Millennium Ecosystem Assessment

Condition and Trends Working Group draft findings.

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Condition Working Group

Introduction

- Methods, Drivers of change, Biodiversity, HWB and Vulnerability

Ecosystem Services

- Analysed by major clusters of ecosystem services

Ecosystems

- Multiple services from various systems.

Synthesis

Technical chapters examine current status and trends of ecosystem services across ecosystem types

A) Provisioning

Chapter 8. Freshwater
Chapter 9. Food
Chapter 10. Timber, Fiber, Fuel
Chapter 11. Novel Products and Industries from Biodiversity

B) Supporting and Regulating

Chapter 12. Biodiversity regulation of ecosystem services
Chapter 13. Nutrient cycling
Chapter 14. Air quality and climate regulation
Chapter 15. Human infectious disease agents
Chapter 16. Waste processing and detoxification
Chapter 17. Natural Hazard regulation

C) Cultural

Chapter 18. Cultural and amenity services

Then examine the status of different ecosystems in providing these ecosystem services

Ch. 19	Cultivated Systems
Ch. 20	Dryland systems
Ch. 21	Forest systems
Ch. 22	Urban systems
Ch. 23	Inland Water systems
Ch. 24	Coastal systems
Ch. 25	Marine systems
Ch. 26	Polar Systems
Ch. 27	Mountain systems
Ch. 28	Island systems

Example questions being answered by the Condition Working Group:

- What have been the consequences of ecosystem degradation for human health?
- What have been the economic costs and benefits of changes to ecosystems?
- What have been the trends in the supply of services from ecosystems?
- How will current trends play out in the near future?
- How has the capacity of ecosystems to provide services changed in the recent past
- What are the trends in the capacities of ecosystems to continue to provide services.

Condition and Trends
Summary for Decision Makers (SDM)

Contents:

- The coupled nature of ecosystems and human well-being
- Relationship between biodiversity and ecosystem services
- Drivers of change in ecosystems and capacity for services
  - Population, consumption,climate, wastes and nutrients,invasions
- Trends in ecosystem services
  - Freshwater, food,timber, fuel,bioprospecting, diseases,floods and fire
- The condition of key ecosystems
  - Inland waters, drylands, mountains, marine, coasts, islands, forests, polar, cultivated, urban
- Are we approaching thresholds of ecosystem change anywhere?
- Gaps in our knowledge
- Implications of the Condition assessment for meeting the MDGs and other targets (eg CBD 2010)

A selection of *DRAFT* findings from the Condition Working Group:

Ecosystems and Human well-being

- Although on average human well-being has improved in the recent past, human populations are growing faster in ecosystems characterised by low well-being and low productivity, and there is a growing number of people at high risk of adverse ecosystem changes.

- The world is experiencing a worsening trend of human suffering and economic losses from natural disasters. The capacity of ecosystems to regulate such natural disasters has diminished.
  - Flood damage in Europe in 2002 was higher than in any previous year.

- The impacts of declining ecosystem services are often shifted from the groups responsible for the decline onto others.

A selection of *DRAFT* findings from the Condition Working Group:

Biodiversity and Ecosystem Services

- The loss of biodiversity has lead to measurable reductions in aspects of human well-being.
- The composition of communities of species, rather than numbers of species is most important in determining the capacity of the system to provide ecosystem services.
- The integrity of interactions between species is critical for the preservation of long-term human food production on land and in the sea (e.g. pollination and pathogen control).
- Among plants and vertebrates, the great majority of species are declining in distribution, population size, or both. We are not likely to meet the CBD 2010 target.
  - Overfishing is the dominant factor reducing marine biodiversity.
  - Most terrestrial extinctions are predicted to occur in tropical forests

A selection of *DRAFT* findings from the Condition Working Group:

Ecosystem services

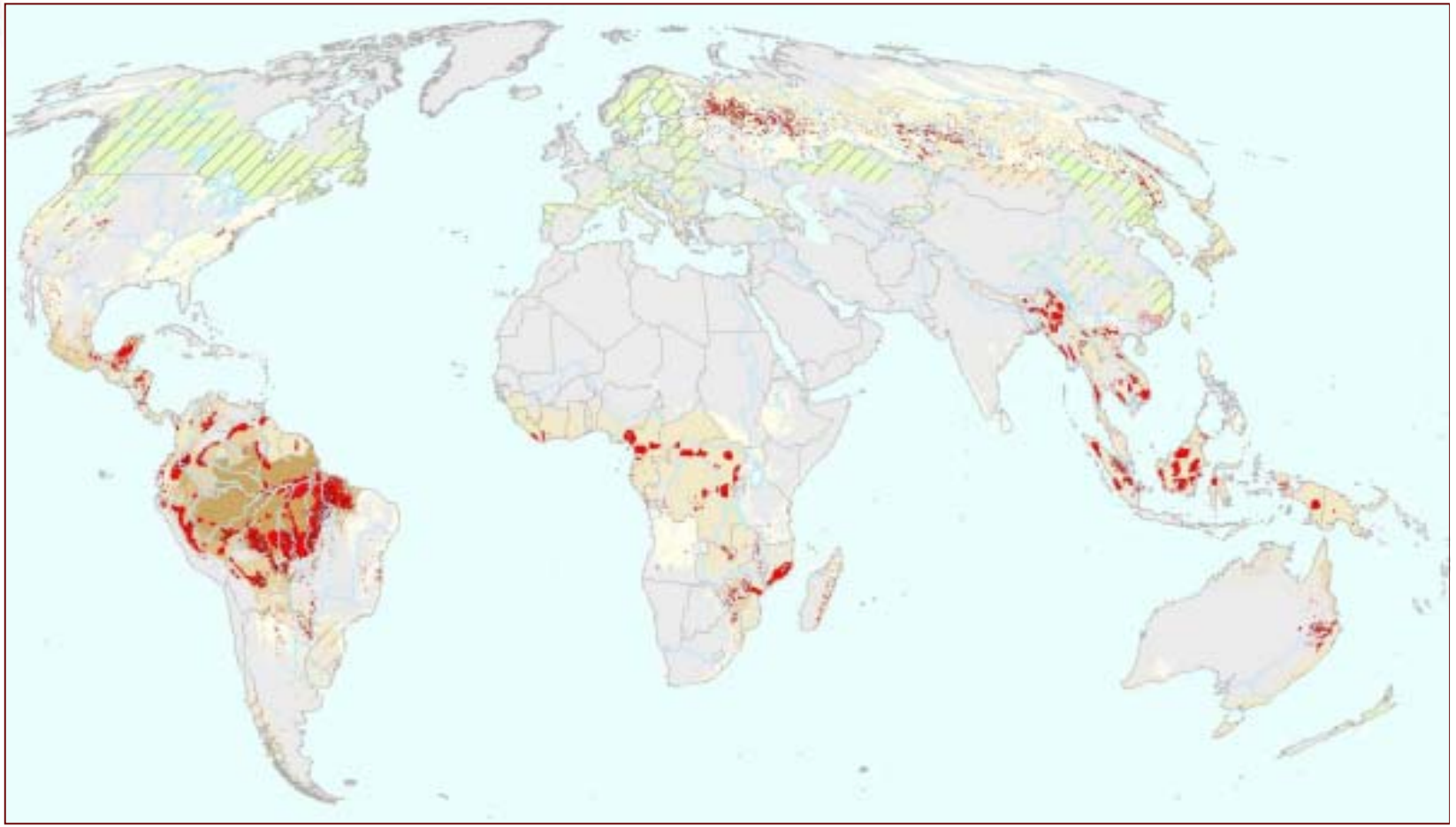
- The growth of world cereal production has slowed recently, and the supply of fish as a cheap source of protein for developing countries has declined. There is an accelerating demand for livestock products.
- Global consumption of fuelwood peaked in the 1990s, and is now declining, due to the availability of alternative fuel sources.
- Terrestrial ecosystems were a sink for a third of historical CO2 emissions and a fifth of 1990s emissions. The sink was partially due to afforestation/reforestation in Europe and other regions.

A selection of *DRAFT* findings from the Condition Working Group:

Ecosystems

- Societies in coastal systems are increasingly impacted by fisheries failures in coastal and marine systems, exacerbated by pollution and development.
  - Islands are all coast, and are especially vulnerable
- Climate change is having a real impact on polar systems
  - But there is a high coping capacity in Polar countries, and so the vulnerability of Polar societies is low.
- The capacity of wetlands to deliver services is deteriorating around the world, and is worse than any other system type.
- In Europe, the negative impacts of urban settlements on ecosystem services and human well-being has become more delayed and dispersed.

Main areas of forest degradation, 1980-2000



Forest covered only by national statistics

Average annual deforestation rate

No change or increase in forest

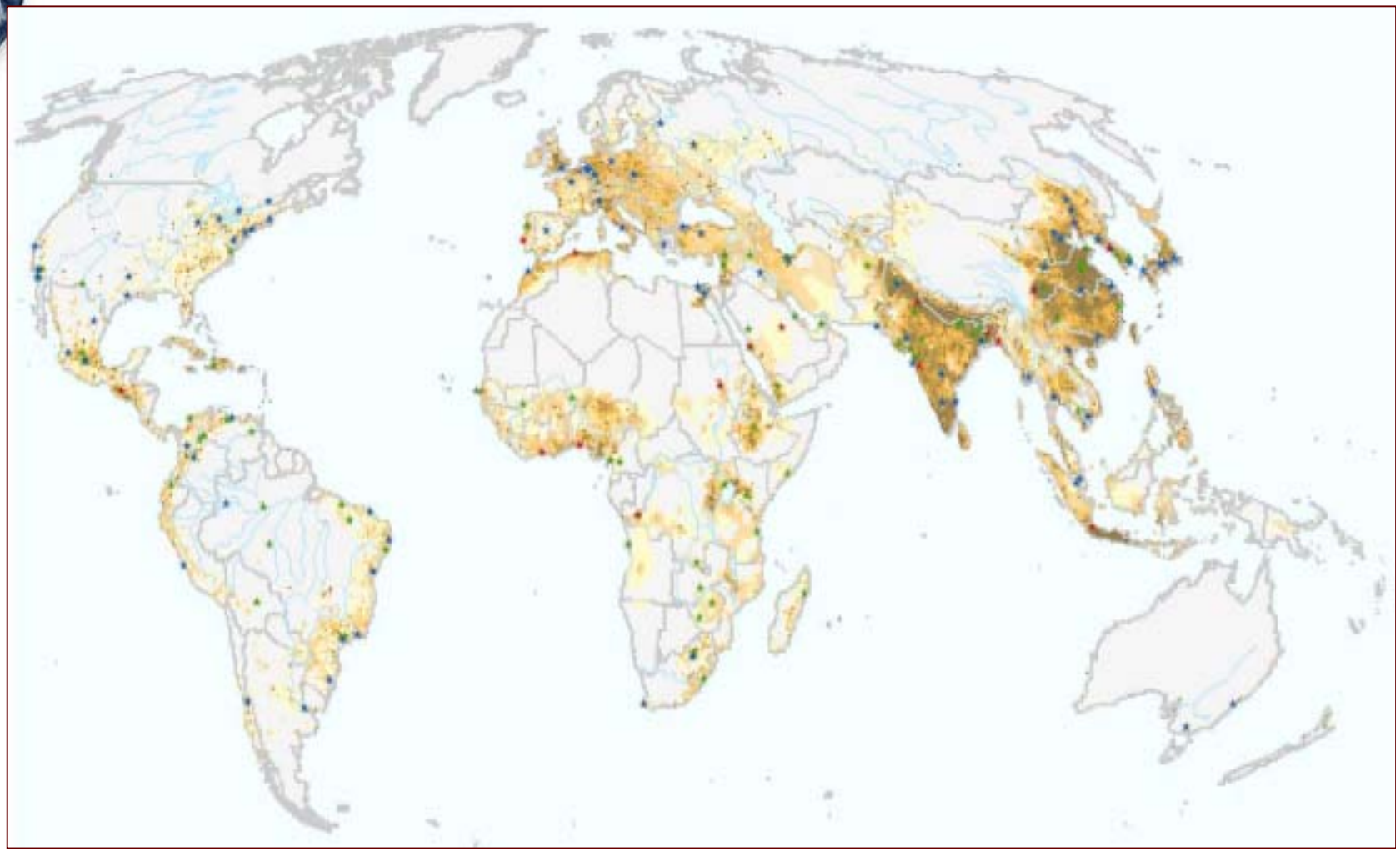
0,01 - 2 %

2,01 - 3 %

> 3 %

Unforested areas

Population density and most populated and changing cities in 1990-2000

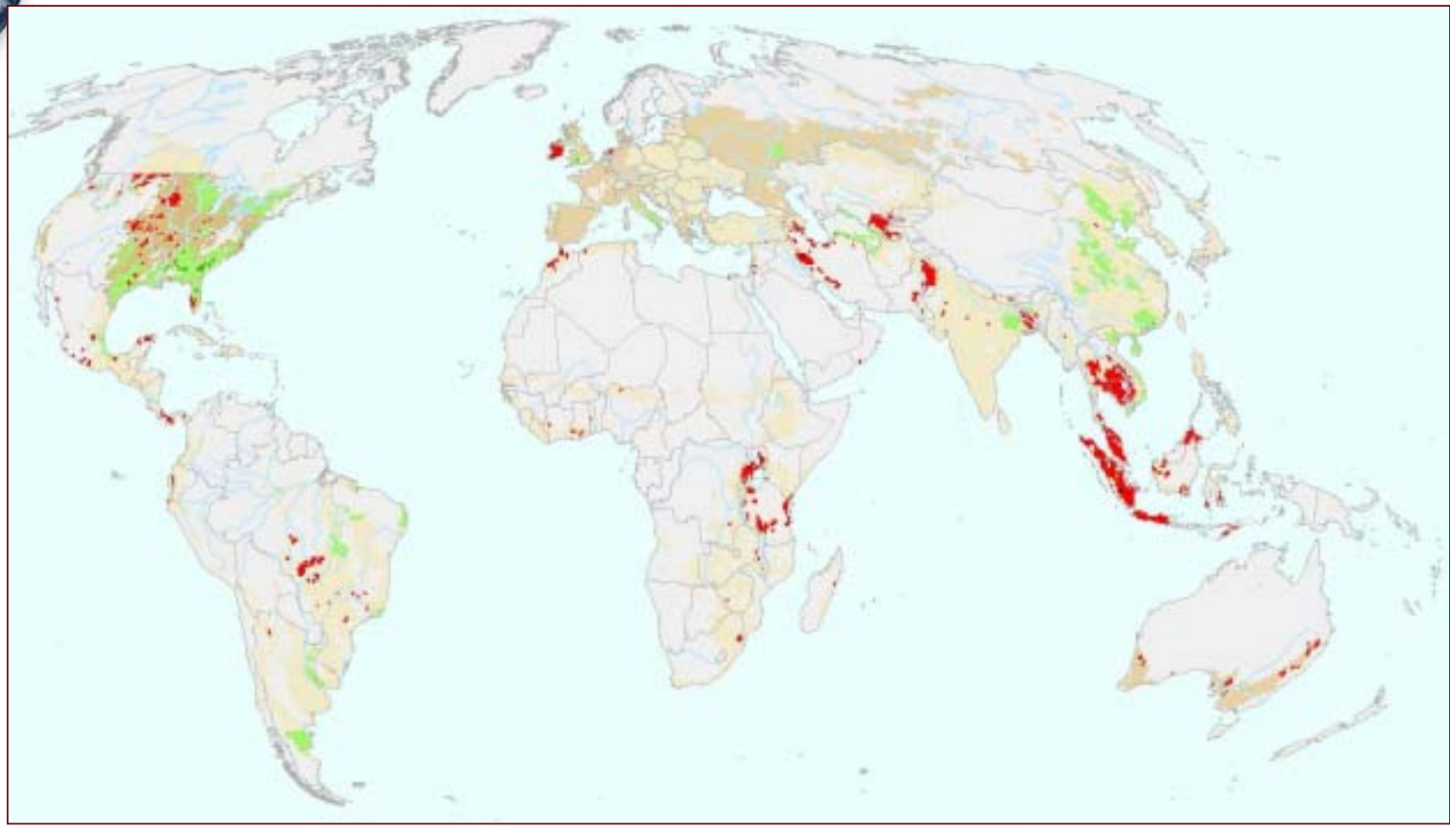


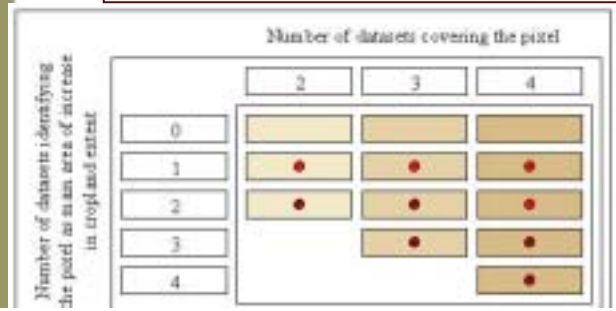
★ Most populated and changing cities

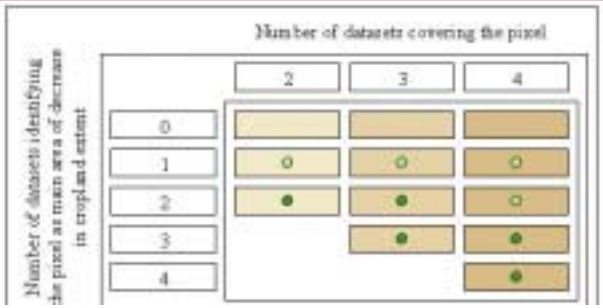
☆ Most populated cities in 2000

★ Most changing cities between 1990 and 2000

Main areas of change in cropland extent







No cropland

The Condition and Trends assessment is global in nature, but with regional definition – many findings are as applicable in Europe as they are in Sub-saharan Africa, East Asia and Central America.