↘	→	↑
Mountain	→	↑	→	→	↑
Polar	↘	↑	→	↘	↑



The 3 Rio conventions and their scientific bodies



Convention on biological
Diversity
(Article 25 of the Convention)



Subsidiary Body
on Scientific,
Technical and
Technological
Advice (SBSTTA)

↑
IPBES?



UN Framework Convention
on Climate Change



Subsidiary
Body on
Scientific and
Technological
Advice



Intergovernmental
Panel on Climate
Change



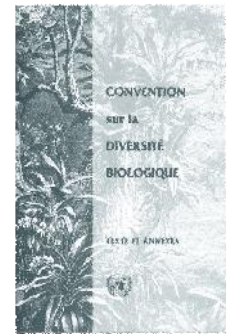
UN Convention to Combat
Desertification



Committee for
Science and
Technology

Similar bodies for biodiversity-related conventions: Ramsar, WHC, CMS, CITES and ITPGRFA

SBSTTA mandate or function (Article 25 and decision VIII/10)



Provide advice relating to the implementation of the Convention. Specifically:

- Scientific and technical assessments of the **status** of biological diversity
- Scientific and technical assessments of the **effects** of types of measures taken
- Innovative, efficient and state-of-the-art **technologies** and know-how
- **New and emerging** issues
- Advice on scientific programmes and international cooperation in R&D
- Address COP scientific, technical, technological and methodological questions



Examples of emerging issues identified in response to COP decision IX/29

- Ocean fertilization
- Ocean acidification
- Impact of ground-level ozone on biological diversity
- Marine protected areas and undersea noise
- Deoxygenation of the oceans
- Invasive Indo-Pacific lionfish
- Possible impact of REDD on non-forested ecosystems
- Effects of GMOs on genetic diversity of wild species
- Effects of invasive alien species on genetic, species and ecosystem diversity of protected areas
- Nanotechnology; nanosilver in waste water
- Increased use of market-based incentives for conservation (e.g. payments for ecosystem services; biodiversity offsets)
- Microplastic pollution





The 2010 target

to achieve, by 2010, a significant reduction of the current rate of biodiversity loss at the global, regional and national level, as a contribution to poverty alleviation and for the benefit of all life on Earth”

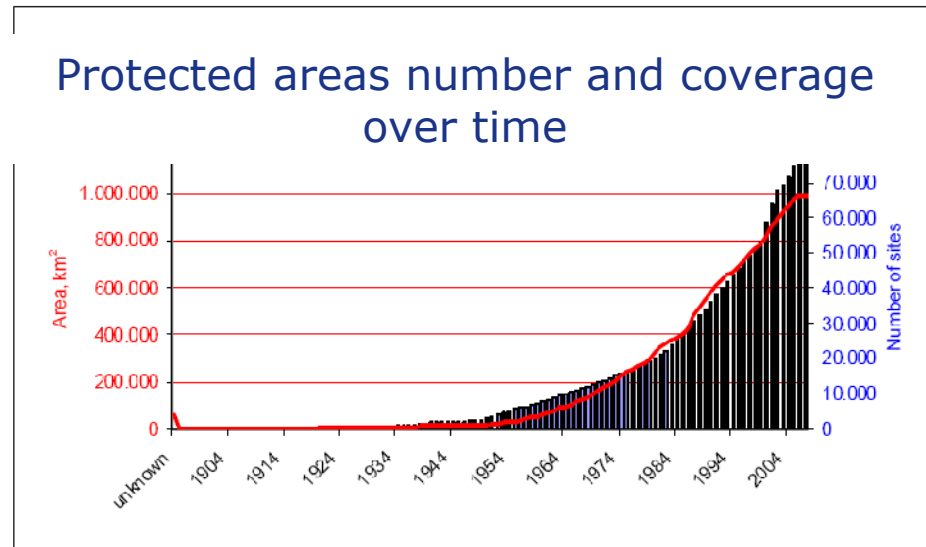
Biodiversity loss is the long-term or permanent qualitative or quantitative reduction in components of biodiversity and their potential to provide goods and services, to be measured at global, regional and national levels

Adoption of a framework of goals and targets (decisions VII/30 and VIII/15) and 2 sets of indicators

Indicators for immediate use (decisions VII/30 and VIII/15)

- ❑ Coverage of protected areas
- ❑ Trends in extent of selected biomes, ecosystems and habitats
- ❑ Trends in abundance and distribution of selected species
- ❑ Change in status of threatened species
- ❑ Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance
- ❑ Trends in invasive alien species
- ❑ Status and trends of linguistic diversity and numbers of speakers of indigenous languages

Graph 3: Growth of the nationally designated protected areas in 39 EEA countries



Source: CDDA v7, 2007



Challenges for scientists:

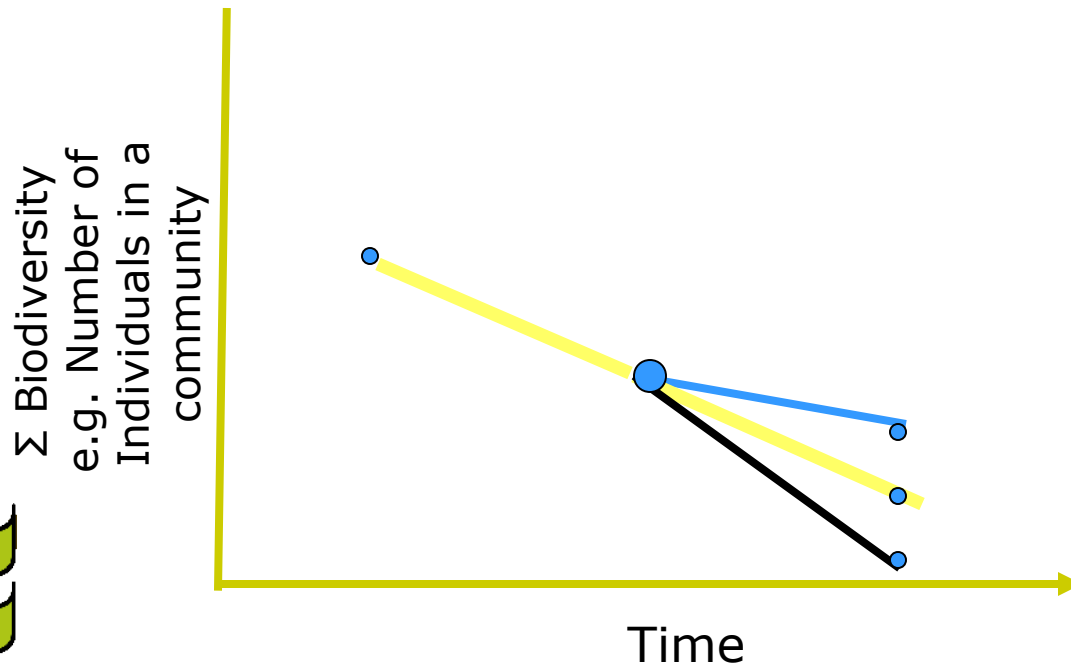
Indicators for further development (decisions VII/30 and VIII/15)

- ❑ *Biodiversity used in food and medicine (indicator under development)*
- ❑ Area of forest, agricultural and aquaculture ecosystems under sustainable management
- ❑ *Proportion of products derived from sustainable sources (indicator under development)*
- ❑ Marine trophic index
- ❑ Nitrogen deposition
- ❑ Water quality in aquatic ecosystems
- ❑ Ecological footprint and related concepts
- ❑ Connectivity/fragmentation of ecosystems
- ❑ Incidence of human-induced ecosystem failure
- ❑ Health and well-being of communities who depend directly on local ecosystem goods and services



Challenges for scientists:

- ❑ **Institutional, technological, financial and human capacities** for data collection, analysis and validation
- ❑ **High uncertainty:** Data often based on samples collected in limited areas and during a short period of time
- ❑ **Dynamic nature of marine and other aquatic areas** (horizontally and vertically)
- ❑ Need for minimum of **3 points in time** to present trends



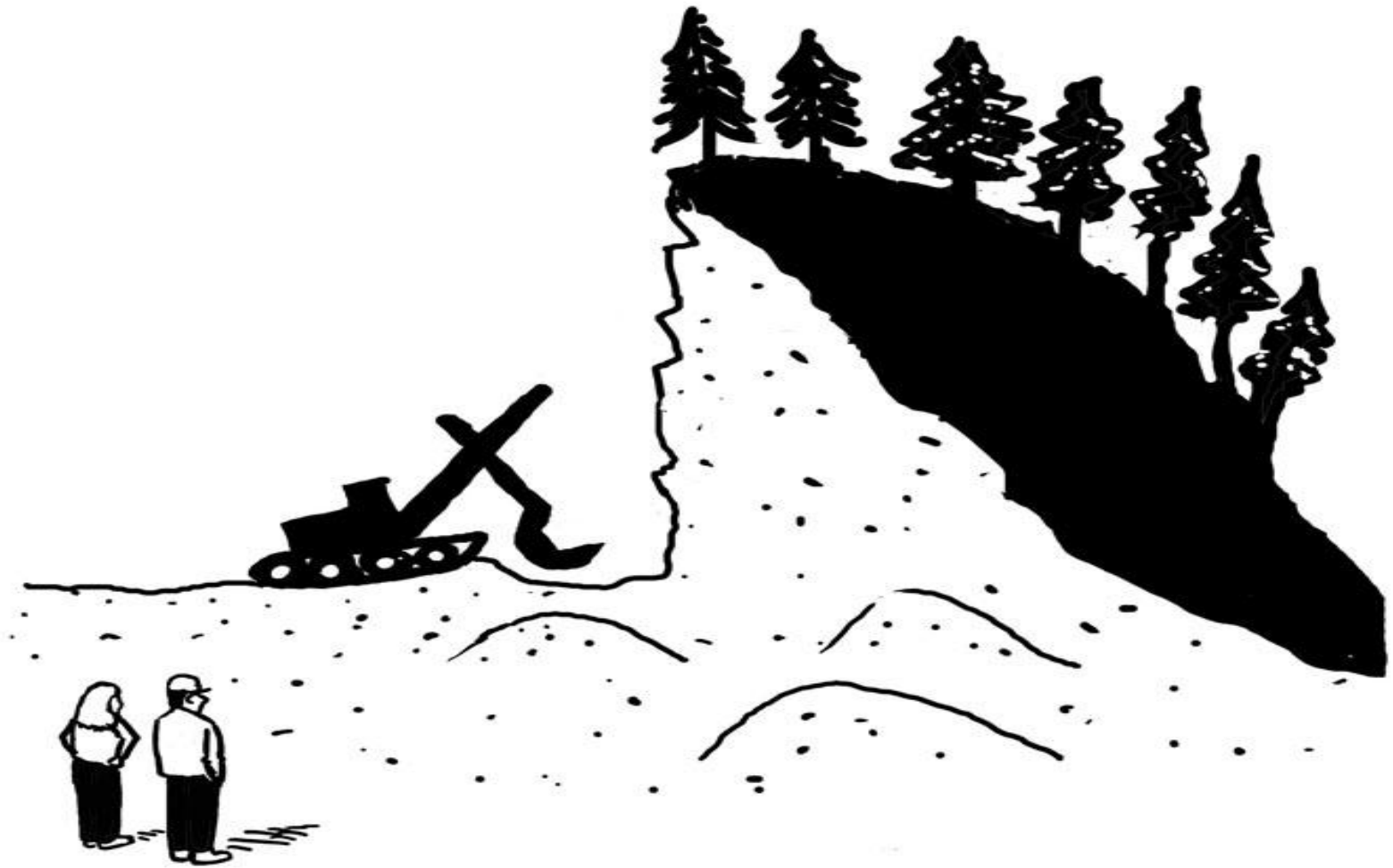
Challenges for scientists:

Indicators for assessing progress towards post 2010 targets

- ❑ Some indicators adopted previously can be used but new indicators will be needed
- ❑ Baselines need to be defined





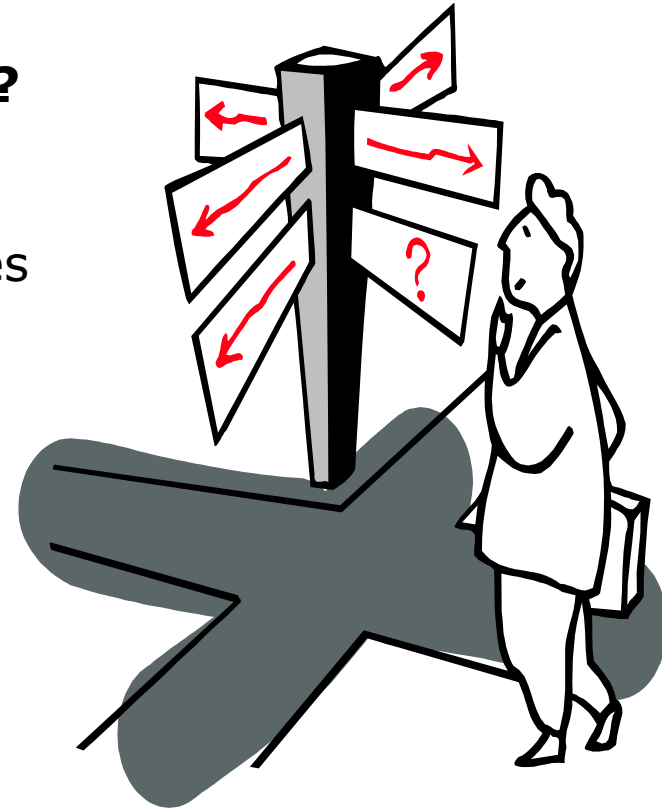


Ommundsen

Importance of biodiversity-inclusive Strategic Environment Assessment and Environmental Impact Assessment

Need for scientific information

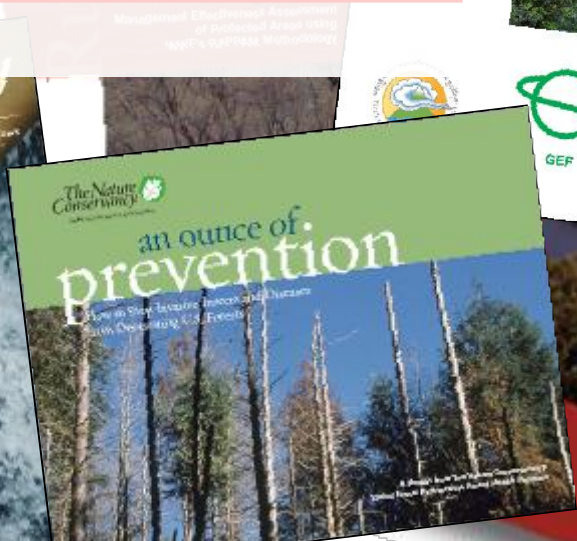
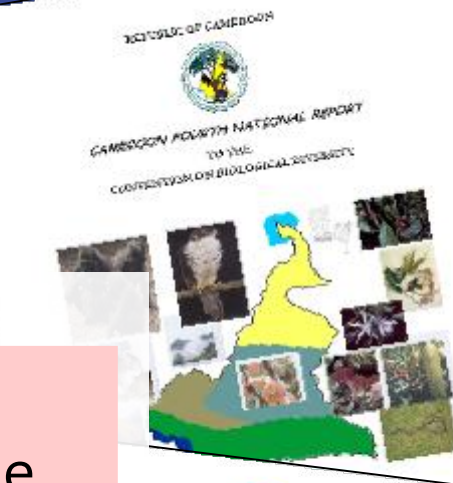
- ❑ **What kind of scientific information?**
 - The text of the Convention on biological diversity
 - COP decisions including programmes of work and cross cutting issues
- ❑ **How to get?**
- ❑ **How to communicate?**
 - Scientific papers and other types of articles
 - GBO, GEO, MA, FRA and similar publications
 - National reports
 - Uncertainty issue





Do national reports provide the scientific information needed for decision making?

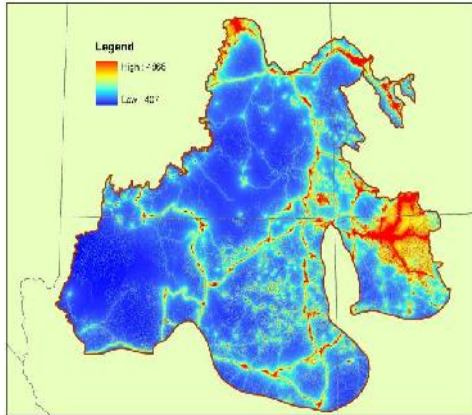
Do national reports, GBO, GEO MA reports have the expected impact?



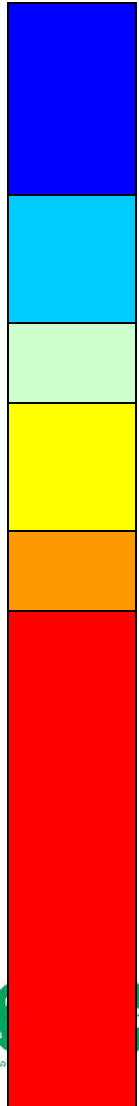
From scientific reports/publications ...



...to this



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The Economist Conservation Indicators Show Success page 10
 The World Economy page 19
 Nanotechnology Impact page 26
 Mission to Mars - Joint Effort page 37

MARCH 15th-21st 2010 www.economist.com

2010 Conservation Indicators Show Success

Stockmarkets

Index	Mar 12th	High	Low	One week	Year to date	2009	% Chg. 2009
Australia (ASX)	3,887.5	3,926.8	3,887.5	-0.3	-27.3	-1.1	+1.7
Banking (NY)	1,551.2	1,587.9	1,511.2	-3.7	-28.6	-2.8	+2.3
Belgium (Euronext)	4,426.8	4,516.1	4,328.9	-8.2	-11.3	-20.4	+16.7
Canada (TSX)	2,287.9	2,389.9	2,287.9	-0.2	-12.8	-10.4	+15.3
Denmark (OMX)	2,016.8	2,057.3	1,928.8	-6.7	-45.1	-5.8	+6.0
Germany (DAX)	3,416.0	3,575.2	3,416.0	-0.0	-15.1	-12.8	+9.2
France (CAC 40)	2,471.0	2,513.9	2,471.0	-0.0	-18.9	-15.4	+17.9
Germany (DAX)	2,210.0	2,287.9	2,210.0	-0.0	-19.7	-17.8	+10.0
Hong Kong (HSI)	1,114.0	1,147.4	1,114.0	-0.0	-19.0	-10.1	+7.7
Japan (Nikkei 225)	7,612.0	7,790.0	7,612.0	-0.0	-19.0	-7.4	+5.3
Spain (IBEX)	3,814.0	3,885.0	3,814.0	-0.0	-19.0	-10.1	+7.7
UK (FTSE 100)	2,114.0	2,157.0	2,114.0	-0.0	-19.0	-10.1	+7.7
US (S&P 500)	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
US (Dow Jones)	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
US (Nasdaq)	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
US (Russell 2000)	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
US (SmallCap)	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
US (MidCap)	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
US (MicroCap)	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
US (Ultra-MicroCap)	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
US (Total)	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7

The Economist commodity price index

Commodity	Mar 12th	High	Low	One week	Year to date	2009	% Chg. 2009
Aluminum	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
Copper	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
Gold	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
Iron Ore	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
Natural Gas	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
Oil	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
Silver	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
Soybeans	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
Wheat	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7
Zinc	1,114.0	1,157.0	1,114.0	-0.0	-19.0	-10.1	+7.7



Bitchi

RESEARCH CONCLUDES:
WE ARE DESTROYING EARTH.

COULD YOU KINDLY REPHRASE THAT IN EQUITABLE, INACCURATE, VAGUE, SELF-SERVING AND ROUNDABOUT TERMS THAT WE CAN ALL UNDERSTAND?

