



THE MULTIPLE VALUES OF FORESTS

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Outline

1. Benefits from ecosystems
 2. Forest benefits
 3. Multiple benefits of REDD+
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1. Summary



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1. Benefits from ecosystems

Ecosystem services: benefits from ecosystems

Ecosystem services are the benefits people obtain from ecosystems. These include:

- **Provisioning services:** providing tangible products (e.g. timber, food)
- **Regulating and supporting services:** benefits arising from the natural function of healthy ecosystems (e.g. climate regulation, habitat provision)
- **Cultural services,** such as recreational, tourism, aesthetic, and spiritual benefits;

(Millennium Ecosystem Assessment, 2005)



2. Forest benefits

What ecosystem benefits are provided by forests?

Forests contribute more than other terrestrial ecosystems in providing a complex range of goods and services, that benefit people in different ways:

PROVISIONING SERVICES (FOREST GOODS)

Such as:

TIMBER: Still the most valuable economic product from most forests of the world.

FUELWOOD: A significant part of the world's energy comes from biomass.

NON-TIMBER FOREST PRODUCTS: Such as food, fibre, and medicinal plants.

- In Viet Nam, valuable NTFPs include pine resin, rattan, medicinal plants
- In Suriname, Indonesia, 7 out of 8 most valued medicinal species are collected from forests (Van Andel & Havinga, 2008)

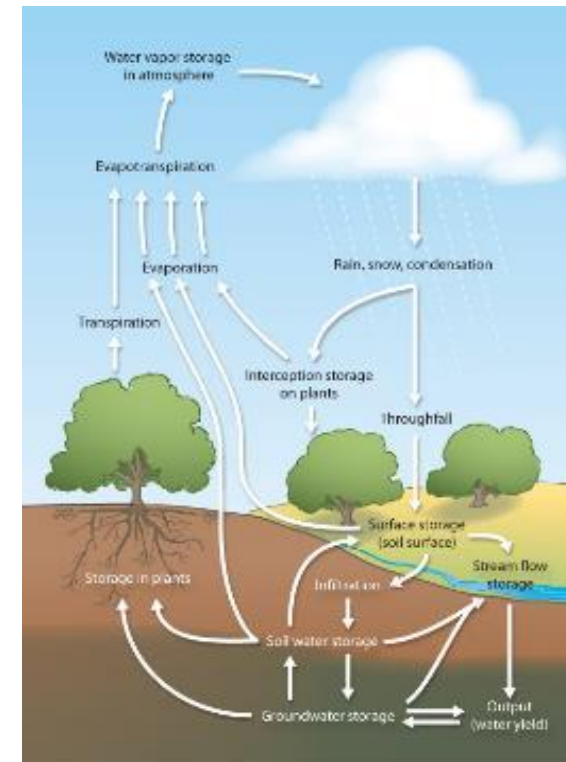
Benefits provided by forests, cont.

REGULATING & SUPPORTING SERVICES - WATER

- Regulating **water quality and quantity**

Forests are a moisture source for downwind/downstream ecosystems. In the Amazon, 60% of rainfall comes from water transpired by upstream ecosystems (MEA 2005)

- **Groundwater recharge**, by allowing more precipitation to infiltrate the soil
- Reduce frequency and damage from **flooding** on short steep slopes, and mitigation of sea level rise / storm surges.



Benefits provided by forests, cont.

REGULATING & SUPPORTING SERVICES - SOIL

Forests stabilise soil, **controlling erosion** and reducing the potential for landslides.

In Zhangjiajie National Forest Park in China, forests reduced soil loss by around 2.77 million tons per year (Zhao et al. 2009)



Benefits provided by forests, cont.

REGULATING & SUPPORTING SERVICES – CLIMATE

- Forests are are a **carbon sink**: they store carbon and continue to sequester from the atmosphere.
 - **As much as 45% of carbon on land is in the world's forests (NASA, 2012)**
- Forests provide **climate services**, regulating rainfall and temperatures.
 - **Forests also provide shade and shelter**

REGULATING & SUPPORTING SERVICES – AGRICULTURE

- Forests provide **pollination services** and **pest control**
 - **Forest reduced the presence of avian malaria within a 400 m radius (Mendenhall et al. 2013).**

Benefits provided by forests, cont.

REGULATING & SUPPORTING SERVICES - BIODIVERSITY CONSERVATION

Forests provide **habitat for biodiversity**

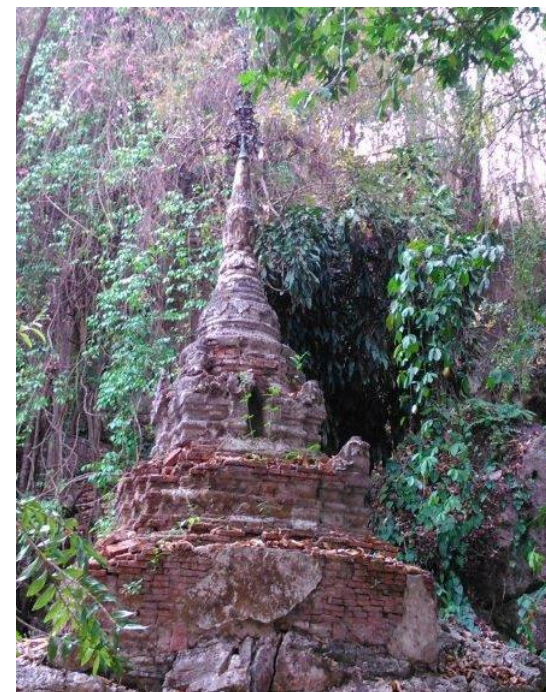
- Biodiversity underpins other ecosystem services
 - **Resilience of forests & their services**
 - **Pollination, forest products etc**
 - **Cultural services – tourism / spiritual**
- Biodiversity values affected by
 - **Species richness**
 - **Presence of threatened / endemic species**
 - **Connectivity with other forests**



Benefits provided by forests, cont.

CULTURAL SERVICES

- Forests support (eco-)tourism
 - **Forests and protected areas are often valuable for attracting tourists, e.g wildlife spotting, bird-watching, hiking**
- Forests may have cultural and spiritual value
 - **E.g. sacred and historical sites**
- Recreational values
 - **Access to nature, pleasant landscapes, peaceful areas**



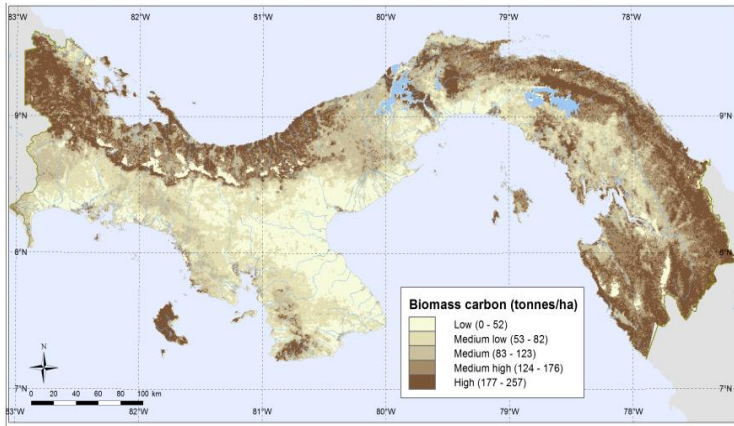
Numerous studies from across Europe show that forests are the most popular environments for outdoor recreation.
(Nielsen et al. 2007)

Forest values / benefits vary geographically

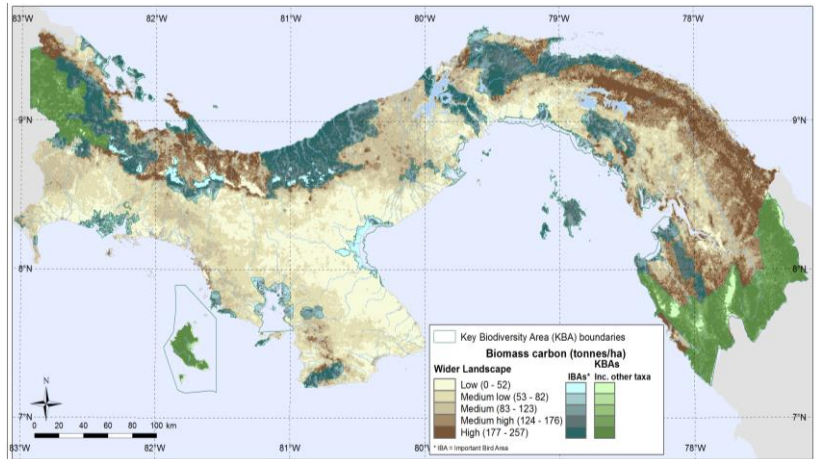
For example: forests in Panama

Some areas / forest types are more 'valuable' than others for multiple reasons

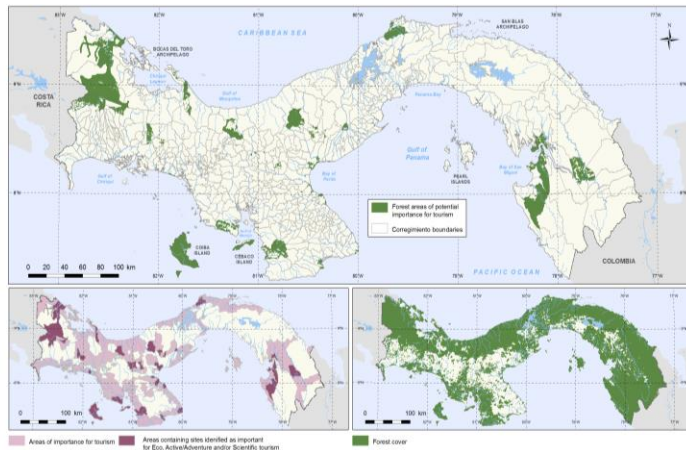
Biomass carbon stocks



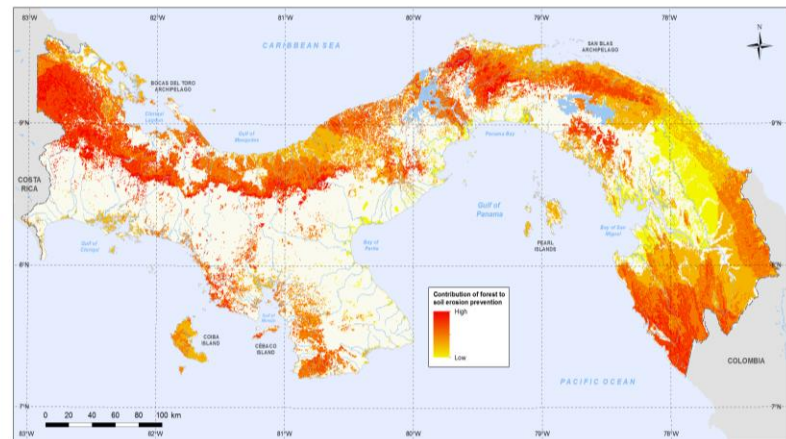
Importance for biodiversity



Importance for tourism



Importance for soil erosion control





3. Multiple benefits of REDD+

REDD+ actions can help to deliver multiple benefits

While the main goal of REDD+ is to contribute to climate change mitigation, well-planned and implemented REDD+ actions can lead to a range of benefits

Carbon benefits + other social / environmental benefits are known as **multiple benefits**

- Retained or enhanced ecosystem services provision
- Improved biodiversity conservation
- Synergies with ecosystem-based adaptation
- Improved livelihoods for communities
- Clarified tenure and improved governance of natural resources

Potential risks of REDD+

REDD+ implementation also carries potential risks, e.g.

- Reduced access to resources for forest users
- Lack of participation by local stakeholders
- Conflicts over land
- Conversion of natural ecosystems, e.g. degraded natural forest to plantation



Recap - REDD+ activities and actions

REDD+ activity	Example actions
Reducing emissions from deforestation	Eg: reduce conversion pressure through improved land-use planning
Reducing emissions from forest degradation	Eg: improving sustainability of NTFPs harvesting/production; fuelwood alternatives/efficient cookstoves
Conservation of forest carbon stocks	Eg: improving management of existing protected areas
Sustainable management of forest	Eg: reduced impact logging; community forestry
Enhancement of forest carbon stocks	Eg: forest rehabilitation; afforestation

How to identify and incorporate multiple benefits in REDD+ planning?

Broad list of benefits

Analyse benefits & risks of particular REDD+ actions

Design/implement actions so as to enhance benefits and reduce risks

1. Identifying potential benefits and risks

Iterative process

- Review of priorities/benefits identified in policies and plans (e.g. NBSAP, forest strategies, development goals...)
- Consultations with stakeholders and review of scientific/civil society/community recommendations



2. Analysing benefits and risks

For example, the analysis of benefits and risks associated with **a given REDD+ action**

Action	Potential benefits	Potential risks	Measures
<ul style="list-style-type: none">• Restoration of degraded natural forest in community forest areas	<ul style="list-style-type: none">• Improved forestry income for local people• Improved habitat for endangered species• Improved water quality in river	<ul style="list-style-type: none">• Conflict over area to be restored• Use of inappropriate species• Soil erosion risk by clearing for enrichment planting	<ul style="list-style-type: none">• Spatial planning to prioritise areas rich in biodiversity and close to poor communities• Consultation to reduce conflict• Natural regeneration only in high soil erosion risk areas

3. Designing REDD+ actions to enhance benefits and reduce risks

Tools & approaches

Spatial analysis/mapping

Cost-benefit analysis

Modelling

Summary: achieving multiple benefits from REDD+

- Forests provide crucial ecosystem services, which benefit people in many ways
- Different forest areas, and other ecosystems, are valuable for different services
- Well-planned REDD+ implementation – and other land use planning - should aim to retain and enhance these services, while reducing risks
- There are a range of tools to help identify and plan for enhancing benefits and reducing risks, including spatial analysis



Thank you!

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