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India’s Biodiversity Hotspots and Megadiverse Status

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India’s Biodiversity Hotspots and Megadiverse Status

India has only a small slice of the world’s land. Yet it is one of the richest countries for life on Earth. Two lists measure this, and students often mix them up. One list names **17 megadiverse countries**. The other names **36 biodiversity hotspots**. This lesson explains both, and shows where India fits in each.

India’s biodiversity, at a glance

Four numbers that clear up most exam questions

01
17 megadiverse countries

India is one of them.

02
36 hotspots

Rich regions that are also badly damaged.

03
4 touch India

Himalaya, Indo-Burma, Western Ghats, Sundaland.

04
About 2.4%

India’s share of the world’s land.

EndemicFound in one place and nowhere else on Earth.

Vascular plantA plant with tubes that carry water, like ferns, trees and flowering plants.
Primary vegetation The natural plant cover a place had before people cleared it.
MegadiverseA country that holds a very large share of the world's species.

What makes a hotspot?

Must Know
A **biodiversity hotspot** is a region that is **very rich** in life and also **under heavy threat**. Both things must be true at once. The world has **36 hotspots** (Conservation International).

The two tests

- **Rich:** the region must have at least **1,500 endemic vascular plants**. These plants grow there and nowhere else.
- **Threatened:** it must have lost at least **70%** of its primary vegetation.
- A region that passes only one test is **not** a hotspot.

Think of it like a hospital's emergency ward. The ward is not for every patient. It is for patients who are both valuable and in danger right now. Hotspots tell conservation groups where to spend scarce money first.

How small are they?

- All 36 hotspots together cover only about **2.5%** of Earth's land (Conservation International).
- Around **2 billion people** live inside them.
- Some hotspots have lost as much as **95%** of their natural plant cover.

Where did the idea come from?

The idea came from a British ecologist, **Norman Myers**. In **1988**, he named **10** tropical forest hotspots (Wikipedia). A year later, in **1989**, **Conservation International** (CI) took up the idea as its plan of work. The list then grew step by step.

1988

10 hotspots

Norman Myers’ first list

→
2000

25 hotspots

Firm tests: 1,500 plants, 70% loss

→
2005

34 hotspots

Work of about 400 experts

→
2011

35th

Forests of East Australia

→
2016

36th

North American Coastal Plain

How the hotspot list grew from 10 to 36.

Quick check 1. Q1. True or False: A region full of endemic plants becomes a hotspot even if it has lost almost none of its forest. *(True or False?)* See answer ↓

What does megadiverse mean?

Must Know

A **megadiverse country** is one of a small group of countries that hold most of the world's species. There are **17 megadiverse countries**. **India is one of them** (UNEP-WCMC).

The two tests

- The country must have at least **5,000 endemic plants**.
- It must also **border the sea**, so it has marine ecosystems too.
- The list of 17 was drawn up by **Conservation International**, the same group behind hotspots.

Who is on the list?

- **Asia:** India, China, Indonesia, Malaysia, the Philippines.
- **The Americas:** Brazil, Colombia, Ecuador, Peru, Venezuela, Mexico, the United States.
- **Africa:** the Democratic Republic of the Congo, Madagascar, South Africa.
- **Oceania:** Australia, Papua New Guinea.

Together these 17 hold at least **two-thirds** of the world's non-fish vertebrates (Wikipedia). Vertebrates are animals with a backbone, such as birds, frogs and mammals.

Why is India on it?

India has only about **2.4%** of the world's land (PLoS ONE). But it packs in snow peaks, deserts, rainforests, mangroves and coral reefs. Each of these holds its own set of plants and animals. So a small area ends up with a huge range of life.

> **Quick check 2.** Q2. True or False: India is one of the 17 megadiverse countries of the world. *(True or False?)* See answer ↓

How do the lists differ?

Must Know

Here is the key point. **Megadiverse** describes a **whole country**. A **hotspot** describes a **region**, and a region often crosses borders. So you can never say "India has four megadiverse areas". India is one megadiverse country that holds parts of four hotspots.

Point	Megadiverse country	Biodiversity hotspot
What it names	A whole country	A region, often across borders
How many	17	36
Plant test	5,000+ endemic plants	1,500+ endemic plants
Other test	Must border the sea	Must have lost 70% of its vegetation
Measures threat?	No	Yes
India	One of the 17	Holds parts of 4

Think it through, before reading on. A country could be megadiverse and still have no hotspot at all. How?

Show the explanation

Megadiverse only asks how much life a country has. It does not ask whether that life is being lost. A hotspot needs both richness and heavy damage. So a rich country whose forests are still mostly intact would pass the megadiverse test. But none of its regions would pass the 70% loss test.

Why are NCERT's numbers older?

Exam Trap

Open the NCERT Class 12 Biology chapter on biodiversity. You will find older numbers (NCERT). Each one was right when it was first written. The world's lists have since grown.

Fact	NCERT says	Current figure
Megadiverse countries	12	17
Hotspots in the world	34	36
Hotspots covering India	3	4
Land covered by all hotspots	Less than 2%	About 2.5%

- The **34** count comes from the **2005** update. Two more hotspots were added in 2011 and 2016.
- The **12** comes from an older list. Even a 2014 research paper still used it (PLoS ONE).
- NCERT names **three** Indian hotspots: the Western Ghats and Sri Lanka, Indo-Burma, and the Himalaya.
- The fourth, **Sundaland**, reaches India only through the tiny **Nicobar Islands**. That is why many books leave it out.
- NCERT also says India holds **8.1%** of the world's recorded species.

Exam tip: read the question's wording. "As per NCERT" points to 12, 34 and 3. "At present" or "36 hotspots" in the question points to 17, 36 and 4.

> **Quick check 3.** Q3. True or False: NCERT's figure of 34 hotspots is still the current world count. *(True or False?)* See answer ↓

India’s four hotspots

01
Himalaya

Mountains of the north and north-east.

02
Indo-Burma

North-east south of the Brahmaputra, plus the Andamans.

03
Western Ghats and Sri Lanka

The hill chain along the west coast.

04
Sundaland

Only the Nicobar Islands fall in India.

The four hotspots that touch India. No borders are drawn here; each card names the Indian part.

Why is the Himalaya special?

Good to Know

The Himalaya is the **youngest and highest** mountain chain on Earth. As you climb, you pass from warm valley forests to cold alpine meadows. Each band of height holds its own plants and animals.



The red panda lives in the forests of the eastern Himalaya. Photo: Mathias Appel, Wikimedia Commons, CC0.

- The hotspot covers northern **Pakistan**, **Nepal**, **Bhutan**, north-west and north-east **India**, and parts of south-west **China**.
- Its animals include the **tiger**, the **Asian elephant**, the **red panda** and the rare **white-winged duck**.

One hotspot became two

The Himalaya was once counted as part of a larger **Indo-Burma** hotspot. A fresh review in **2004** split them into two separate hotspots (Wikipedia). That is why the world count rose, and why North-east India now sits in both.

> **Quick check 4.** Q4. True or False: The Himalaya was once counted as part of the Indo-Burma hotspot. *(True or False?)* See answer ↓

Where does Indo-Burma touch India?

Good to Know

The **Indo-Burma** hotspot is mostly in South-East Asia. Its main countries are **Myanmar, Thailand, Laos, Cambodia and Vietnam**, plus parts of southern China (Wikipedia). India holds its western edge.

- In India, it covers the **North-east south of the Brahmaputra**. Think of the hills of Mizoram, Manipur and Nagaland.
- It also covers the **Andaman Islands** (ANET).
- More than **300 million people** live in Indo-Burma. No other hotspot has more people.
- Six large mammal species have been discovered here since **1992**.

So North-east India sits in **two** hotspots. Its high mountains belong to the Himalaya. Its southern hills belong to Indo-Burma.

Why do the Ghats matter?

Must Know

The Western Ghats are a chain of hills about **1,600 km** long. They run along India’s west coast. Together with Sri Lanka, they form one hotspot.



Shola forest and grassland in the southern Western Ghats. Photo: Anand2202, Wikimedia Commons, CC BY-SA 4.0.

- They cover **less than 6%** of India’s land.
- But they hold **more than 30%** of India’s species of plants, fish, reptiles, amphibians, birds and mammals.
- Many animals live only here, like the lion-tailed macaque.
- In **2012**, UNESCO listed **39 sites** in seven groups of the Western Ghats as a **World Heritage Site** (Wikipedia).

Why so rich? The hills catch heavy monsoon rain from the Arabian Sea. They are also old and cut off from other wet forests. Over a long time, cut-off groups of plants and animals slowly became new species.

Quick check 5. Q5. True or False: The Western Ghats cover under 6% of India's land but hold over 30% of its species. *(True or False?)* See answer ↓

Where do the Nicobars belong?

Exam Trap
Sundaland is a hotspot in South-East Asia. It includes **Borneo, Sumatra, Java, Bali** and the **Malay Peninsula** (Wikipedia). India's only part of it is the **Nicobar Islands**.

- Sundaland has about **25,000** kinds of vascular plants. About **60%** of them are endemic.
- It has about **380** mammal species, including three kinds of **orangutan**: Bornean, Sumatran and Tapanuli (described in 2017).

Andamans and Nicobars are split

The Andaman and Nicobar Islands are one Union Territory. But they sit in two different hotspots (ANET).

- The **Andaman Islands** lie in the **Indo-Burma** hotspot.
- The **Nicobar Islands** form the north-western tip of **Sundaland**.

Quick check 6. Q6. True or False: The Andaman Islands and the Nicobar Islands lie in the same biodiversity hotspot. *(True or False?)* See answer ↓

Remember this: 17 megadiverse countries, and India is one. 36 hotspots, and India holds parts of four. A hotspot needs 1,500 endemic plants and 70% habitat lost. A megadiverse country needs 5,000

endemic plants and a sea coast. Norman Myers gave the hotspot idea in 1988. Andamans are in Indo-Burma; Nicobars are in Sundaland. NCERT's older figures are 12, 34 and 3.

Exam Angle

How have exams tested this?

Quick Q&A

How many megadiverse countries are there?

17. India is one of them.

How many hotspots does the world have?

36. India holds parts of four.

Who first gave the hotspot idea, and when?

Norman Myers, in 1988.

Which hotspot has the most people living in it?

Indo-Burma, with more than 300 million.

Which hotspot holds the Nicobar Islands?

Sundaland.

Related Topics

Pollution, Ecosystems and Biodiversity

The Western Ghats (Sahyadri)

Gadgil vs Kasturirangan Reports on the Western Ghats

The Himalayan Mountain Range

Forest Ecology of the Andaman and Nicobar Islands

IUCN (International Union for Conservation of Nature)

National Biodiversity Authority

All Environment Articles

MCQ on Biodiversity Hotspots

5 verified questions from this lesson.

More questions on hotspots and how they are picked:

More Environment Practice

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1. India holds parts of how many of the world's 36 recognised biodiversity hotspots?

A. Three

B. Four

C. Five

D. Two

See answer ↓

2. Consider the following statements:

1. To be a biodiversity hotspot, a region must have at least 1,500 endemic vascular plant species.

2. To be a megadiverse country, a country must have at least 5,000 endemic plant species.

3. To be a megadiverse country, a country must have lost at least 70% of its primary vegetation.

Which of the statements given above is/are correct?

A. 1 only

B. 1 and 2 only

C. 2 and 3 only

D. 1, 2 and 3

See answer ↓

3. Which one of the following is NOT a biodiversity hotspot that covers any part of India?

A. Himalaya

B. Eastern Ghats

C. Western Ghats and Sri Lanka

D. Sundaland

See answer ↓

4. Assertion (A): The Andaman and Nicobar Islands, though one Union Territory, fall in two different biodiversity hotspots. Reason (R): The Andaman Islands lie in the Indo-Burma hotspot, while the Nicobar Islands lie in the Sundaland hotspot.

A. Both A and R are true, and R is the correct explanation of A

B. Both A and R are true, but R is not the correct explanation of A

C. A is true, but R is false

D. A is false, but R is true

See answer ↓

5. Arrange the following events about biodiversity hotspots in chronological order:1. Norman Myers names 10 tropical forest hotspots.2. The North American Coastal Plain becomes the 36th hotspot.3. Conservation International adopts the hotspot idea.4. The Forests of East Australia become the 35th hotspot. Select the correct answer using the code given below.

A. 1-3-2-4

B. 3-1-4-2

C. 1-3-4-2

D. 1-4-3-2

See answer ↓

6. India is home to how many of the world's 36 recognised biodiversity hotspots?

A. 6

B. 4

C. 2

D. 3

See answer ↓

7. A recognised 'biodiversity hotspot', a globally significant conservation designation, must meet which key criterion?

A. Being located exclusively within tropical rainforest regions

B. Containing no human population whatsoever

C. Covering at least one million square kilometres of land

D. Containing at least 1,500 endemic vascular plant species

See answer ↓

8. The concept of 'biodiversity hotspots' is credited to which of the following?

A. Norman Myers, working with Conservation International

B. The Ramsar Convention

C. The IUCN Red List

D. BirdLife International

See answer ↓

9. With reference to an organization known as 'BirdLife International', which of the following statements is/are correct?
1. It is a Global Partnership of Conservation Organizations.
2. The concept of 'biodiversity hotspots' originated from this organization.
3. It identifies the sites known/referred to as 'Important Bird and Biodiversity Areas'.

A. 1, 2 and 3

B. 2 and 3 only

C. 1 only

D. 1 and 3 only

See answer ↓

Answer Key

1. **B.** India holds parts of four hotspots: the Himalaya, Indo-Burma, the Western Ghats and Sri Lanka, and Sundaland. Three is NCERT's older count, which leaves out Sundaland. Sundaland reaches India only through the Nicobar Islands. ↑ Q1
2. **B.** Statements 1 and 2 are correct. A hotspot needs 1,500 endemic vascular plants, and a megadiverse country needs 5,000 endemic plants. Statement 3 is wrong. The 70% habitat-loss test belongs to hotspots, not to megadiverse countries. A megadiverse country must instead border the sea. ↑ Q2
3. **B.** The Eastern Ghats are not a biodiversity hotspot. India's four hotspots are the Himalaya, Indo-Burma, the Western Ghats and Sri Lanka, and Sundaland. Sundaland covers India's Nicobar Islands. ↑ Q3
4. **A.** Both statements are true, and R explains A. The Andaman Islands are part of the Indo-Burma hotspot. The Nicobar Islands form the north-western tip of Sundaland. That is exactly why one Union Territory sits in two hotspots. ↑ Q4
5. **C.** The order is 1-3-4-2. Norman Myers named 10 hotspots in 1988. Conservation International adopted the idea in 1989. The Forests of East Australia became the 35th hotspot in 2011. The North American Coastal Plain became the 36th in 2016. ↑ Q5
6. **B.** India has 4 of the world's 36 biodiversity hotspots: the Himalaya, Indo-Burma, the Western Ghats, and Sundaland (including the Nicobar Islands). ↑ Q6
7. **D.** This 1,500-endemic-species threshold was established by conservation scientist Norman Myers, to help identify regions of exceptional, irreplaceable biodiversity. A qualifying hotspot must also have already lost at least 70% of its original natural vegetation, reflecting a serious level of existing threat. The world currently recognises 36 such biodiversity hotspots, several of which are found within India. ↑ Q7
8. **A.** Norman Myers first proposed the biodiversity hotspots concept in 1988, developed with Conservation International. This is a common exam trap since BirdLife is also a major conservation partnership. ↑ Q8
9. **D.** Statements 1 and 3 are correct: BirdLife is a Global Partnership of Conservation Organizations that identifies Important Bird and Biodiversity Areas. Statement 2 is false. ↑ Q9

Quick-check answers

1. **False.** ↑ 1
2. **True.** ↑ 2
3. **False.** ↑ 3
4. **True.** ↑ 4
5. **True.** ↑ 5
6. **False.** ↑ 6

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