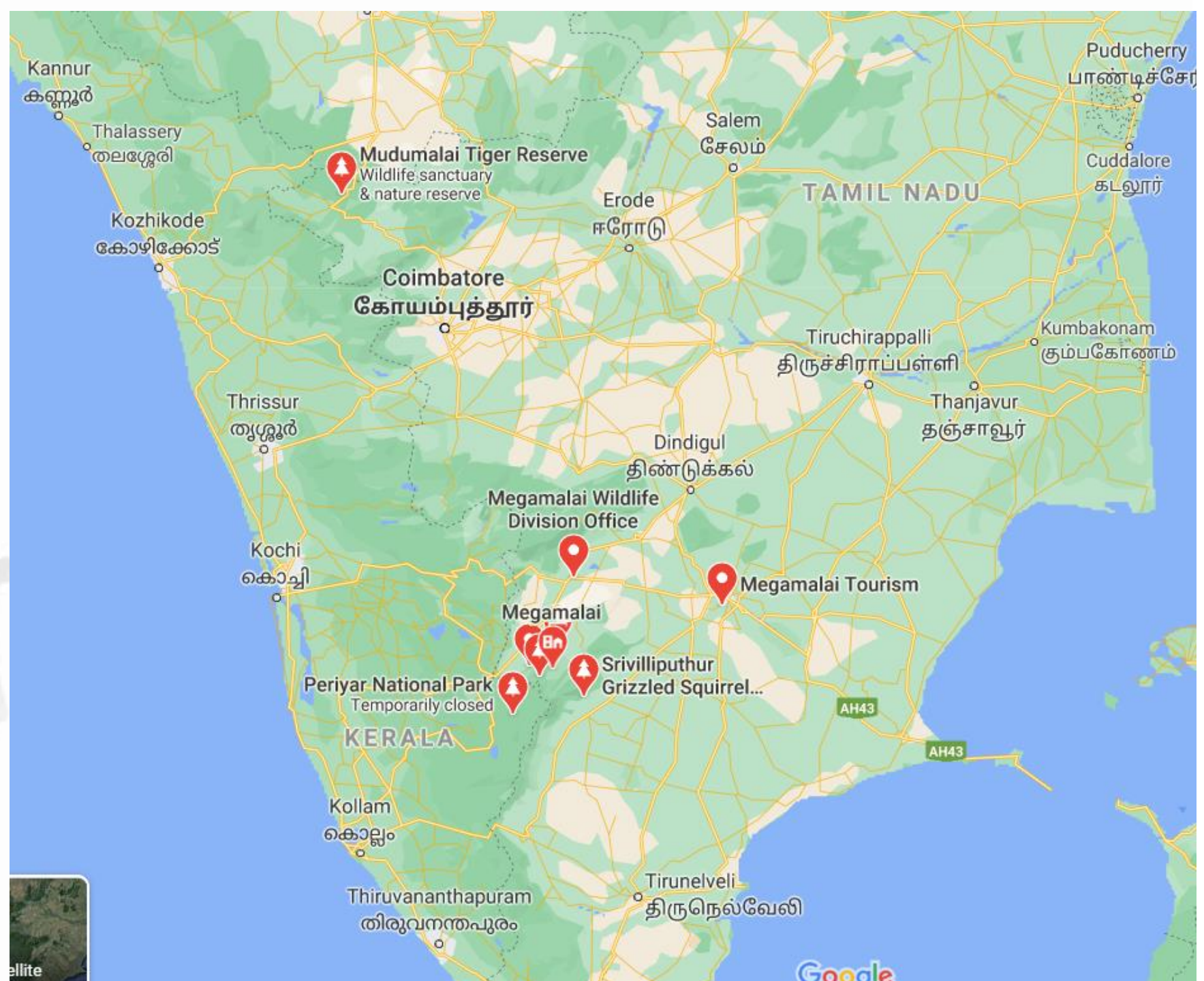


Srivilliputhur–Megamalai Tiger Reserve in TN approved



Meghamalai commonly known as the **High Wavy Mountains**, is a mountain range located in the [Western Ghats](#).

Megamalai Wildlife Sanctuary - TN

The Megamalai Wildlife Sanctuary can be an excellent buffer to the [Periyar Tiger Reserve](#) and [Grizzled Squirrel Wildlife Sanctuary](#) which can immensely strengthen the conservation in the southern Western Ghats – the range of hills south of the [Palakkad Gap](#).

Grizzled Squirrel Wildlife Sanctuary bordered on the southwest by the [Periyar Tiger Reserve](#) and is one of the best preserved forests south of the [Palghat Gap](#).

The sanctuary lies mostly in [Virudhunagar district](#) especially in Srivilliputtur and partly in [Madurai district](#)

Biosphere Reserves

Sudarshan Gurjar

- Biosphere Reserves are large areas of bio diversity where flora and fauna are protected. जैवमंडल रिजर्व क्षेत्र प्राकृतिक एवं सांस्कृतिक भू दृश्य के प्रतिनिधि क्षेत्र हैं जो समुद्री एवं स्थली भाग पर फैले हुए हुए हैं इनके तहत किसी भी परितंत्र व प्राकृतिक आवास के जैविक एवं अजैविक घटकों का प्रबंधन एवं संरक्षण किया जाता है
- These regions of environmental protection roughly correspond to IUCN Category V Protected areas. आईयूसीएन कैटेगरी 5
- The Indian government has established 18 Biosphere Reserves of India, which protect larger areas of natural habitat (than a National Park or Wildlife Sanctuary).
- Biosphere Reserve (BR) is an international designation by UNESCO for representative parts of natural and cultural landscapes extending over large area of terrestrial or coastal/marine ecosystems or a combination thereof

- The Indian government has established 18 biosphere **reserves in India**
- 12 of the eighteen biosphere reserves are a part of the [World Network of Biosphere Reserves](#), based on the [UNESCO](#) [Man and the Biosphere](#) (MAB) Programme list.
- **Man and the Biosphere Programme (MAB)** is an intergovernmental scientific programme.
- launched in 1971 by [UNESCO](#),
- aims to establish a scientific basis for the improvement of relationships between people and their environments.

Man And The Biosphere (MAB) Programme

- Launched in 1971 by UNESCO.
- It provides a platform for cooperation on research and development, capacity-building and networking to share information, knowledge and experience on three interlinked issues:
 - Biodiversity loss,
 - Climate change and
 - Sustainable development.
- For implementation of its interdisciplinary work on the ground, MAB relies on the World Network of Biosphere Reserves (WNBR).

There are currently 714 biosphere reserves in 129 countries, including 21 transboundary sites, that belong to the **World Network of Biosphere Reserves**.

Criteria For Designation Of BRs

- A site that must contain an effectively protected and minimally disturbed core area of value of nature conservation.
एक साइट जिसमें प्रकृति संरक्षण के मूल्य का एक प्रभावी रूप से संरक्षित और न्यूनतम रूप से कोर क्षेत्र होना चाहिए
- The core area should be typical of a bio-geographical unit and large enough to sustain viable populations representing all trophic levels in the ecosystem.
- Areas having rare and endangered species and indigenous varieties of biota.
- Areas having potential for preservation of traditional tribal or rural modes of living for harmonious use of environment.

Functions Of Biosphere Reserves

- Conservation of genetic resources, species, ecosystems and landscapes preserving the traditional lifestyle and resources of the local people.
- Sustainable economic, cultural, social and ecological developments.
- Restoration of any damage caused to ecosystems and habitats.
- Generation of a lot of scientific information for specific scientific studies and research.
- Helps in sharing of knowledge through site specific training and education.
- Development of community spirit in the management of natural resources.

इन के मुख्य उद्देश्य प्रतिनिधित्व करी भू दृश्य एवं उनके अपरिमित जैव विविधता तथा सांस्कृतिक धरोहर को संरक्षित करना आर्थिक एवं मानवीय विकास को पोषित एवं अनुसंधान शिक्षा अनुवीक्षण तथा सूचनाओं के आदान-प्रदान को सहयोग प्रदान करना है

International Union for Conservation of Nature

- IUCN protected area categories:
- This categorisation method is recognised on a global scale by national governments and international bodies such as the [United Nations](#) and the [Convention on Biological Diversity](#)
- **Category Ia – Strict Nature Reserve**
- **Category Ib – Wilderness Area**
- **Category II – National Park**
- **Category III – Natural Monument or Feature**
- **Category IV – Habitat/Species Management Area**
- **Category V – Protected Landscape/Seascape/Area**
- **Category VI – Protected Area with sustainable use of natural resources**

Structure and functions of BR

- **Core Zone** : Core zone must contain suitable habitat for numerous plant and animal species, including higher order predators.
- contain centers of endemism.
- Core areas often conserve the wild relatives of economic species and also represent important genetic reservoirs having exceptional scientific interest.
- The core zone is to be kept free from human pressures

क्षेत्र का सबसे महत्वपूर्ण आंतरिक हिस्सा होता है इसके अंदर स्थानिक एवं जय विविधता की दृष्टि से अत्यंत महत्वपूर्ण पौधों एवं जीव जंतुओं की प्रजातियों के अनुकूल आवास क्षेत्र होते हैं यहां महत्वपूर्ण प्रजातियों एवं उनके अनुवांशिक कोष का संरक्षण किया जाता है किसी भी प्रकार कि मानवीय गतिविधियों की छूट नहीं रहती सिर्फ पर्यावरणीय दशाओं के पर्यवेक्षण और नियमित मॉनिटरिंग का क्षेत्र

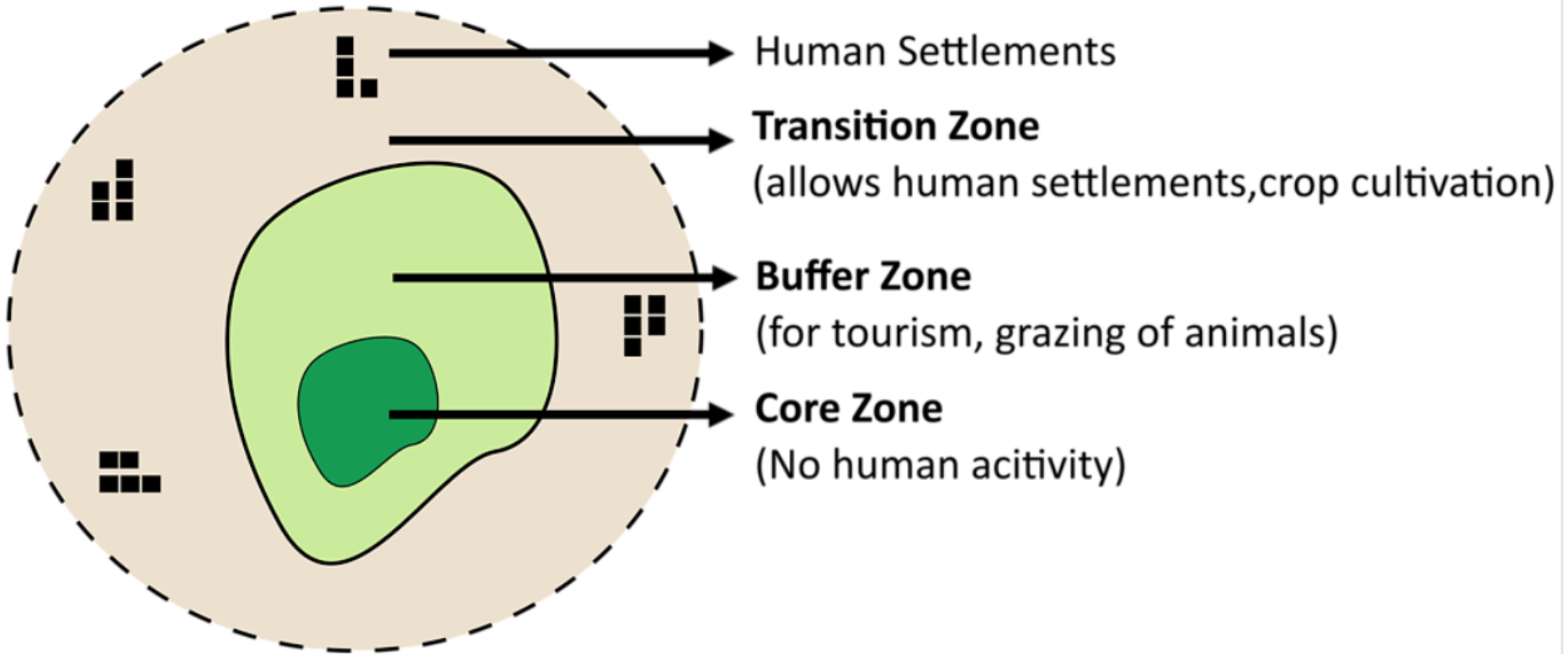
- **Buffer Zone** These uses and activities include restoration, demonstration sites for enhancing value addition to the resources, limited recreation, tourism, fishing, grazing, etc.
- Research and educational activities are to be encouraged. Human activities, if natural within BR, are likely to continue if these do not adversely affect the ecological diversity.
- मध्यवर्ती क्षेत्र में ऐसे कार्यों के लिए इसका उपयोग किया जाता है जो पूर्णता है नियंत्रित एवं विध्वंसक न हो शोध कार्य पर्यावरणीय शिक्षा तथा प्रशिक्षण पर्यटन या प्रबंधन से संबंधित कार्य क्षेत्र में किए जाते हैं

- **Transition Zone** : The transition area is the outermost part of a biosphere reserve.
- This is usually not delimited one and is a zone of cooperation where conservation knowledge and management skills are applied and uses are managed in harmony with the purpose of the biosphere reserve.
- This includes settlements, crop lands, managed forests and area for intensive recreation and other economic uses characteristics of the region.

आवांतर क्षेत्र

इस मंडल की सीमा सुरक्षित नहीं होती है इस मंडल का मुख्य कार्य विकास तथा योजनाओं से संबंधित होता है अर्थात इस क्षेत्र में मनोरंजन के संसाधनों फसल क्षेत्र तथा प्रबंध जंगलों को शामिल किया जाता है

Biosphere Reserve





 HUMAN SETTLEMENT

 RESEARCH

 EDUCATION & TRAINING

 TOURISM

 Core area

 Buffer zones

 Transition area

- The level of restriction in the increasing order is Biosphere Reserves, Wildlife Sanctuaries and National Parks.

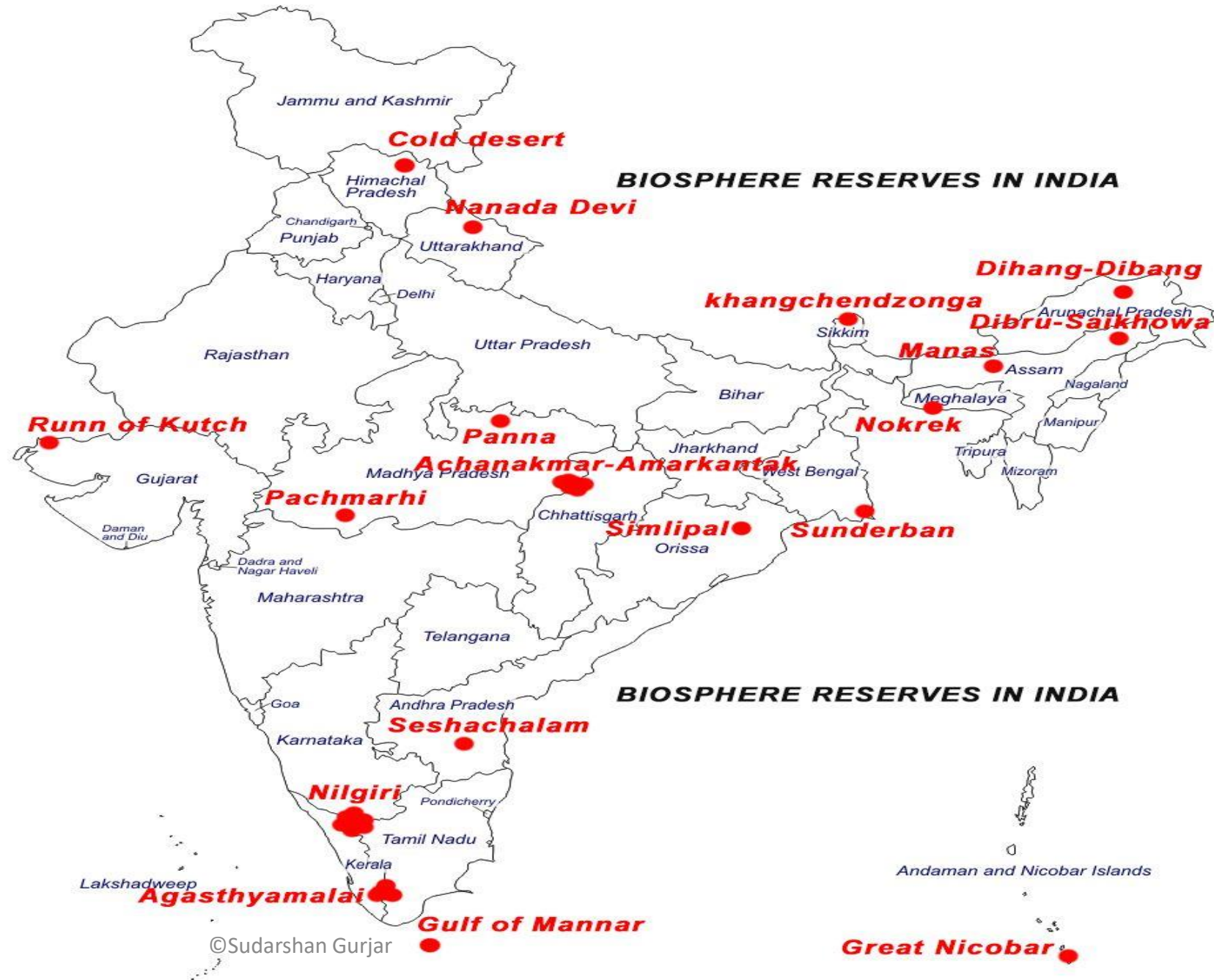
# ◆	Name ◆	States/ UT ◆	Year ◆
1	Nilgiri Biosphere Reserve	Tamil Nadu, Kerala and Karnataka	2000
2	Gulf of Mannar Biosphere Reserve	Tamil Nadu	2001
3	Sundarbans Biosphere Reserve	West Bengal	2001
4	Nanda Devi Biosphere Reserve	Uttarakhand	2004
5	Nokrek Biosphere Reserve	Meghalaya	2009
6	Pachmarhi Biosphere Reserve	Madhya Pradesh	2009
7	Simlipal Biosphere Reserve	Odisha	2009
8	Great Nicobar Biosphere Reserve	Andaman & Nicobar Islands	2013
9	Achanakmar-Amarkantak Biosphere Reserve	Chhattisgarh, Madhya Pradesh	2012 ^[2]
10	Agasthyamalai Biosphere Reserve	Kerala and Tamil Nadu	2016 ^[4]
11	Khangchendzonga National Park	Sikkim	2018 ^[5]
12	Panna	Madhya Pradesh	2020 ^[6]

Criteria for World Network of Biosphere Reserves

- It should encompass a mosaic of ecological systems representative of major bio geographical regions, including a gradation of human interventions
- It should be of significance for biological diversity conservation
- It should provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale
- It should have an appropriate size to fulfill the three functions of biosphere reserves (conservation, development, logistic support)
- It should include these functions through appropriate zonation, recognizing core, buffer, and outer transition zones.

◆	Year ◆	Name ◆	Location ◆	State ◆	Type ◆	Key fauna ◆	Area (km ²) ◆
1	1986	Nilgiri Biosphere Reserve	Part of Waynad, Nagarhole, Bandipur and Mudumalai, Nilambur, Silent Valley	Tamil Nadu, Kerala and Karnataka	Western Ghats	Nilgiri tahr, tiger, lion-tailed macaque	5520
2	1988	Nanda Devi Biosphere Reserve	Parts of Chamoli District, Pithoragarh District & Bageshwar District	Uttarakhand	Western Himalayas	Snow leopard, Himalayan black bear	5860
3	1989	Gulf of Mannar	Indian part of Gulf of Mannar extending from Rameswaram island in the north to Kanyakumari in the south of Tamil Nadu and Sri Lanka	Tamil Nadu	Coasts	Dugong	10500
4	1988	Nokrek	In west Garo Hills	Meghalaya	Eastern hills	Red panda	820.00
5	1989	Sundarbans	Part of delta of Ganges and Brahmaputra river system	West Bengal	Gangetic Delta	Royal Bengal tiger	9630
6	1989	Manas	Part of Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup and Darrang Districts	Assam	Eastern Hills	Asiatic elephant, tiger, Assam roofed turtle, hispid hare, golden langur, pygmy hog	2837
7	1994	Simlipal	Part of Mayurbhanj district	Odisha	Deccan Peninsula	Gaur, royal Bengal tiger, Asian elephant	4374
8	1998	Dihang-Dibang	Part of Siang and Dibang Valley	Arunachal Pradesh	Eastern Himalaya	Mishmi takin, musk deer	5112
9	1999	Pachmarhi Biosphere Reserve	Parts of Betul District, Hoshangabad District and Chhindwara District	Madhya Pradesh	Semi-Arid	Giant squirrel, flying squirrel	4981.72
10	2005	Achanakmar-Amarkantak Biosphere Reserve	Part of Annupur, Dindori and Bilaspur districts	Madhya Pradesh, Chhattisgarh	Maikala Hills	Four-horned antelope, Indian wild dog, sarus crane, white-rumped vulture, sacred grove bush frog	3835

11	2008	Great Rann of Kutch	Part of Kutch, Morbi, Surendranagar and Patan districts; the largest biosphere reserve in India.	Gujarat	Desert	Indian wild ass	12454
12	2009	Cold Desert	Pin Valley National Park and surroundings; Chandratal and Sarchu & Kibber Wildlife Sanctuary	Himachal Pradesh	Western Himalayas	Snow leopard	7770
13	2000	Khangchendzonga	Parts of Kangchenjunga	Sikkim	East Himalayas	Snow leopard, red panda	2620
14	2001	Agasthyamalai Biosphere Reserve	Neyyar, Peppara and Shenduruny Wildlife Sanctuary and their adjoining areas	Kerala, Tamil Nadu	Western Ghats	Nilgiri tahr, Asian elephant	3500.08
15	1989	Great Nicobar	Southernmost of the Andaman and Nicobar Islands	Andaman and Nicobar Islands	Islands	Saltwater crocodile	885
16	1997	Dibru-Saikhowa	Part of Dibrugarh and Tinsukia districts	Assam	Eastern Hills	White-winged wood duck, water buffalo, black-breasted parrotbill, tiger, capped langur	765
17	2010	Seshachalam Hills	Seshachalam Hill Ranges covering parts of Chittoor and Kadapa districts	Andhra Pradesh	Eastern Ghats	Slender loris	4755
18	2011	Panna	Part of Panna District and Chhatarpur District	Madhya Pradesh	Catchment Area of the Ken River	Tiger, chital, chinkara, sambhar and sloth bear	2998.98



Nilgiri Biosphere Reserve

- The **Nilgiri Biosphere Reserve** is an [International Biosphere Reserve](#) in the Western Ghats and [Nilgiri Hills](#) ranges of [South India](#).
- [Mudumalai](#), [Mukurthi](#), [Nagarhole](#), [Bandipur](#) and [Silent Valley](#) national parks the Wayanad, [Karimpuzha](#), Aralam (Kerala) wildlife sanctuaries, [Sathyamangalam](#)
- It includes the Bengal tiger, Indian leopard, Black panther, Gaur, Indian elephant, Mongoose, Malabar giant squirrel, Lion-tailed macaque, nilgiri langur, Gray langur and Nilgiri tahr.
- It has largest population of two endangered species- lion-tailed macaque and [nilgiri tahr](#).
- About 80% of flowering plants reported from [Western Ghats](#) occur in Nilgiri Biosphere Reserve.

Nanda Devi National Park

- [Nanda Devi and Valley of Flowers National Parks](#)

Gulf of Mannar

- in the [Coromandel Coast](#) region.
- The chain of low islands and reefs known as Ramsethu, also called [Adam's Bridge](#), which includes [Mannar Island](#), separates the Gulf of Mannar from [Palk Bay](#), which lies to the north between Sri Lanka and India.
- The [Malvathu Oya](#) (Malvathu River) of Sri Lanka and the estuaries of [Thamirabarani River](#) and [Vaipar River](#) of [South India](#) drain into the Gulf.
- The [dugong](#) (sea cow) is found here.

Pachmarhi Biosphere Reserve

- [Bori Sanctuary](#) (518.00 km²)
- [Pachmarhi Sanctuary](#) (461.37 km²).
- [Satpura National Park](#) (524.37 km²)
- The highest peak is the Dhoopgarh.

Achanakmar-Amarkantak Biosphere Reserve

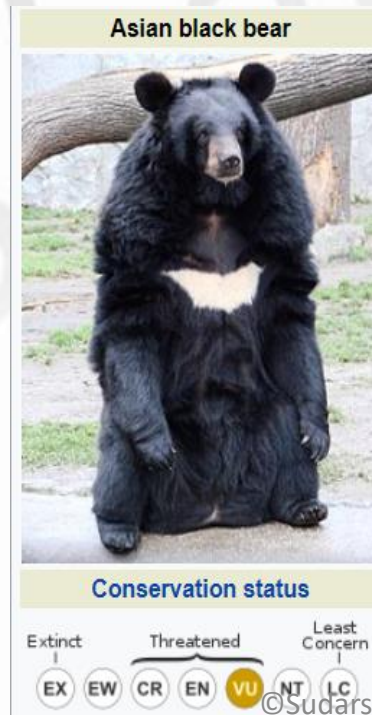
- The reserve is also the source of three major river systems: the [Narmada](#), the [Johilla](#) and the [Son River](#)

Cold Desert (biosphere reserve)

- It includes:
- [Pin Valley National Park](#)
- [Chandratal](#)
- [Sarchu](#)
- Kibber Wildlife Sanctuary.

Dihang-Dibang Biosphere Reserve

- Rare mammals such as [Mishmi takin](#), [red goral](#), [red panda](#), [Asiatic black bear](#).
- The [Mouling National Park](#) and the [Dibang Wildlife Sanctuary](#)



Simlipal National Park

- part of the Mayurbhanj Elephant Reserve
- includes three protected areas — Similipal Tiger Reserve, [Hadgarh Wildlife Sanctuary](#)
- [Kuldiha Wildlife Sanctuary](#)
- Barehipani Falls

Agasthyamala Biosphere Reserve

- border of [Pathanamthitta](#), [Kollam](#) and [Thiruvananthapuram](#) Districts in [Kerala](#) and [Tirunelveli](#) and [Kanyakumari](#) Districts in [Tamil Nadu](#),
- Inclusion of adjoining areas of [Kalakkad Mundanthurai Tiger Reserve](#).
- Neyyar, Peppara and Shendurney Wildlife Sanctuaries (kerala)

Kanikkarans are the Original tribal Settlers in Agasthyamalai Biosphere Reserve

Dibru-Saikhowa National Park

Originally created to help conserve the habitat of the rare [white-winged wood duck](#)

White-winged duck



At Sylvan Heights Waterfowl Park,
North Carolina, United States

Conservation status



Biodiversity Hotspots

- A biodiversity hotspot is a biogeographic region which has high biodiversity but that is under threat from destruction mainly due to human activities.

ऐसे स्थान जहां पर जातियों की पर्याप्तता तथा स्थानीय जातियों की अधिकता पाई जाती है लेकिन साथ ही इन जीव जातियों के अस्तित्व पर निरंतर संकट बना हुआ है ऐसे स्थलों को संवेदनशील क्षेत्र हॉटस्पॉट कहते हैं

Conservation International was founded in 1987

CI formally committed to the protection of [biodiversity hotspots](#), ultimately identifying 36 such hotspots around the world and contributing to their protection. The model of protecting hotspots became a key way for organizations to do conservation work

- The concept of biodiversity hotspot was **given by Norman Myers** in 1988 in his two articles in “The Environmentalist”.
- Myers listed two criteria for a region to qualify as a biodiversity hotspot:
 - a. It must have **at least 1,500 vascular plants as endemics** **वहां कम से कम 1500 संवहनीय पौध**— which is to say, it must have a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is irreplaceable.
 - b. It must have **30% or less of its original natural vegetation**. In other words, it must be threatened. **तथा 70% प्राथमिक वनस्पतियां नष्ट हो**

- Myers originally recognised 25 hotspots but now 36 sites around the world follow his criteria.
- **Conservation International** has concluded importance of biodiversity hotspot as- **“Around the world, 36 areas qualify as hotspots. They represent just 2.4% of Earth’s land surface, but they support more than half of the world’s plant species as endemics — i.e., species found no place else — and nearly 43% of bird, mammal, reptile and amphibian species as endemics.”**

Hottest hotspots:

- Hottest hotspots are the areas which have much more endemism and richness in biodiversity than other hotspots.
- There are **five factors** considered for designating a hotspot as hottest hotspot:
 1. Endemic plants,
 2. Endemic vertebrates,
 3. Endemic plants/area ratio
 4. Endemic vertebrates/area ratio and
 5. Remaining primary vegetation as % of original extent.

Eight hottest hotspots:

1. Madagascar
2. Philippines
3. Sundaland
4. Brazil's Atlantic Forest
5. Caribbean
6. Indo-Burma
7. Western Ghats and Sri Lanka
8. Eastern Arc and Coastal Forests of Tanzania/Kenya

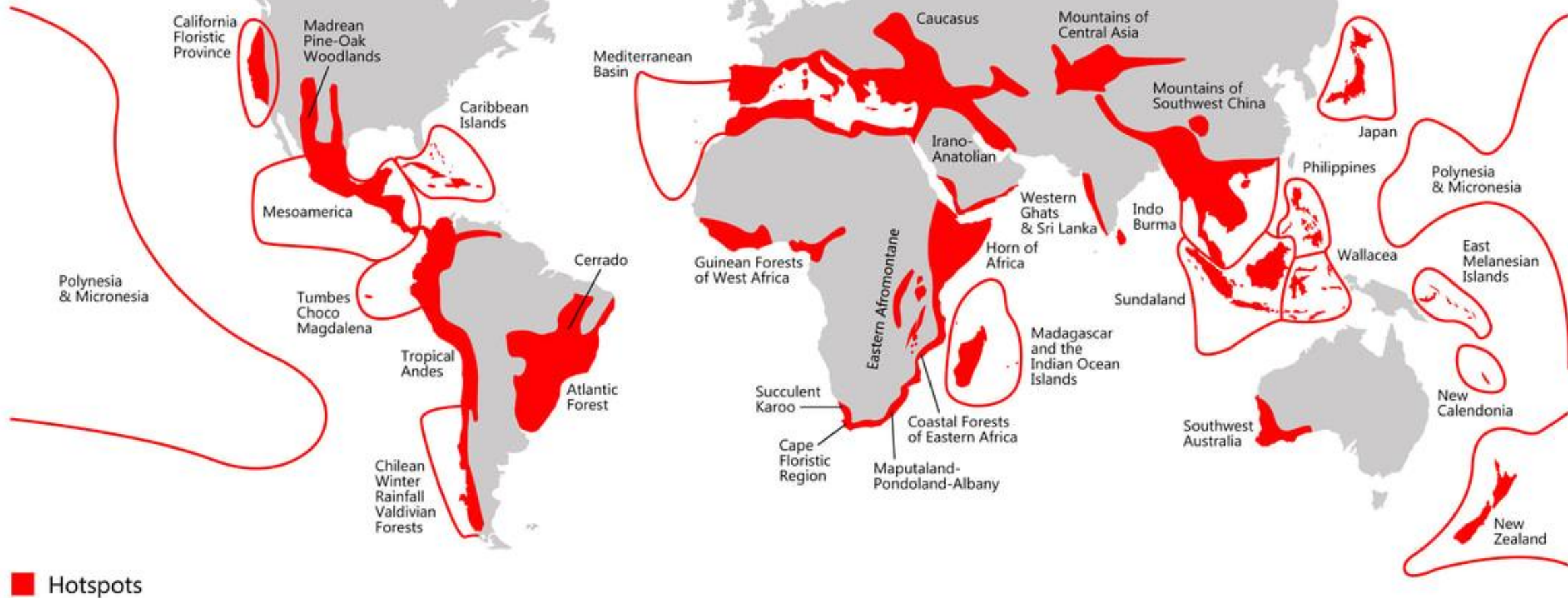
Biodiversity Hotspots In India

1.Himalaya: Includes the entire Indian Himalayan region (and that falling in Pakistan, Tibet, Nepal, Bhutan, China and Myanmar)

2.Indo-Burma: Includes entire North-eastern India, except Assam and Andaman group of Islands (and Myanmar, Thailand, Vietnam, Laos, Cambodia and southern China)

3.Sundalands: Includes Nicobar group of Islands (and Indonesia, Malaysia, Singapore, Brunei, Philippines)

4.Western Ghats and Sri Lanka: Includes entire Western Ghats (and Sri Lanka)



Biodiversity Hot spots of India

300 km
200 mi

