

Unit – II

Hotspots of Biodiversity

By:

Dr. Parveen Kumar

Asst. Professor

Contents

- **Introduction**
- **World Map**
- **Indian hotspots**
- **Critiques**
- **Further readings**
- **References**

Introduction

- A **biodiversity hotspot (BH)** is a region with a significant reservoir of **biodiversity** (*Plant and Animal Endemism*) that is **under threat** from humans (*Habitat Loss*).
- The concept was first given by **Norman Myers** in 1988.
- **BH's** are a means to **identify areas** of world where **attention** is required to prevent **biodiversity loss** and to guide investments **in conservation**.
- The current hotspots cover more than **15.7%** of the land surface area, but have lost around **85%** of their habitat.

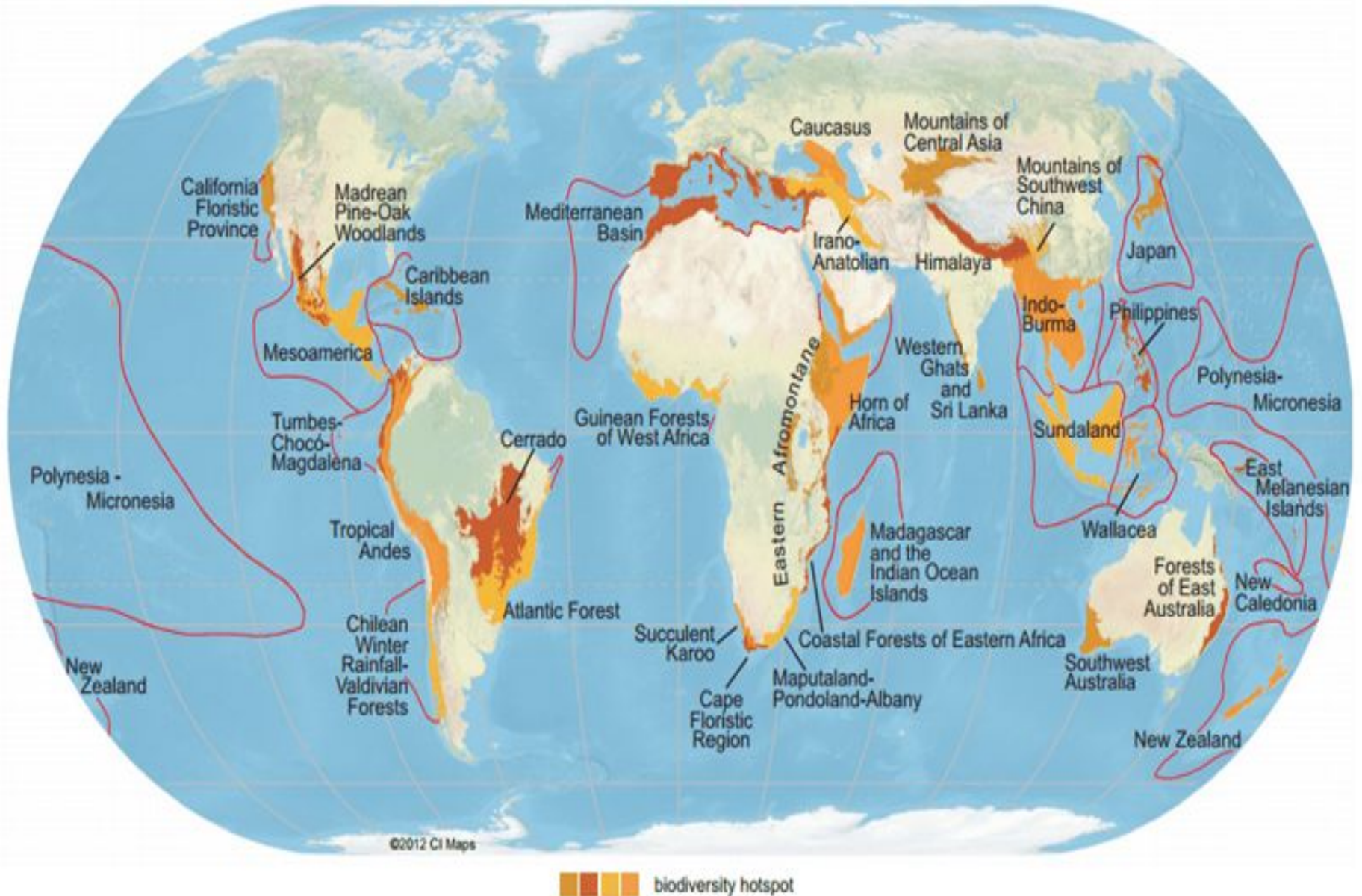
Criteria to Qualify as B. Hotspot

- Area must contain at least **0.5%** or **1,500** species of vascular plants as endemics and
- It has to have lost at least **70%** of its primary vegetation.

Present Status:

- There are **36** biodiversity hotspots as per 2019.
- These sites support nearly **60%** of the world's plant, bird, mammal, reptile, and amphibian species.
- Most of BH are in **Tropical forests**.
- They are also considered highly threatened by **climate change** induced extinctions.

Global Distribution of Hotspots



Biodiversity Hotspots in India

- **The Western Ghats and Sri Lanka**
- **The Eastern Himalayas**
- **Indo-burma**
- **Sundaland and Nicobar Islands of India**

The Western Ghats and Sri Lanka

- It comprise a chain of hills (**Sahyadri hills**) that run along the western edge of peninsular India.
- Their proximity to the ocean and through orographic effect, they receive high rainfall. These regions have moist deciduous forest and rain forest.
- Nearly **77%** of the amphibians and **62%** of the reptile species are endemic.
- Vascular plants - **6000** (>**3000** are endemic).



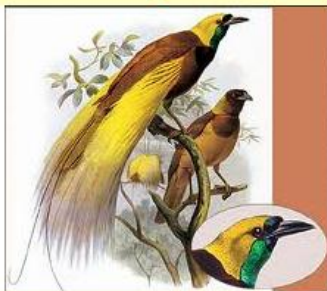


©Thomas Vattakaven



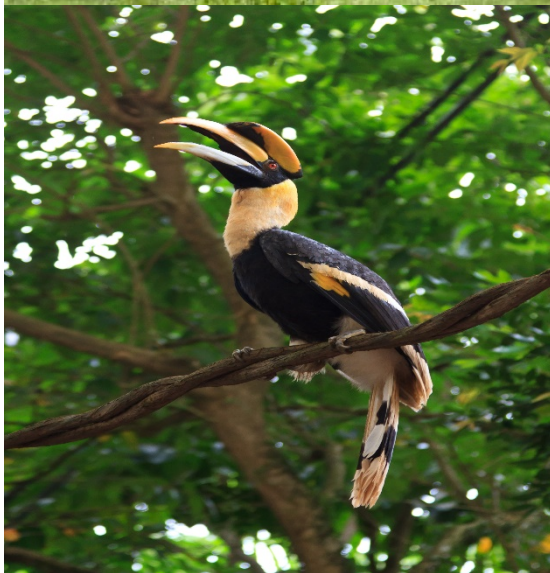
Songbird

Travancore Tortoise



Indian Bison

Lion-Tailed Macaque



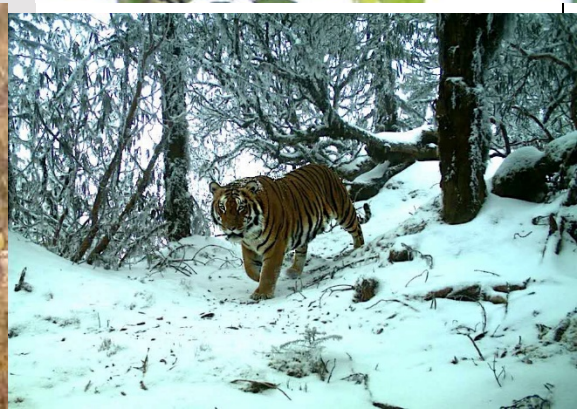
The Eastern Himalayas

- This region comprise **Bhutan**, **NE India**, and **S,C,E Nepal**.
- Origin of **Himalayas** - **Indian tectonic plate** (moving northward - **15cm/year**) collide with **Eurasian continent** about **40-50 million years** ago.
- The **lighter rock** of the sea beds were easily **uplifted** into mountains.
- Plants - **10,000** species (**one-third** are **endemic**).





1. Lammergeier 2. Black Eagle 3. Northern Goshawk 4. Tibetan Partridge



Indo-burma

- It is spread over Eastern Bangladesh to Malaysia and includes NE India south of Brahmaputra river, Myanmar, the southern China's Yunnan province, Lao People's Democratic Republic, Cambodia, Vietnam and Thailand.
- Plant species - 13,500 (half endemic).





Sundaland and Nicobar Islands of India

- It covers the western half of the **Indo-Malayan archipelago**, an arc of some **17,000** equatorial islands.
- It is dominated by two of the largest islands in the world: **Borneo** (725,000 km²) and **Sumatra** (427,300 km²).
- **>1 million years ago**, the islands of **Sundaland** were connected to **Asia**. Sea level change (Pleistocene) caused gradual disappearance of connection.





Critiques of Hotspots

- Do not adequately represent other forms of species richness (e.g. **total species richness** or threatened species richness).
- Do not adequately represent **taxa other than vascular plants** (e.g. vertebrates, or fungi).
- Do not protect **smaller scale richness hotspots**.
- Do not make allowances for **changing land use patterns**. Hotspots represent regions that have experienced considerable habitat loss, but this does not mean they are experiencing ongoing habitat loss.
- On the other hand, regions that are relatively intact (e.g. the Amazon Basin) have experienced relatively little land loss, but are currently losing habitat at tremendous rates.

Further Readings

- Biodiversity hotspot, https://en.wikipedia.org/wiki/Biodiversity_hotspot.
- Biodiversity Hotspots in India, <https://www.holidify.com/pages/biodiversity-hotspots-of-india-291.html>.
- Biodiversity hotspots defined, <https://www.cepf.net/our-work/biodiversity-hotspots/hotspots-defined>.
- **What is a biodiversity hotspot?** <https://www.khanacademy.org/science/high-school-biology/hs-ecology/hs-human-impact-on-ecosystems/v/biodiversity-hotspot>.

References

- <https://www.slideshare.net/mutturaj13/hot-spots-of-biodiversity>.



Thank you for attention!!!

1. Who among the following defined the term biodiversity hot spots?

- a) Aziz Ab'Saber
- b) Norman Myers
- c) Charles Adams
- d) Warder Clyde

2. Which of the following country has the highest biodiversity?

- a) India
- b) Brazil
- c) Russia
- d) South Africa

3. Which one of the following areas in India, is a hotspot of biodiversity?

- a) Sunderbans
- b) Nilgiris
- c) Eastern Ghats
- d) Gangetic plains

4. There arehotspots globally.

- a) 34
- b) 36
- c) 32
- d) 38

5. There is present.....% biodiversity in hotspots.

- a) 50
- b) 80
- c) 60
- d) 40