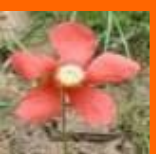




Cambodia's Forests and Biodiversity Management: Paradigm Shift, Challenges and Opportunities



**5th AP-BON Seminar
21 January 2021**

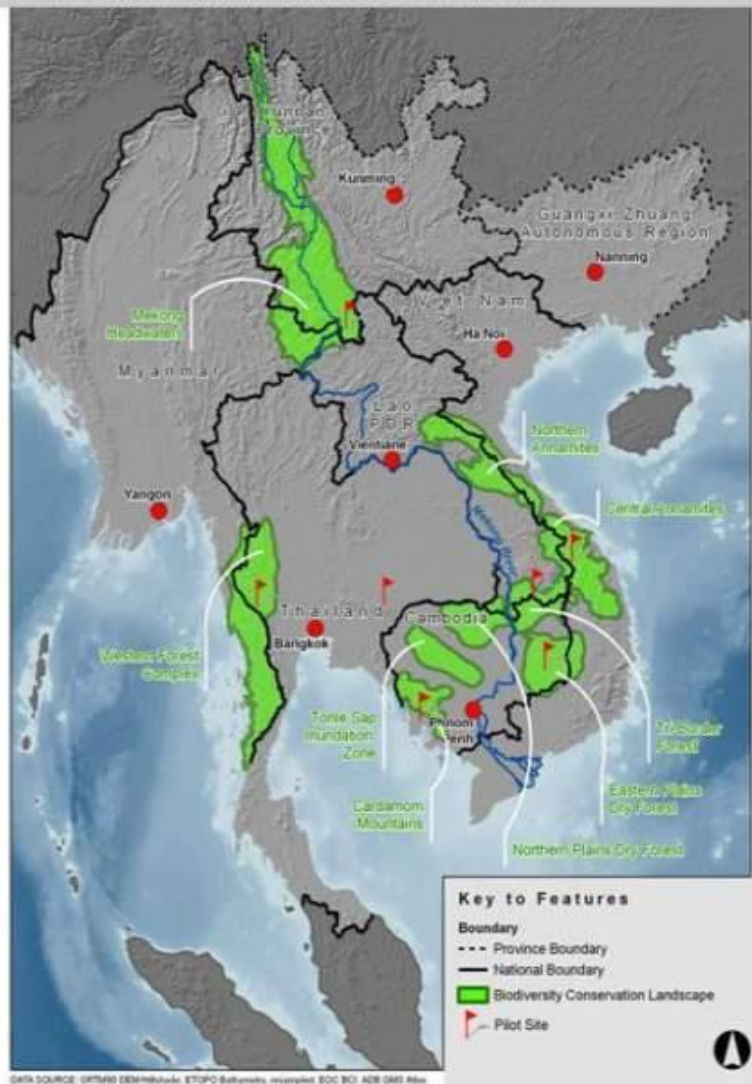


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Forest Biodiversity in Cambodia

GMS Core Environment Program and Biodiversity Conservation Corridors Initiative - ADB TA 6289
Greater Mekong Subregion
Biodiversity Conservation Landscapes and Pilot Sites



Cambodia is one of 35 Global Biodiversity Hotspots that provide habitats for thousands of plant and wildlife species, many of which are on the IUCN Red List of threatened and endangered species.

Cambodia has the largest remaining extensive intact block of a unique landscape of exceptional global importance for biodiversity conservation in Southeast Asia and contains 5 of the 9 important Biodiversity Corridors in the Greater Mekong Sub-Region

Main Pillars of Sustainable Forest Management

Cambodia pursue SFM for fostering Healthy Forest, Healthy People and Healthy Economy

Ecosystem Integrity

SFM

People-centered & Socially acceptable

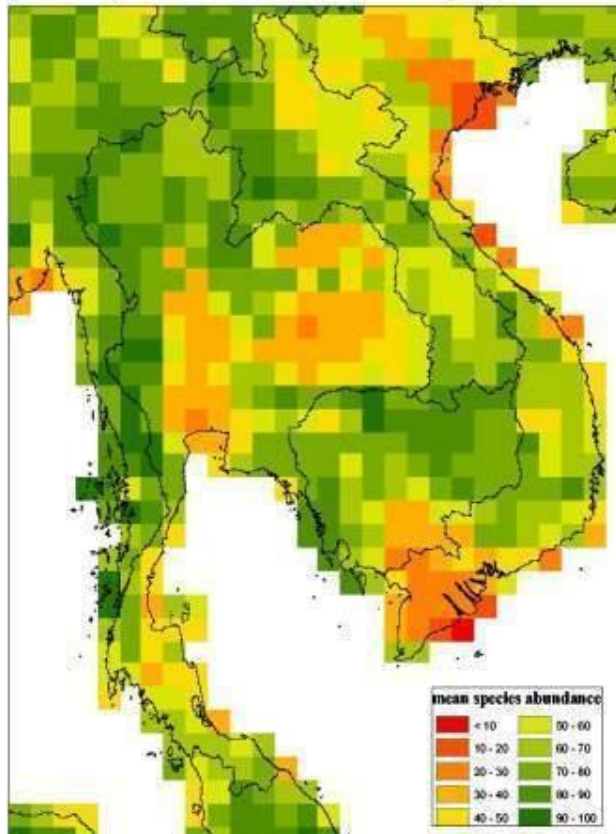
Economically viable

Cambodia is promoting the sustainable utilization of natural resources and the conservation of biodiversity, ecosystems and landscapes to support green development and the bio-economy

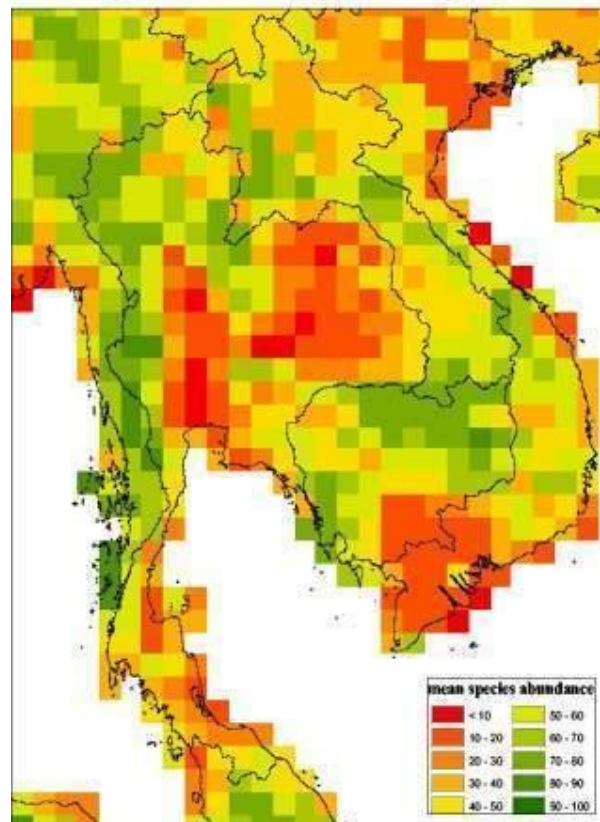


Trend of Species Abundance in greater Mekong Sub-Region

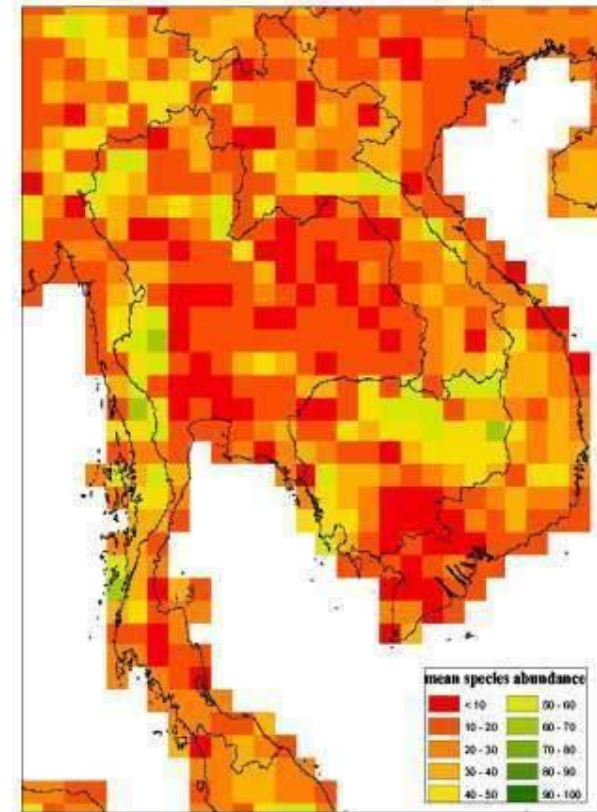
Mean species abundance (as % of original) in 1970



Mean species abundance (as % of original) in 2000



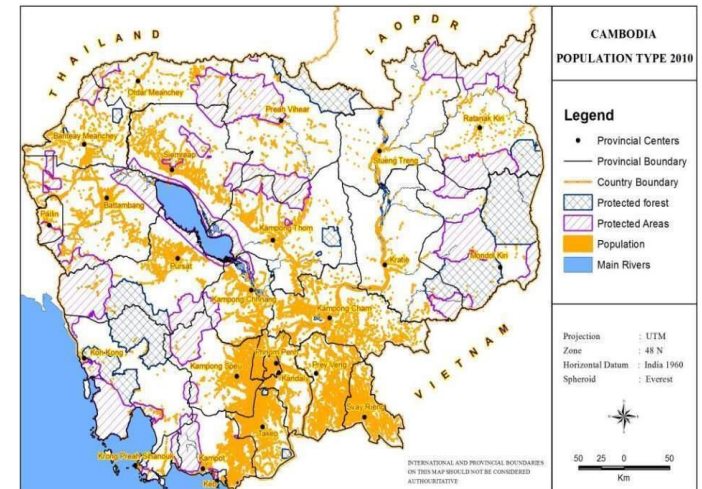
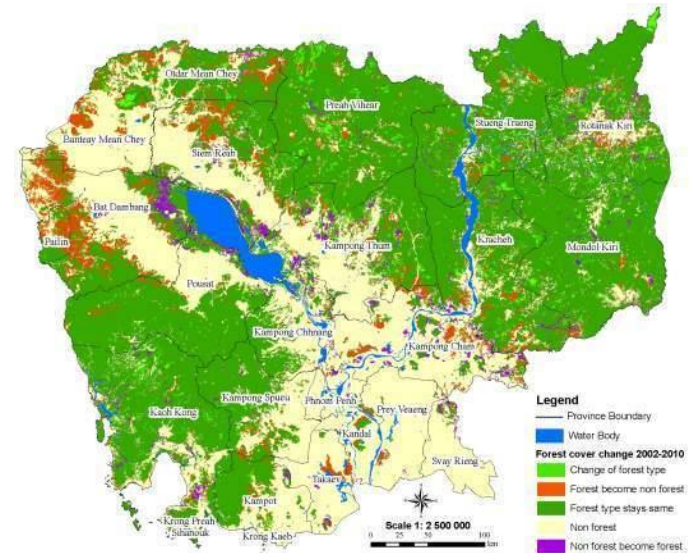
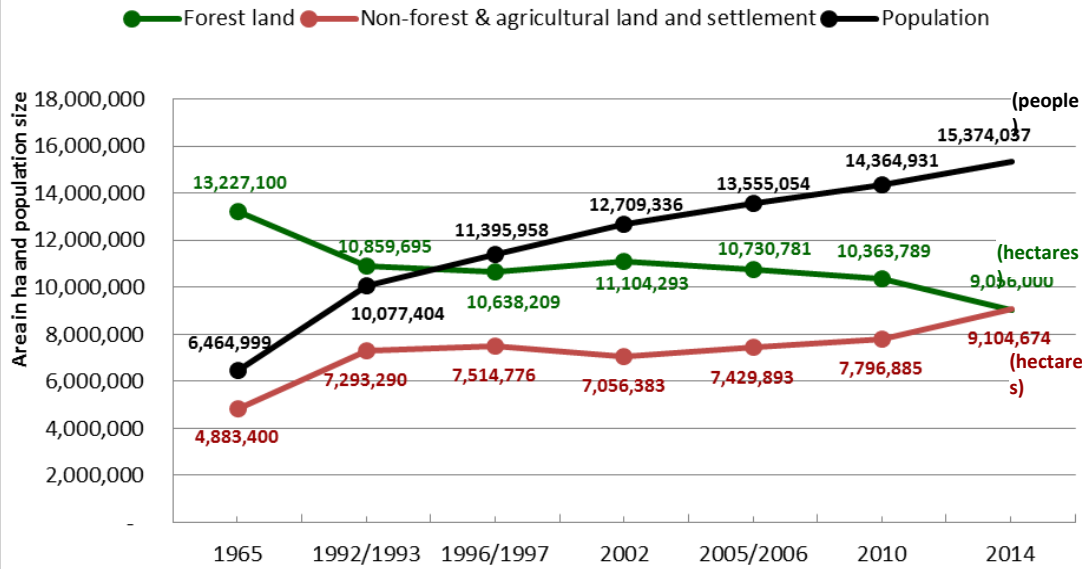
Mean species abundance (as % of original) in 2030



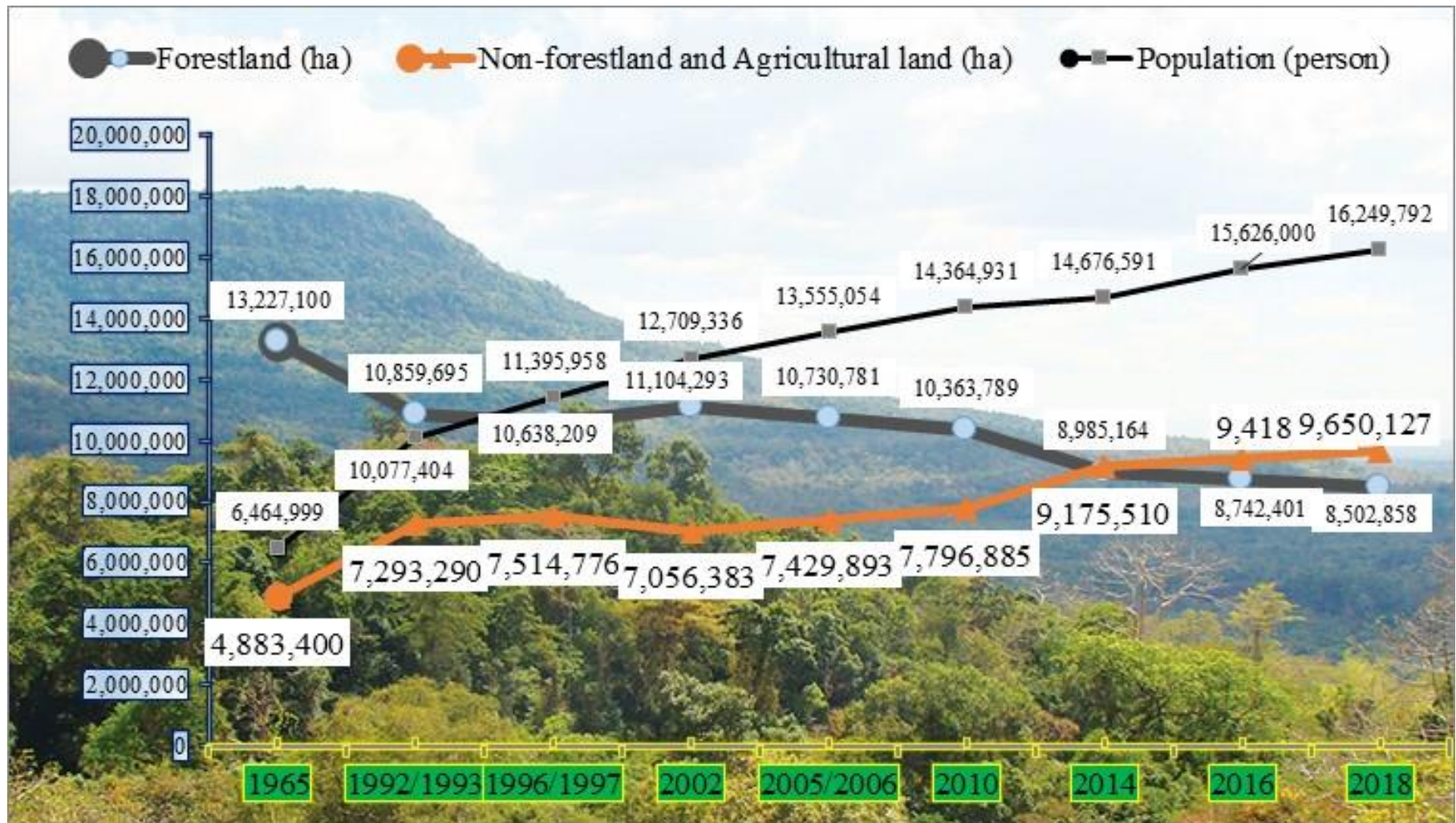
Source: Ben ten Brink "BCI Measuring and Modelling Biodiversity 2006"

Forest Cover Trends

Historical Data of Forestland, Non-forest land and Population of Cambodia



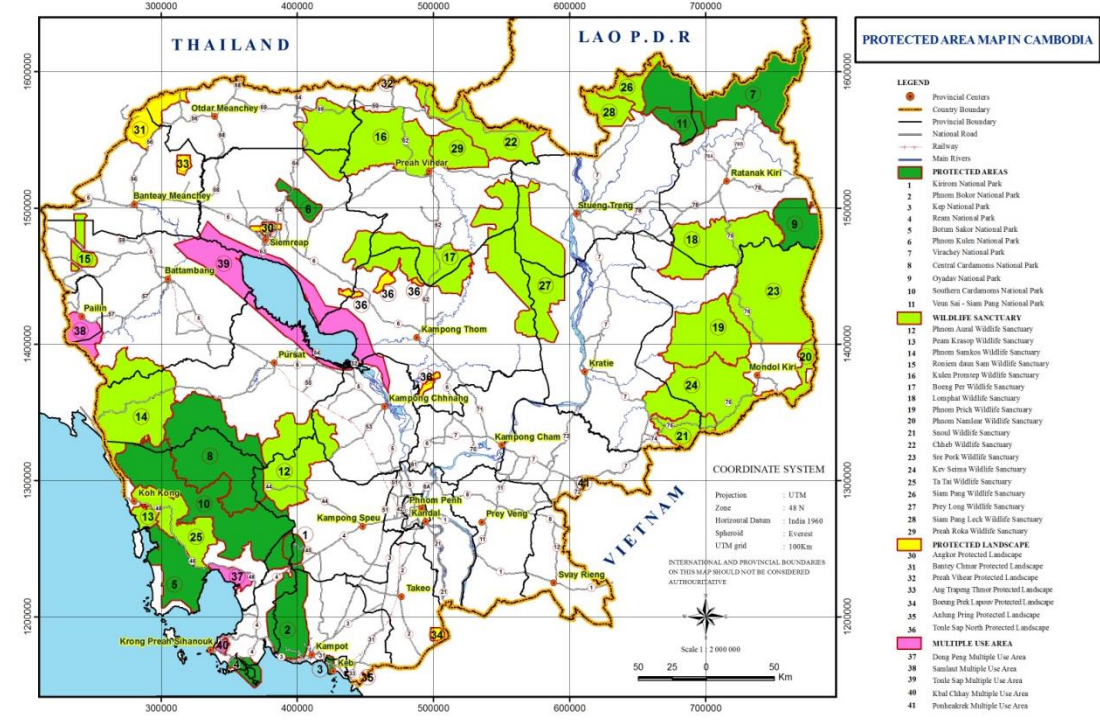
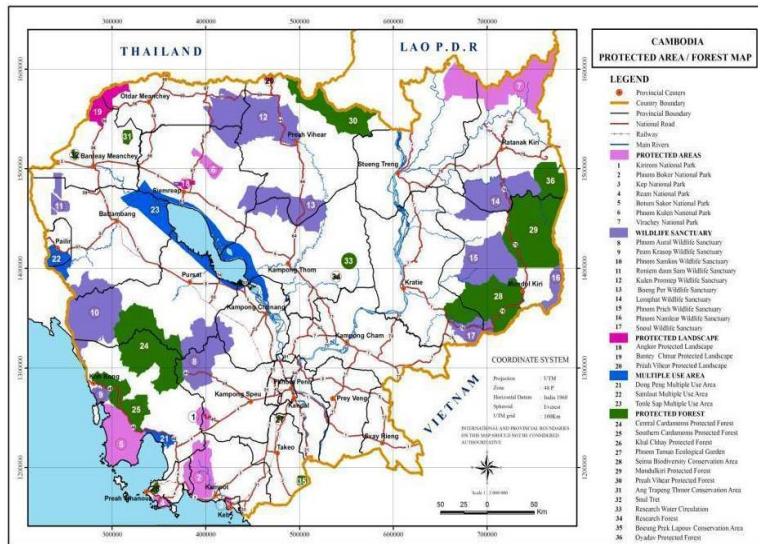
Forest Cover and Population Trends



Forest Biodiversity in Cambodia: Protected Areas

Before May 2016

After May 2016



Cambodia currently has over 5 million ha of Protected Areas, Protected Forests and Biodiversity Conservation Areas and 25,000 ha of inland fish sanctuaries representing about 30% of the country's land surface (Aichi Target 11: 17%).

Outline of Forest in Cambodia

Tonle Sap Lake: (3)

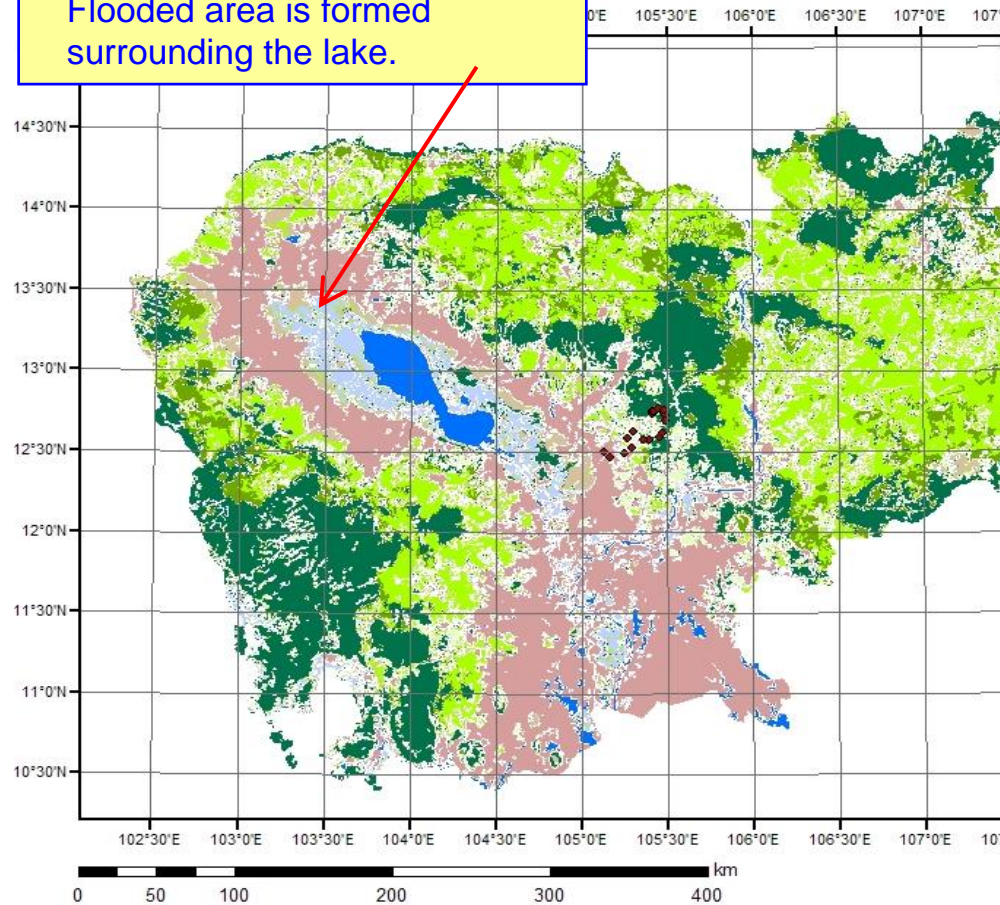
Water level go up and down several meters during one year. Flooded area is formed surrounding the lake.

Land area: 181,035 km² (1)

Forest area: 61.15 % of total land

Areas of each forest types in (%)

Evergreen:	20.49%
Mixed :	8.01%
Deciduous:	26.62%
Flooded forest:	6.03%



Mountainous area is located in the Southwest and the Northeast of Cambodia.

Flat area and gently rolling plain are common in central part of Cambodia. (2)

Policies, Legislation and Land Tenure Arrangements

- The National Forest Policy Statement adopted in June 2002.
- the National Forest Program, issued in 2009, provides the elements of a long-term forest policy for the period 2010-2029.
- Land Law (2001), the Forestry Law (2002), the Law on Protected Areas (2008), Sub-decree on Community Forestry Management (2003) and the Guidelines on Community Forestry and Related Policies (2006).
- the Rectangular Strategy for Growth, Employment, Equity and Efficiency, the Cambodia Sustainable Development Goals Framework 2016-2030, the National Biodiversity Strategy and Action Plan (2016).

Forest Plantation Establishment and Development

- Large-scale investment in forest plantation establishment and development on public forest land has been initially promoted through public-private partnerships.
- Reforestation has been carried out mainly on poor sites. An area of between 300 and 400 ha was planted each year between 1915 and 1972.
- The species planted have included *H. odorata*, *Dipterocarpus* species, *Tectona grandis*, *Pinus merkusii*, and fast-growing fuelwood species such as *Peltophorum ferrugineum* and *Combretum quadrangulare*.

Forest Plantation Establishment and Development

- From 1985 to 2013, there had been 143,586 ha of forest plantations established in Cambodia, comprising 119,170 ha of forest plantations that belong to the ELCs, public-private partnership companies, and small-scale households; 24,107 ha were planted by public institutions such as the FA and the army; and 309 ha by local non-governmental organizations.
- Between 2014 and 2018, forest plantation areas amounted to 338,718 ha, inclusive of 337,046 ha planted by the ELCs, private-public partnerships, and small-scale households, and 1,672 ha by the FA. The dominant timber species planted are *A. mangium*, *A. auriculiformis*, *E. camaldulensis*, a few varieties of *Eucalyptus* hybrid derived from *E. grandis*, and *T. grandis*; with the rest being native species

Forest Plantation Establishment and Development

- MAFF has promulgated the Declaration on the Establishment of Private Forests to promote and incentivize individuals or legal entities to plant trees on their own legally acquired land
- From 2020, MAFF has allowed the FA to establish and develop state forest plantations with fast-growing tree species, such *A. mangium*, *A. auriculiformis*, *E. camaldulensis*, and a few varieties of *Eucalyptus* hybrid derived from *E. grandis*. The aim is to ensure the sustained supply of fuelwood for domestic consumption and to meet the demand for industrial processing.

A relationship between forest types and soil types

(1)



DEF

DEFlog

(2)



DDF

(3)



MF

(4)



SF

(5)



Acrisols

(6)



Arenosols

(7)



Podzols

(8)



Histosols

Relationships between forest types and soil types were recognized:
DEF&DEF-logged-Acrisols, DDF-Arenosols, MF-Podzols, and SF-Histosols.

National Symbols of Biodiversity in Cambodia



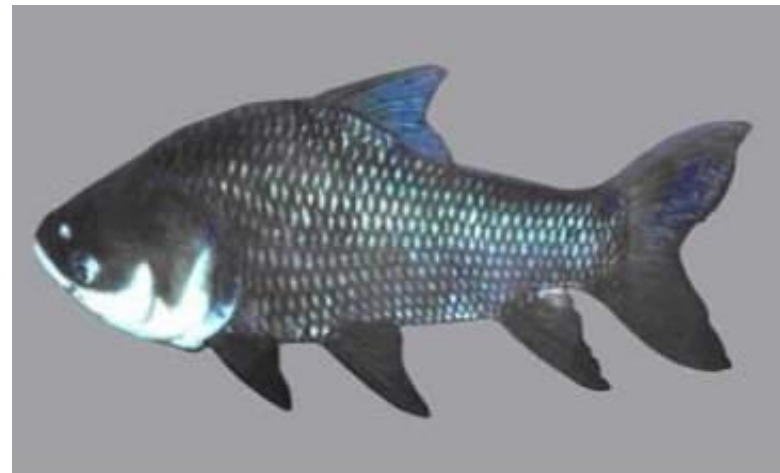
Bos sauveli



Batagu baska



Pseudibis gigantea



Catlocarpio siamesis

National Symbols of Biodiversity in Cambodia



*Burasuss
flabellifer*



Musa aromatica

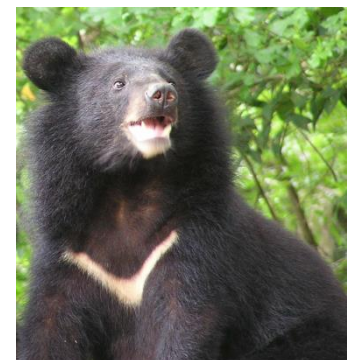


Mitrella mesnyi

Iconic Species

Species which formerly occurred in PVPF apparently no longer do so:

- **Asian Two-horned Rhino** *Dicerorhinus sumatrensis*,
- **Lesser One-horned Rhinoceros** *Rhinoceros sondaicus* (last rhinoceros observed in Cambodia in 1930s),
- **Kouprey** *Bos sauveli* (last confirmed obser. in Preah Vihear in 1964 and
- **Wild Water Buffalo** *Bubalus bubalis* (last confirmed obser. in Preah Vihear in 1964).
- **Indochinese Tiger** *Panthera igris* (last confirmed obser. in Preah Vihear in 2003).
- **Asiatic Black Bear** *Ursus thibetanus*, **Large-antlered Muntjac** *Megamuntiacus*



Biodiversity in Cambodia: Plants and Animal Species

Taxon	Known Species	IUCN Red List
<i>Mammal species</i>	135	45
<i>Bird species</i>	635	40
<i>Reptile species</i>	95	15
<i>Fish species</i>	955	19
<i>Amphibian species</i>	65	12
<i>Vascular plant species</i>	4,500	50
<i>Hard coral</i>	24	
<i>Soft coral</i>	14	
<i>Sea grass</i>	10	



Forests links to the 2030 Agenda Sustainable Development Goals (SDGs)



Forests & forest ecosystems make substantive contributions across nearly every aspect of sustainable development.

Forest Ecosystems provide food, clean water and energy, as well as various other benefits, and are essential for human well-being and it must be recognized that the provision of these goods and services ultimately depends on the ecological processes of well-functioning forest ecosystems.

SUSTAINABLE FOREST MANAGEMENT AND BIODIVERSITY CONSERVATION CONTRIBUTE TO SUSTAINABLE DEVELOPMENT GOALS (SDGs)

Functioning forest ecosystems provide food, clean water and energy, as well as various other goods and services essential for human well-being, and contribute to economic growth, poverty alleviation, climate change mitigation and adaptation. The sustainable utilization of forest resources and the conservation of biodiversity in functioning forest ecosystems requires coherent legislative and policy frameworks across sectors and government ministries, socioeconomic incentives aligned to those frameworks, and broad stakeholder engagement, as well as effective monitoring and enforcement. Forests and forestry make an important contribution across nearly every aspect of sustainable development. Some examples from evidence on the role of forests are as following:

Livelihoods, employment and poverty alleviation: Around the world, forests make a significant contribution to livelihoods and poverty alleviation.

Goal 1: End poverty in all its forms everywhere

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all

Sustainable production: Forests support the sustainable production of agriculture and environmental products.

Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

Goal 12: Ensure sustainable consumption and production patterns

Food security and safety nets: Forests provide food security and safety nets in times of need or crisis.

Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

Goal 3: Ensure healthy lives and promote well-being for all ages

Nutrition and Health: Forest provide a wide range of nutritious foods, protein and medicinal plant.

Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

Goal 3: Ensure healthy lives and promote well-being for all ages

Policy and partnerships: Indicators and data on forests and their surrounding populations could provide much-needed information on poverty alleviation.

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

Terrestrial ecosystems and biodiversity: Forests are essential to maintaining biodiversity and supporting environmental processes.

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Marine resources: Mangrove forests support coastal ecosystems, store 'blue carbon', and prevent sea-level rise.

Goal 14: Conserve and sustainably use the oceans, seas, and marine resources for sustainable development

Sustainable Cities: Forests support more than rural communities - they also sustain livelihoods of people living in and around cities.

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Equality and Inclusiveness: The collective ownership of forests in developing countries is becoming more common, providing access and rights to marginalized communities.

Goal 10: Reduce inequality among countries

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Infrastructure: Forests provide essential products for infrastructure, housing development and sustainable cities.

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation

Economic Growth: Forest products contribute to the economic base of many countries by contributing to economic growth, revenue, trade and investment.

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation

Gender Equality: Access to and control over forest resources is vital to women's empowerment and gender equality.

Goal 5: Achieve gender equality and empower all women and girls

Water: Forests play a key role in the global water cycle and the protection of water resources.

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Energy: Forests provide or support renewable energy sources, including hydropower, wood and charcoal.

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

The Importance of Forest Biodiversity Resources



The physical use of resources:

Hydroenergy, timber, fuelwood, fisheries, wild foods, wildlife handicrafts, housing materials.

The provision of Forest/Ecosystem Services:

Watershed protection, carbon sequestration, landscapes, air and water quality.

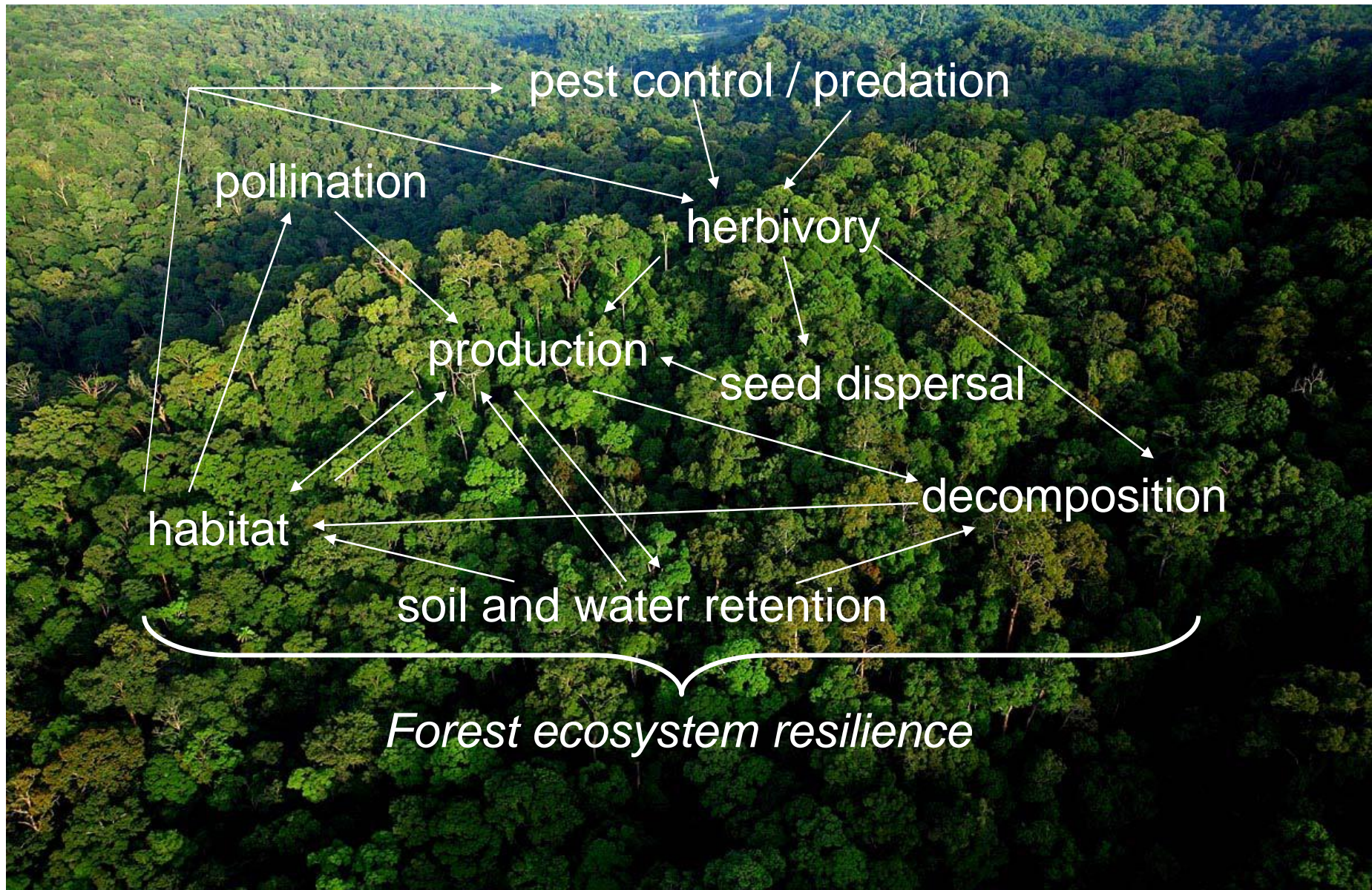
Economic Options:

Industrial, agricultural, pharmaceutical, recreational, nature-based tourism.

Intrinsic worth, regardless of use:

Landscapes, aesthetic, heritage, bequest, cultural.

Connections among forest processes enhance resilience and resistance



Forest Investment Challenges and Opportunities

- Population growth and Decline of Forest and Biodiversity
- Increasing Demand, Regional and international markets, Markets for forest products: (Timber products from natural forests and plantations and non-timber forest products)
- Forest ecosystem services: recreational nature-based tourism, carbon credits (carbon sequestration, carbon stocks), water circulation, hydro-electricity and watershed protection.
- Raw materials supply from Natural forest decreasing
- Prices: (plantation pricing and natural forest pricing)
- Expertise and Vocational Training (forest management and development), Processing operations, Business practices, Labor supply
- Forest related investment policies
- Forestry climate change and innovative financing

Forest Investment Challenges and Opportunities

- Overlapping and unclear ownership of natural forest resources
- Accounting practices & asset valuation
- Encroachment and illegal harvesting
- Natural disasters, pests and diseases and forest fires
- Poor infrastructure
- Demand for expanding agro-industrial land
- Demand for timber forest products domestically and regionally
- Human resources and unskilled labor
- Lack of financial and foreign investment in forest plantations
- Lack of incentives for plantations both for local and foreign investors

Conclusions

- Global forest area continues to decline and existing forests become more fragmented. Intact forest landscapes remain but are only 25% of the total forest estate and have little protection. There are no good estimates of the area of degraded forest, in large part because there is no existing definition
- Forest Ecosystem Services provide food, clean water and energy, as well as various other benefits, and are essential for human well-being. These services depend on the ecological processes of functioning forest ecosystems.
- Forests Resources and Forest Ecosystem Services contribute to economic growth and poverty alleviation. The loss of Forest Resources, therefore, has negative consequences and actions to reduce pressures on forest resources support a broad range of social benefits.
- The Sustainable Utilization of Forest Resources and Biodiversity requires implementation of actions that include appropriate legal and policy frameworks, socioeconomic incentives aligned to those frameworks, policies/legislation across sectors and corresponding government ministries/ agencies, broad stakeholder engagement as well as cross-border and international cooperation, are essential in developing an effective package of action, monitoring and enforcement.
- International Cooperation, Technical and financial support are required to implement effective actions to support the Sustainable Utilization of Forest and Biodiversity Resources, especially with regard to Integrated Forest Ecosystem Restoration programs and the expansion of Agro-Forestry practices among Forest-Dependent Communities.

Thank you for your attention!



Building the Future We Want

BUILDING SELF-SUFFICIENT, SELF-SUSTAINABLE, AND SELF-REPLICATING TEACHER/DEMONSTRATION COMMUNITIES, VILLAGES, AND CITIES WORKING TOGETHER AS A GLOBAL COOPERATIVE FOR THE HIGHEST GOOD OF ALL LIFE ON EARTH.

Collaboration and cooperation for sustainable and productive landscape management and conservation to make world habitats safer for all.

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