



# Western Ghats

## Introduction

- The **Western Ghats**, also known as the **Sahyadri Hills**, are well known for their rich and unique assemblage of flora and fauna.
  - The range is called **Sahyadri in northern Maharashtra** and **Sahya Parvatham in Kerala**.
- The northern portion of the narrow coastal plain between the Western Ghats and the Arabian Sea is known as the **Konkan Coast**.
  - The central portion is called **Kanara** and the southern portion is called **Malabar region or the Malabar Coast**.
  - The foothill region east of the Ghats in Maharashtra is known as **Desh**, while the eastern foothills of central Karnataka state is known as **Malanadu**.
  - In the south the range is known as the Nilgiri malai in Tamil Nadu.
- It is recognized as a [UNESCO World Heritage Site](#).
- It is **one of the eight hotspots** of biological diversity in the world due to its high level of biological diversity and endemism.

## Geology of Western Ghats

- There are two views regarding the Geology of the Western Ghats.
  - The mountains of the Western Ghats are **Block Mountains** formed due to the down warping of a part of land into the Arabian Sea.
  - The mountains of the Western Ghats are not true mountains, but are the faulted edge of the Deccan Plateau.
- Major rocks found in the region include Basalt, charnockites, granite gneiss, khondalites, leptynite, metamorphic gneisses with detached occurrences of crystalline limestone, iron ore, dolerites and anorthosites.

## Basic Topography

- **Geographical Extent:**
  - The Western Ghats extend from the **Satpura Range in the north**, go south past **Goa**, through **Karnataka** and into **Kerala** and **Tamil Nadu** end at Kanyakumari embracing Indian ocean.
  - A chain of mountains runs parallel to India's western coast, approximately 30-50 km inland.
  - These mountains cover an area of around 140,000 km<sup>2</sup> in a 1,600 km long stretch.
- **Mountain Ranges:**
  - The [Niligiri ranges](#) southeast of Mysore in Karnataka, meet the **Shevaroy's (Servarayan range)** and **Tirumala range** farther east, linking the Western Ghats to the Eastern Ghats.
  - The peak of **Anamudi in Kerala** is the highest peak in the Western Ghats, as well as the highest peak in India outside the Himalayas

- **Famous hill station:** This range is home to many hill stations like Matheran, Lonavala-Khandala, Mahabaleshwar, Panchgani, Amboli Ghat, Kudremukh and Kodagu.

#### ▪ **Rivers:**

- **West flowing:** The rivers that originate in Western Ghats and flow towards west are Periyar, Bharathappuzha, Netravati, Sharavathi, Mandovi etc.
  - The west flowing rivers of Western Ghats are fast-moving, owing to the short distance travelled and steeper gradient.
  - This makes Western Ghats more useful in terms of production of hydroelectricity. The steep
- **East flowing:** The rivers that originate in Western Ghats and flow towards east include **three major rivers** viz. Godavari, Krishna and Kaveri, and many smaller/tributary rivers such as Tunga, Bhadra, Bhima, Malaprabha, Ghataprabha, Hemavathi, Kabini.
  - These east flowing rivers are comparatively slower moving and eventually merge into larger rivers such as the Kaveri and Krishna.

#### ▪ **Climate and Vegetation:**

- The forests of the site include some of the best representatives of non-equatorial tropical evergreen forests anywhere and are home to at least 325 globally threatened flora, fauna, bird, amphibian, reptile and fish species.
- The high **montane forest ecosystems** influence the **Indian monsoon weather pattern**.
  - The Ghats act as a key barrier, intercepting the rain-laden monsoon winds that sweep in from the **south-west** during late summer.
- The **western slopes** have **tropical and subtropical moist** broadleaf forests marked predominantly by Rosewood, Mahogany, Cedar etc.
  - These slopes appear green in almost all parts of the year.
  - No time is fixed when these trees would shade their leaves.
- The **eastern slopes** of the Western Ghats have dry as well as **moist deciduous forests** marked predominantly by Teak, Sal, Shisham, Sandalwood trees.

#### ▪ **Wildlife:**

- The Nilgiri marten, brown palm civet, stripe-necked mongoose, Indian brown mongoose, small Indian civet and leopard cat are the small carnivores living in the forests of the Western Ghats.
- Many species are endemic, such as the **Nilgiri tahr (Hemitragus hylocrius)** and the **lion-tailed macaque (Macaca silenus)**.
- At least 325 globally threatened (**IUCN Red Data List**) species occur in the Western Ghats.
  - The globally threatened flora and fauna in the Western Ghats are represented by 229 plant species, 31 mammal species, 15 bird species, 43 amphibian species, 5 reptile species and 1 fish species.

#### ▪ **Protected Areas:**

- Western Ghats is home to India's two biosphere reserves, 13 National parks, several wildlife sanctuaries and many Reserve Forests.
- The **Nilgiri Biosphere Reserve** forms the largest contiguous protected area in the Western Ghats.
  - It comprised the evergreen forests of **Nagarahole**, deciduous forests of **Bandipur National Park** and Nugu in Karnataka and adjoining regions of **Wayanad and Mudumalai National Park** in the states of Kerala and Tamil Nadu.
- The **Silent Valley National Park** in Kerala is among the last tracts of virgin tropical evergreen forest in India.

## Significance of Western Ghats

### ▪ Hydrological:

- The Western Ghats feeds a large number of perennial rivers of peninsular India including the three major eastward-flowing rivers Godavari, Krishna, and Kaveri.
- The peninsular Indian states that receive most of their water supply from rivers originating in the Western Ghats.

### ▪ Climate:

- The mountains of the Western Ghats influence the Indian monsoon weather patterns that mediate the warm tropical climate of the region
  - The Ghats act as a key barrier, intercepting the rain-laden monsoon winds that blow from the south-west during late summer.
- The Western Ghats play a significant and important ecological function in sequestration of atmospheric CO<sub>2</sub> and hence have an important role in climate change.
  - It is estimated that they neutralize around 4 million tonnes of carbon every year- around 10% of emissions neutralised by all Indian forests.

### ▪ Biodiversity:

- Western Ghats along with its geographical extension in the wet zone of Sri Lanka are now also considered one of the eight, 'hottest hotspots' of biodiversity
- The Western Ghats contain exceptional levels of plant and animal diversity and endemism.

### ▪ Economic:

- The Western Ghats are rich in iron, manganese and bauxite ores.
- The forests of Western Ghats are an important source of timber and support a large number of forest-based industries such as paper, plywood, poly-fibres and matchwood.
- In parts of their ranges Pepper and cardamom, which are native to the evergreen forests of the Western Ghats have been taken up as plantation crops on a large scale.
  - Other large scale plantations include tea, coffee, oil palm and rubber.

### ▪ Home to Indigenous Tribes:

- The indigenous people of the Western Ghats, including the Particularly Vulnerable Tribal Groups, constitute 44.2% of the tribal population of 6.95% of Karnataka.
- The Western Ghats are also home to a sizable population of communities like Gowlis, Kunbis, Halakki Vakkala, Kare Vakkala, Kunbi, and Kulvadi Marathi.
- The communities have been deriving sustenance from the forest by collecting **non-timber forest produce (NTFP)**.

### ▪ Tourism and Pilgrimage Centre:

- There are a number of tourist centres that have sprung up in the Western Ghats; example: Ooty, Thekkady WS etc.
- There have been important pilgrimage centres in the region- prominent amongst these being Sabarimalai in Kerala, Madeveshwaramalai in Karnataka and Mahabaleshwar in Maharashtra.

## Threats to Western Ghats

- **Mining:** The mining activities have grown rapidly especially in Goa and often in violation of all laws, resulting in serious environmental damage and social disruption.
  - Sand mining has emerged as a major threat in Kerala.
  - Unsustainable mining has increased vulnerability to landslides, damaged water sources and agriculture, thus negatively affected the livelihoods of the people living in those areas
- **Extraction of Forest Produce:** Human communities living within and adjacent to protected

areas in the Western Ghats are often dependent on extraction of NTFPs to meet a diversity of subsistence and commercial needs.

- With rising population and changing consumption patterns, sustainability of NTFP is a critical issue.
- **Livestock Grazing:** Livestock grazing within and bordering protected areas by high densities of livestock (cattle and goats) is a serious problem causing habitat degradation across the Western Ghats.
- **Human-wildlife Conflict:** Given that the Western Ghats exists within an intensely human-dominated landscape, human-wildlife conflicts are a common phenomenon.
- **Hunting:** Illegal local hunting driven by tradition or demand for wild meat is pervasive across the Western Ghats.
  - Hunters employ guns as well as a wide array of traditional methods such as poisoning, snaring and trapping.
  - Wild meat is a nonessential part of the diet of hunters who frequently have access to alternative sources of animal protein.
- **Plantations:** Agroforestry systems in the Western Ghats are today dominated by tea, coffee, rubber and monocultures of various species, including the recently introduced oil palm.
  - Large-scale planting of coffee in the Western Ghats began in 1854 when the British established themselves in Kodagu.
  - Over the years, plantations of cash crops have displaced extensive patches of natural forests throughout the Western Ghats and are frequently associated with encroachment of surrounding forest areas.
- **Encroachment by Human Settlements:** Human settlements where legal and/or traditional rights of land ownership occur both within and outside protected areas all across the Western Ghats and represent a significant landscape level threat.
- **Hydropower Projects:** Large dam projects in Western Ghats have resulted in environmental and social disruption despite cost benefit analyses and environmental impact assessments being done by the government and companies
- **Deforestation:** Conversion of forest land into agricultural land or for commercial purposes like tourism, illegal logging for timber have had significant negative effects on biodiversity.
- **Climate Change:** The changes in land use and deforestation have led to big variations in the duration and intensity of rainfalls.
  - Climate change has been considered as a cause of floods in many regions in the recent past.

## Conservation Efforts for Western Ghats

- **Committees for Western Ghats:**
  - **Gadgil Committee (2011):** Also known as the [Western Ghats Ecology Expert Panel \(WGEEP\)](#), it recommended that **all of the Western Ghats be declared as the Ecological Sensitive Areas (ESA)** with only limited development allowed in graded zones.
  - **Kasturirangan Committee (2013):** It **sought to balance the development and environment protection** in contrast to the system proposed by the Gadgil report.
    - The [Kasturirangan committee](#) recommended that instead of the total area of Western Ghats, **only 37% of the total area should be brought under ESA** and a complete ban on mining, quarrying and sand mining be imposed in ESA.

## Passes in Western Ghats

- **Thal Ghat Pass (Kasara Ghat):** connects Mumbai to Nashik
- **Bhor Ghat Pass:** connects Mumbai to Pune via Khopoli
- **Palakkad Gap (Pal Ghat):** connects: Coimbatore, Tamil Nadu to Palakkad, Kerala

- **Amba Ghat Pass:** connects: Ratnagiri district to Kolhapur.
- **Naneghat Pass:** connects Pune district with Junnar city.
- **Amboli Ghat Pass:** onnects Sawantwadi of Maharashtra to Belgaum of Karnataka.

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