



# GENERAL INTRODUCTORY ON BIODIVERSITY

**HARYANA STATE BIODIVERSITY BOARD**

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## Protected Area Network of India

The Protected Area is declared for the purpose of protecting, propagating or developing wildlife or its environment. They are notified by State Governments under the provisions of the Wildlife (Protection) Act, 1972. Hunting of wild animals, encroachment and/or destruction of habitat, construction of tourist lodges and other such activities are prohibited

### Forest cover of India (FSI, 2021)

#### Geographical Area of India

32,87,263 km<sup>2</sup>

#### Forest + Tree Cover Percentage

24.62% of the geographical area of India

### Protected Areas of India (As on December, 2021)

Category	No.	Total Area (km <sup>2</sup> )	Coverage % of Country
National Parks	106	44,372.42	1.35
Wildlife Sanctuaries	564	1,22,509.33	3.73
Conservation Reserves	99	4,726.24	0.14
Community Reserves	218	1,445.71	0.04
<b>Total Protected Areas (PAs)</b>	<b>987</b>	<b>1,73,053.69</b>	<b>5.26</b>



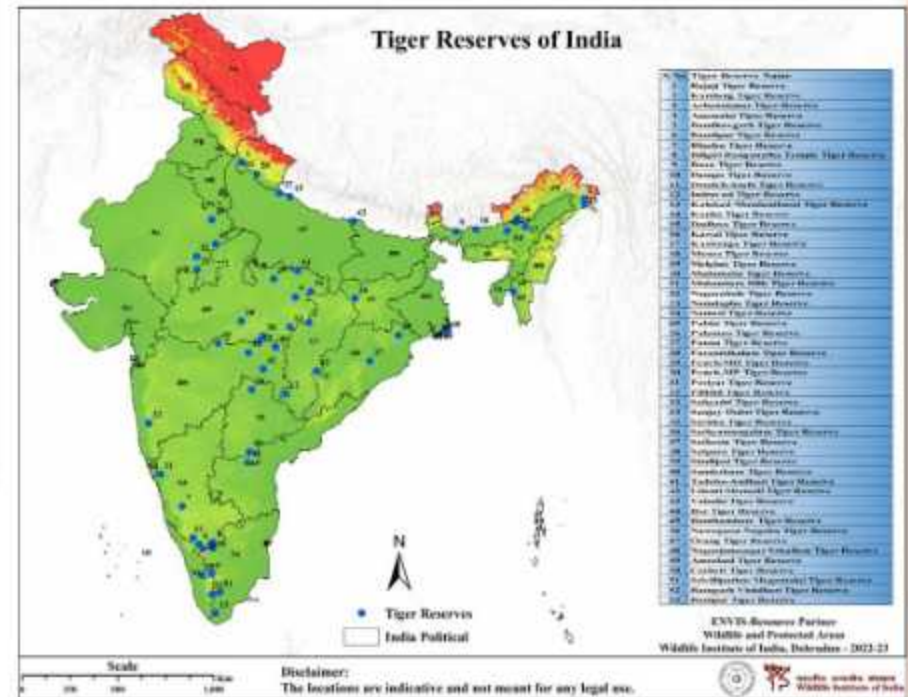
## Tiger Reserves in India



The tiger reserves of India were set up in 1973 under Project Tiger administrated by the National Tiger Conservation Authority

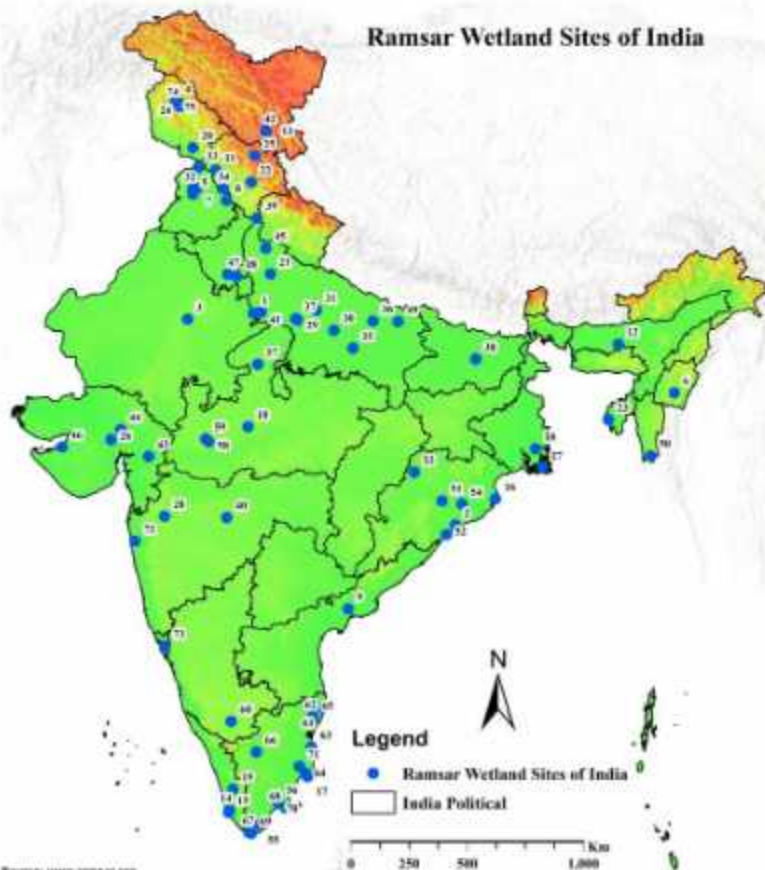
The purpose of the Tiger Reserves in India is to ensure maintenance of viable populations for their scientific, economic, aesthetic, cultural and ecological values and to preserve it for all time. These areas are of immense biological importance as national heritage for the benefit and educational purposes

At present there are 53 Tiger Reserves in India. India is home to more than 70 percent of tigers in the world. India estimated 2,967 Tigers in 2018 estimation



## Ramsar Sites in India

Ramsar Wetland Sites of India



Code	Wetland Site Name	Designation Date	Area (ha)
01	Ashtavinayak	01/01/1989	134
02	Chilika Lake	01/01/1989	149
03	Keoladeo National Park	01/01/1989	18
04	Keoladeo National Park	01/01/1989	18
05	Keoladeo National Park	01/01/1989	18
06	Keoladeo National Park	01/01/1989	18
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72	Keoladeo National Park	01/01/1989	18
73	Keoladeo National Park	01/01/1989	18
74	Keoladeo National Park	01/01/1989	18
75	Keoladeo National Park	01/01/1989	18

Ramsar sites are wetland sites listed under the Ramsar Convention which aims to wise use of wetlands as "the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development".

The Ramsar Convention entered into force in the year of 1971 via the International Treaty for the Conservation and Sustainable Use of Wetlands and was signed on 2nd of February, 1971 at a city in Iran called Ramsar. Currently there are 75 Ramsar sites in India for the conservation of wetlands and bird habitat.



Sultanpur Bird Sanctuary, Gurugram Haryana : A Ramsar Site

## Elephant Reserves of India

### The Indian elephant:

The Indian elephant *Elephas maximus* is found in the central and southern Western Ghats, North-east India, eastern and northern India and in some parts of southern peninsular India. It is included in Schedule I of the Indian Wildlife (Protection) Act, 1972 and in Appendix I of the CITES. *It is found in 16 of the 28 states in the country*

**Project Elephant and Elephant Reserves :** This project was launched by the Government of India in the year 1992 as a Centrally Sponsored Scheme with following objectives:

- To protect elephants, their habitat & corridors
- To address issues of man-animal conflict
- Welfare of captive elephants

### There are 33 notified Elephant Reserves in India governed under Project Elephant:

The Ministry of Environment, Forest and Climate Change provides the financial and technical support to major elephant range states in the country through Project Elephant



### List of Notified Elephant Reserves in India (As on November 2022)

(Source: MoEFCC, New Delhi)

S. No.	Elephant Reserve	State	Total Area (Sq. Km)
1	Kavala ER	Andhra Pradesh	766
2	Katang ER	Assam	1892
3	South Assam ER	Assam	1957.58
4	Tinlapur ER	Assam	1430
5	Dihang Patkai ER	Assam	927
6	Karbiang - Karbi Anglong ER	Assam	1270
7	Dumri-Lungling ER	Assam	2748
8	Chirang Ripu ER	Assam	2600
9	Dakshin-Tamrapani	Chhattisgarh	1048.38
10	Loreu ER	Chhattisgarh	430
11	Singhbhum ER	Chhattisgarh	6550
12	Mysore ER	Karnataka	8724
13	Dandeli ER	Karnataka	2,321
14	Wayanad ER	Kerala	1200
15	Nilambur ER	Kerala	1418
16	Anamalai ER	Kerala	3728
17	Pattar	Kerala	3742
18	Garo Hills ER	Meghalaya	3,500
19	Jamshi ER	Nagaland	200
20	Singha ER	Nagaland	23.37
21	Niyurtham ER	Odisha	1214
22	Mahasuli ER	Odisha	1058
23	Sambalpur ER	Odisha	427
24	Niguti ER	Tamil Nadu	4063
25	Coimbatore ER	Tamil Nadu	568
26	Anaimalai ER	Tamil Nadu	1457
27	Sivilliputta ER	Tamil Nadu	1249
28	Agathyentala ER	Tamil Nadu	1,107.48
29	Uttar Pradesh ER	Uttar Pradesh	744
30	Tera ER	Uttar Pradesh	1048
31	Bhivalik ER	Uttarakhand	5483
32	Narajarna ER	West Bengal	414
33	Fatra Dooer ER	West Bengal	978

## Biosphere Reserves of India

Biosphere reserves are sites recognized under UNESCO's Man and the Biosphere (MAB) Programme to promote sustainable development based on local community efforts and that support the research, monitoring, promoting education and information exchange related to local, national and global conservation and development issues. Presently, there are 18 notified biosphere reserves in India



S. No.	Name	Date of Notification	Area (in km <sup>2</sup> )	Location (State)
1	Nilgiri	01.09.1986	1520	Part of Nilgiris, Nagerhole, Nilgiris and Mysore districts, Nilgiris, Silent Valley and Shesham Hills (Tamil Nadu, Kerala and Karnataka).
2	Nanda Devi	18.01.1988	5600.09	Part of Chamoli, Pithoragarh, and Bagdogra districts (Uttarakhand).
3	Naiash	01.09.1988	520	Part of Garo hills (Meghalaya).
4	Great Nicobar	06.01.1989	885	Southern most islands of Andaman and Nicobar (A&N Islands).
5	Gulf of Mannar	18.02.1989	10,500km <sup>2</sup>	Indian part of Gulf of Mannar between India and Sri Lanka (Tamil Nadu).
6	Marian	14.03.1989	2877	Part of Malappuram, Kozhikode, Wayanad, Nellore, Kanyakumari and Tirunelveli districts (Kerala).
7	Sunderbans	29.03.1989	9630	Part of Delta of Ganges and Brahmaputra river system (West Bengal).
8	Singal	21.06.1994	4314	Part of Mayurbhanj district (Orissa).
9	Oribu-Saikhwa	28.07.1997	740	Part of Dibrugarh and Tinsukia Districts (Assam).
10	Dihing Dibang	02.08.1998	5111.50	Part of Rang and Dibang valley in Arunachal Pradesh.
11	Pachmarhi	05.08.1998	4920	Parts of Betul, Hoshangabad and Chhindwara districts of Madhya Pradesh.
12	Khangchendzonga	07.02.2000	2418.92	Parts of Khangchendzonga Hill and Skim.
13	Agasthyamalai	12.11.2001	1828	Neyyar, Peppara and Shendurajy Wildlife Sanctuaries and their adjoining areas in Kerala.
14	Achanakmar Amarantak	30.3.2003	3825.51	Covers parts of Anuppur and Dindori districts of M.P. and parts of Bilaspur districts of Chhattisgarh State.
15	Kaibali	29.01.2008	12,454	Part of Raichur, Rajahmundry, Sundara Nagar and Papan Civil Districts of Gujarat State.
16	Cold Desert	26.08.2009	7770	Pin Valley National Park and surroundings; Chandrhajal and Sarcho & Elibee Wildlife Sanctuaries in Himachal Pradesh.
17	Seshachalam Hills	20.09.2010	4755.957	Seshachalam Hill Ranges covering parts of Chittoor and Kadapa Districts of Andhra Pradesh.
18	Panna	25.08.2011	2996.36	Part of Panna and Chhatarpur districts in Madhya Pradesh.

## Natural World Heritage Sites in India

**A World Heritage Site is a place that is listed by the UNESCO as of special cultural or physical significance. Presently, there are 7 notified Natural World Heritage Sites in India**

### Natural World Heritage Sites in India (As on December, 2020)

SR. No.	Name of WH Site	State Location	Year of Notification	Area (sq.km)
1	Great Himalayan National Park Conservation Area	Himachal Pradesh	2014	905.4
2	Western Ghats	Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala	2012	7,953.15
3	Nanda Devi and Valley of Flowers National Parks	Uttarakhand	1988	630.00 87.50
4	Sundarbans National Park	West Bengal	1987	1,330.10
5	Kaziranga National Park	Assam	1985	429.96
6	Keoladeo National Park	Rajasthan	1985	28.73
7	Manas Wildlife Sanctuary	Assam	1985	391.00



## "Biodiversity Heritage Sites" (BHS)

"Biodiversity Heritage Sites" (BHS) are well defined areas that are unique, ecologically fragile ecosystems (terrestrial, coastal and inland waters and, marine) having rich biodiversity

### Legal Provision

As per provision under Section 37(1) of 'Biological Diversity Act, 2002', The State Government may, from time to time in consultation with the local bodies, notify in the Official Gazette, areas of biodiversity importance as under this Act

Presently, there  
are 36 notified  
BHS sites in India



Arittapatti, Tamil Nadu's first Biodiversity heritage site| Photo Credit: Maorthy S



## National Symbols of India



*Panthera tigris*  
Tiger, National Animal



*Platanista gangetica*  
Ganges river dolphin, National Aquatic Animal



*Pavo cristatus*  
Peacock, National Bird



*Ficus bengalensis*  
Banyan Tree, National Tree



*Nelumbo nucifera*  
Lotus, National Flower

# THE WETLAND

The Land areas that are saturated or flooded with water either permanently or seasonally

Wetlands help slow water flows, reducing downstream soil erosion and provide a habitat that attracts and supports vast numbers of birds & animals



## World Wetland Day Celebration



**Launch of Wetland of India Portal by  
Hon'ble Union Minister of EF&CC  
Shri Bhupendra Yadav**



**World Wetland Day Celebration  
at Sultanpur National  
Park, Gurugram**

## Bhindawas Wildlife Sanctuary : A Ramsar Site

- Bhindawas Wildlife Sanctuary is situated in Jhajjar district of the state of Haryana. Spreading over 412 ha, Bhindawas is the largest wetland in the state of Haryana, India
- The wetland was declared as a protected area in the year 1986 and was designated as Ramsar site on 25 May 2021
- The wetland ecosystem is home to thousands of migratory as well as resident birds. Bhindawas wetland lies on the western route of migratory birds, and is used as a stopover by birds heading towards Keoladeo National Park, Bharatpur
- Over 250 bird species visit Bhindawas Wildlife Sanctuary throughout the year. This wetland supports globally threatened species including four endangered species (Egyptian vulture, steppe eagle, Pallas's fish eagle and black-bellied tern) and seven vulnerable species (greater spotted eagle, eastern imperial eagle, Indian spotted eagle, common pochard, lesser white-fronted goose, sarus crane and Asian woollyneck)

Hon'ble CM Haryana Sh. Manohar Lal on visit to Bhindawas Bird Sanctuary



## Sultanpur National Park, Gurugram: A Ramsar Site



- Declared a Sanctuary on 2nd April, 1971 and was upgraded to a National Park on 5th July 1991
- Declared Ramsar Wetland Site on 25 May 2021
- Total area: 142.5 ha
- It is a seasonal wetland with fluctuating water level throughout the year.
- Migratory bird species reach the wetland after covering incredible distance, escaping the cold and harsh weather conditions of their breeding grounds and use Sultanpur National Park as a stopover/resting ground
- Among them are some globally threatened species such as the critically endangered sociable lapwing; the endangered Egyptian vulture and saker falcon; and the vulnerable lesser white-fronted goose and common pochard

## Bird Migration

- Migration is the seasonal movements between a breeding location and a location where it survives when not breeding"
- These movements are usually irregular or in only one direction and are termed variously as nomadism, invasions, dispersal or irruptions. Migration is marked by its annual seasonality



Intensity of bird migration is more in Northern Hemisphere particularly in Austria, Belgium, Bulgaria, Canada, China, France, Germany, Hungary, India, Japan, Mexico, Netherlands, Norway, Poland, Romania, Russia, Spain, Sweden, Switzerland, United Kingdom, Ukraine and the USA

### Why do birds Migrate?



- Most of the bird migration and movements include those made in the response the change in food availability, habitat or weather. Birds migrate to improve their chances of survival and reproduction success
- Migrating to areas with more resources improves chances of survival and also impact breeding success

Many birds migrate in flocks. For larger birds, flying in flocks, reduces the energy cost. Geese in V-formation may conserve 12-20% of the energy, they would need to fly alone

## Migratory Bird Flyways

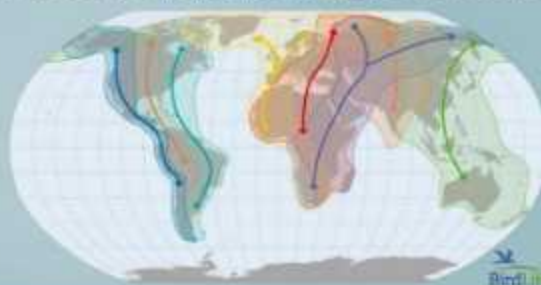
- A flyway is a flight path used by large numbers of birds while migrating between their breeding grounds and their overwintering quarters. Flyways generally span continents and often pass over oceans
- Approximately one in five of the world's 11,000 bird species migrate, some covering enormous distances
- They can be broadly summed up to, in total, eight global flyways: the East Atlantic, the Mediterranean/Black Sea, the West Asian/African, the Central/South Asian, the Australasian Flyway, and three American/Neotropical flyways (Davidson & Stroud 2016)



Migration Route of Amur Falcon

### THE EIGHT MAJOR MIGRATORY BIRD FLYWAYS

- ▶ PACIFIC AMERICAS
- ▶ CENTRAL AMERICAS
- ▶ ATLANTIC AMERICAS
- ▶ EAST ATLANTIC
- ▶ BLACK SEA-MEDITERRANEAN
- ▶ EAST ASIA-EAST AFRICA
- ▶ CENTRAL ASIA
- ▶ EAST ASIA-AUSTRALASIA



- Central Asian Flyway (CAF) covers a large area of Eurasia between the Arctic and Indian Oceans. This flyway comprises several important migration routes of birds. Including India, there are 30 countries under the Central Asian Flyway
- India is stopover for 90% of the birds in Central Asian Flyways which makes it very important for bird conservation



Amur Falcons migrate from breeding grounds in eastern Asia to wintering grounds in southern Africa. Along the way, they fly 2,400 miles across the Indian Ocean. To fuel up for their big open-water crossing, Amur Falcons stop over in Nagaland to feast on a seasonal eruption of trillions of termites from their underground colonies.

## Tools of Bird Migration

- Navigation of route- Use Sun/Star Compass
- Ability to detect magnetic fields (magnetoreception)
- Ability to recognize habitats like rivers, coastlines and stop-overs
- Navigation on the basis of biological senses and experience
- Magnetic field of earth- many migrates between Northern and Southern regions



Map showing return of Bala, the black-tailed godwit, from Siberia, 2022  
GPS-tagged black-tailed godwit re-sighted in Thane Creek after completing migration cycle





## Sarus Crane

- The Sarus crane, *Antigone antigone* is the tallest flying bird in the world standing 152-156 cm tall with a wingspan of 240cm
- It has a predominantly grey plumage with a naked red head and upper neck and pale red legs
- It weighs 6.8-7.8 Kgs
- It is a social creature, found mostly in pairs or small groups of three or four
- Sarus Cranes mate for life, they also express feelings of love, attachment, tenderness, anxiety, distress and other emotions like we human beings. Almost same range of emotions as we humans do
- Sarus cranes are omnivorous, and eat a wide range of food, such as aquatic plants like sedge tubers, seeds, rice and other grains, crustaceans, snails, large insects such as grasshoppers, amphibians, reptiles, small vertebrates and fish



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## Distribution of Sarus Crane

### Global Status

There are thought to be 8,000-10,000 individuals in India, Nepal and Pakistan; 800-1,000 in Cambodia, Laos and Vietnam, 500-800 in Myanmar and about 10,000 breeding adults in Australia. The population size thus totals 19,000-21,800 individuals, roughly equivalent to 13,000-15,000 mature individuals.

### Status in Haryana

In Haryana its main population found in Jhajjar, Rohtak and Sonapat districts. Palwal, Panipat, Jind, Bordering part of Hissar and Bhiwani towards Rohtak districts also reported its presence.

### Trend Justification

This species's population is suspected to have decreased, owing to the loss and degradation of wetlands, as a result of drainage and conversion to agriculture, ingestion of pesticides, and the hunting of adults and collection of eggs and chicks for trade, food, medicinal purposes and to help limit damage to crops.



# THE VULTURE STORY

Hellowww...

I am your friend "VULTURE", people also call me guardian of the nature and I justify this tag by keeping the environment clean and protecting you people from dangerous diseases by eating rotting dead animals.

A few decades ago, we were fulfilling our duty very efficiently because we were in billions but, currently we remain in only a few thousands.

The reason behind our population crash is NSAID-DICLOFENAC which is a famous pain killer and it is a very lethal poison to us. When people treat their animals with diclofenac and we eat their carcasses, it enters in our body and it causes kidney failure and due to that, many of my other community members died and still are dying.

Our absence causes a lot of harm to the society by Environmental, Socio-economical, Religious and many different other aspects. So, my humble request to all of you, save us by removing diclofenac from veterinary use and save the future of ours and yours too.

- Your true friend  
"VULTURE"



# GLOBAL DISTRIBUTION OF VULTURES



TOTAL  
**23**  
SPECIES



THERE ARE TOTAL 23 SPECIES OF VULTURES FOUND IN THE WORLD, AMONG THEM INDIA HAS 09 SPECIES (MORE THAN ENTIRE NEW WORLD)

# THREATENED VULTURES OF INDIA

WHITE-RUMPED VULTURE  
(*Gyps bengalensis*)



EGYPTIAN VULTURE  
(*Neophron percnopterus*)



RED-HEADED VULTURE  
(*Sarcogyps calvus*)



SLENDER-BILLED VULTURE  
(*Gyps tenuirostris*)



LONG-BILLED VULTURE  
(*Gyps indicus*)



# VULTURE CONSERVATION BREEDING CENTRE

The Vulture Conservation Breeding Centre, Pinjore is a collaborative initiative of Haryana Forest Department and Bombay Natural History Society (BNHS) to save three species of vultures i.e. White-rumped, Long-billed and Slender-billed from looming extinction. This Centre is the first centre of its kind in Asia and it is set to make a significant contribution to the conservation of these critically endangered species. It was also designated as Coordinating Zoo for Vulture Conservation in India by the Central Zoo Authority.

NESTLING HATCHED AT THE CENTRE		VULTURES AT THE CENTRE
SPECIES	NUMBER	NUMBER
WHITE-RUMPED VULTURE	133	138
LONG-BILLED/INDIAN VULTURE	173	209
SLENDER-BILLED VULTURE	38	52
<b>TOTAL</b>	<b>344</b>	<b>399</b>



**SAVE VULTURE, SAVE CULTURE, SAVE FUTURE**

# VULTURE RELEASE PROGRAM

Honorable Chief Minister releasing a vulture in pre-release aviary at Jatayu Conservation Breeding centre 13th November 2015



The first vulture released in the wild on 3 June 2016, by Honourable CM of Haryana and Union Minister of MoEFCC, Sh. Prakash Javadekar



After release monitoring is done by wing tags and leg bands and solarGPS tag for satellite method



Sh. Kanwar Pal Gujjar, Honourable Minister of Forests and Wildlife, Haryana released six captive bred and two wild caught White-rumped Vultures



Visit of Honourable Union Minister of MoEFCC Sh. Bhupendra Yadav on 19th Feb. 2023 at VCBC Pinjore

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# THE ARAVALLI SAFARI PARK

TOTAL AREA  
**10,000**  
ACRES IN  
GURUGRAM & NUH

PARK TO  
HAVE  
**7**  
ZONES



BIG CAT  
ZONE



HERBIVORE  
ZONE



HERPETA  
RIUM  
AREA



NATURE  
TRAILS



LARGE BIRD  
PARK



EXOTIC  
ANIMAL ZONE



BIODOMES

**LARGEST SAFARI  
IN THE WORLD**

**TOTAL 17 VILLAGES**



**GURUGRAM SIDE:**  
SAKATPUR, GAIATPUR-  
BAS, SHIKOHPUR,  
BHONDSI, GHAMROJ,  
ALIPUR, TIKLI,  
AKILMPUR,  
NAURANGPUR,  
NARGUJJAR

**NUH SIDE:**  
KHANDEWLA, GANGANJ,  
MOHAMADPUR AHIR,  
KHARAK, JALALPUR,  
BHANGO, CHAKLA, KOTA

WHAT THE PARK  
MAY HAVE

**Entertainment zone:** It would be designed along specific themes inspired from fiction or indian mythological characters

**The Safari Club:** The recreation club would have leisure activities. It would also have venues to host conferences, large gatherings and even accommodation. An aquarium, zip flyer, cable car, canopy safari and tunnel walk will also be there

**Eco village:** It will take visitors through a cultural and culinary journey. It will have space for handicraft and handloom products and even fine dining. There may be open-air theatre, stalls, display galleries, kiosks and food outlets

**Infrastructure:** Road networks along with space for pedestrians. There would be elephant/horse rides as well as eco-trekking trails

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## PROJECT CHEETAH

The project was launched by  
Hon'ble Prime Minister **Sh. Narendra Modi**  
on his birthday September 17, 2022



- Eight African cheetahs brought from Namibia to Madhya Pradesh's Kuno National Park, India (748.8 km<sup>2</sup>)
- Reintroduction: After the last known Asiatic cheetahs went extinct from the country (70 years)
- The cheetah (*Acinonyx jubatus*) is listed as "vulnerable" in the IUCN RED LIST of threatened species of 2021

### Namibian Cheetahs' New Home

Species being reintroduced in India after 70 years since declared extinct in 1947

**740 sq km**  
area of Kuno National Park in Madhya Pradesh where the cheetahs will be released in a fenced manner. The fenced area (including forest) of **740 sq km** will form animals' habitat

**30,000 sq ft** where the quarantine period, cheetahs will be shifted to a 1.5-sq-km area about one week prior to a month's stay

**5 female & 3 male**  
cheetahs being brought from Namibia, 8 & 9 years

**12**  
days quarantine in South African's Big 5

**90 crore**  
BUDGET OF THE 5-YEAR CHEETAH PROJECT

**7,000**  
approx number of cheetahs globally

**4,500**  
in South Africa

Each cheetah will be given every 2-3 day during quarantine

**CHEETAH FACTS:**

- One of the big cat species
- Ancestors can be traced back about 6.2 million years
- Number of cheetahs just under 1,000 individuals globally

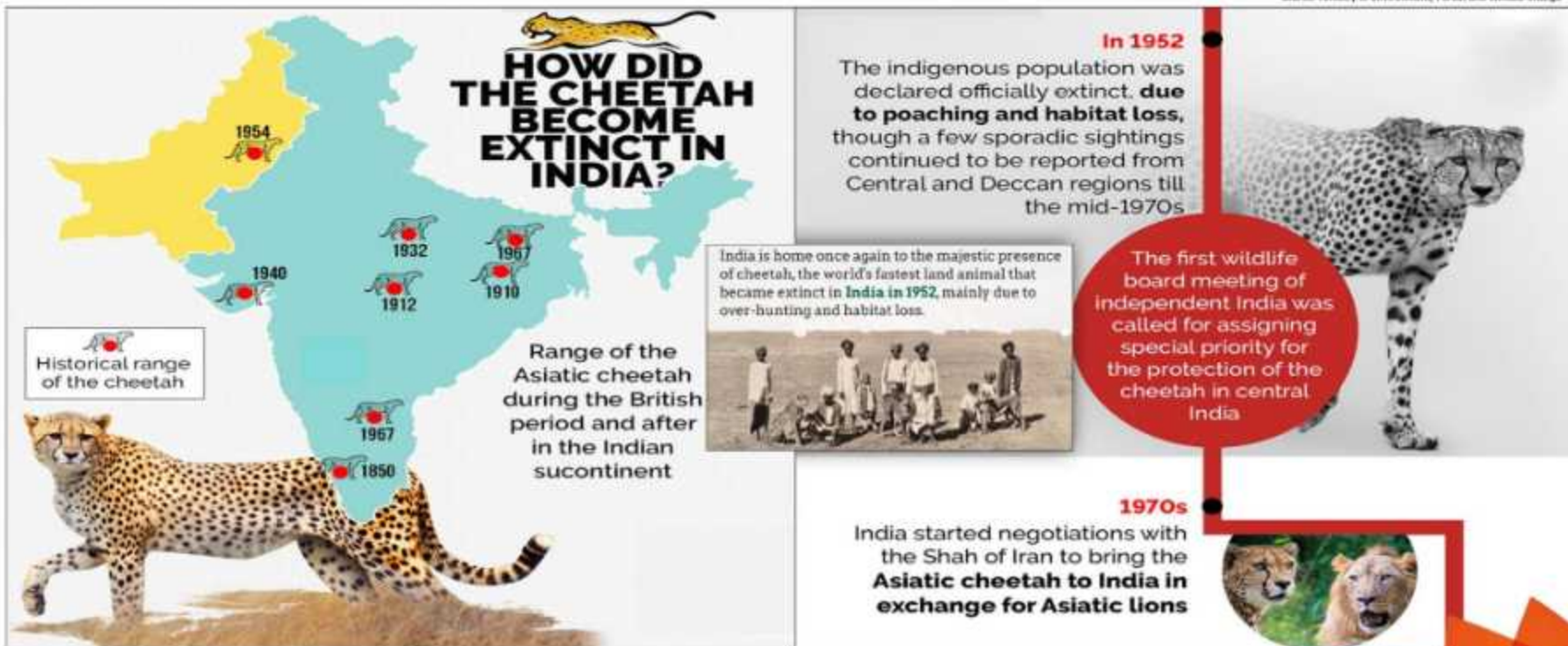
MOEF has just reintroduced cheetahs as "vulnerable" species

- The Asiatic cheetah and the Moroccan cheetah are critically endangered
- Cheetahs have lost 90% of their global habitat
- They now live in 1% of its historic range

## PROJECT CHEETAH: WHY?

- Prey-base safeguarding and other endangered species
- Restoring the open forest and grassland
- Conserve biodiversity and enhance the ecosystem services (water security, carbon sequestration and soil moisture conservation)
- Eco-development and ecotourism activities
- Enhanced livelihood opportunities for the local community

source: Ministry of Environment, Forest and Climate Change



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## Cheetahs in India: First & Second Batch

### First Batch

The Prime Minister, Shri Narendra Modi on 17 September 2022 released eight Cheetahs; five female and three male in Kuno National Park. Cheetahs - brought from Namibia - are being introduced in India under Project Cheetah, which is world's first inter-continental large wild to wild carnivore translocation project.



Hon'ble PM Sh. Narendra Modi released 8 cheetahs in Kuno National Park

### Second Batch

India on 18 February 2023 received 12 cheetahs from South Africa – the second batch to being introduced in Kuno National Park in which seven males and five females cheetahs were flown from Gauteng and arrived in Gwalior in Madhya Pradesh. Union Minister for MOEF&CC Sh. Bhupendra Yadav, who released the animals into an enclosure, called their arrival another "milestone" in Project Cheetah launched by Prime Minister Narendra Modi.



Union Minister for Environment, Forest and Climate Change, Sh. Bhupendra Yadav along with Madhya Pradesh Chief Minister Sh. Shivraj Singh Chouhan released the second batch of 12 cheetahs in their quarantine enclosures at Madhya Pradesh's Kuno National Park in Sheopur district

# BIODIVERSITY HOTSPOTS IN INDIA

## THE HIMALAYAS:

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

Andaman and Nicobar & Lakshadweep Islands have been named as the new

## “HOPE SPOTS”

by IUCN and Mission Blue.

## WESTERN GHATS:

Includes entire Western Ghats (and Sri Lanka).

**INDO-BURMA:**  
Includes entire North-eastern India, except Assam and Andaman group of Islands (and Myanmar, Thailand, Vietnam, Laos, Cambodia, & southern China)

**24.46%**

Total combined Geographical area

**4**  
Total Biodiversity Hotspots

## SUNDALANDS:

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

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## Status of Biodiversity in India

**Table : Faunal Diversity in the World and India**

	Species in the World	Species in India	% Species of the World	Endemic Species	Threatened Species
Protozoans	36,400	3,545	9.74	640	NA
Invertebrates	39,02,087	2,42,100	6.20	NA	NA
<b>Vertebrates</b>					
Fishes	34,362	3,472	10.10	481	228
Amphibians	7,667	433	5.65	287	75
Reptilians	10,450	670	6.41	220	54
Birds	10,357	1,345	12.99	81	89
Mammals	5,853	430	7.35	45	94
<b>Total</b>	<b>68,689</b>	<b>6,350</b>	<b>9.24</b>	<b>1,115</b>	<b>540</b>
<b>Vertebrates</b>					
<b>Total</b>	<b>39,70,776</b>	<b>2,48,450</b>	<b>6.25</b>	<b>NA</b>	<b>NA</b>
Animalia (Invertebrate s+ Vertebrates)					
<b>Grand Total</b>	<b>40,07,176</b>	<b>2,51,995</b>	<b>6.29</b>	<b>NA</b>	<b>NA</b>

- Though the geographical area cover of the country represents about 2.4% of the world's total landmass, it harbours a total of **47,513 plant species** (Singh & Dash, 2014) out of about 0.4 million species known in the world, representing as much as 11.4% of world flora. **About 28% of plants that occur in India are endemic to the country.**
- In India till now, **1,02,718 animals species** have been described, but a large number of species are expected to be discovered especially from the lower invertebrate groups occurring in various ecosystems

**Table : Floral Diversity in the World and India**

Groups of Plant Kingdom	Number of Species in India				
	Species in the World	Species in India	% Species of the World	Endemic Species	Threatened Species
Angiosperms	2,50,000	21,849	8.73	4,303	1,242
Gymnosperms	650	82	12.61	12	07
Pteridophytes	10,000	1,310	13.10	66	414
Bryophytes	16,600	2,791	16.81	629	80
Algae	40,000	8,979	22.44	1,924	Unknown
Fungi	72,000	15,504	21.53	4,100	580
Lichens	13,500	2,961	21.93	520	Unknown
<b>Total</b>	<b>4,02,750</b>	<b>53,476</b>	<b>13.27</b>	<b>11,554</b>	<b>-</b>

Source: Compiled from MoEF&CC 2019, BSI AND ZSI Records

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ONE EARTH • ONE FAMILY • ONE FUTURE

## Protected Area Network of Haryana



Two National Parks, eight Wildlife Sanctuaries, two Conservation Reserves, five Community Reserves, one Deer Park, three Zoos, and five Conservation and Breeding Centers are located in the State, all of which play an important role in protecting wildlife both in-situ and ex-situ under government's legal framework.

Community Reserve	Location	Prominent Wildlife	Area (km <sup>2</sup> )
Abotbhehar	Sirsa	Blackbuck, Nilgai and other native plant and animal species	115.3
Golden Jubilee Brahm Sarnay	Thana village, Kurukshetra	Endangered species of turtles, Migratory and resident bird species	0.361
Shri Guru Jambheshwar	Dhand Majra, Fatehabad	Indian Peacock and Migratory and native terrestrial bird species	0.05
Bhaheed Amrita Devi Memorial	Dhanger, Fatehabad	Blackbuck	0.0661
Bunarisraknath	Fajalheri, Fatehabad	Indian Soft Shell Turtles	0.03



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## Herbal Parks in Haryana

### Herbal Park

- Fifty eight Herbal Parks have been set up in state to educate people about the traditional Indian system of medicine, preserving gene pool and production of quality seeds and seedlings for distribution to farmers for ex-situ cultivation and propagation of medicinal plants
- These herbal Parks will help in conservation of species and also serve as gene-pool both for indigenous & exotic species

### Some key objectives are

- Conservation of medicinal plants of Haryana for study and research
- Developing a gene-pool of indigenous and exotic plant species for conservation and propagation purposes
- Popularization of cultivation of medicinal plants
- Developing a centre for tourist

Some of the important plants grown in the park are Ashwagandha, Sarpagandha, Vach, Brahmi, Chitrak, Safed Musali, Shatavari, Isabgol, Tulsi, Pippali, Makoy, Bhumi amalki, Gwarpatha, Harad, Bahera, Amla, Bael, Rudraksh, Kalihari, Patharchur, Lemongrass, Liquorice, Jatropha, Palmarosa, Haldi etc



On 19 April 2003 evening, the then His Excellency the President of India, Dr. A. P. J. Abdul Kalam, Bharat Ratan, visited The Ch. Devi Lal Rudraksh Vatika Herbal Nature Park which is situated at Chuhanpur Reserved Forest in Yamuna Nagar district, Haryana



A view of the Ch. Devi Lal Rudraksh Vatika Herbal Nature Park

## Featured and Conservation Priorities Species of Haryana



Indian Leopard *Panthera pardus fusca*, IUCN Status: Vulnerable,  
WPA : Schedule 1, Local Status: Threatened



Blackbuck (State Animal of Haryana) *Antelope cervicapra* L.,  
IUCN Status: Least Concern, WPA : Schedule 1, Local Status: Threatened



Chinkara Gazelle *Gazelle benettii*, IUCN Status: Least Concern,  
WPA : Schedule 1, Local Status: Threatened



Vultures Species: White-backed, Long-billed and Slender-billed, IUCN Status:  
Critically Endangered, WPA : ---, Local Status: Threatened



Indian spiny-tailed lizard, *Saara hardwickii*, IUCN Status: Vulnerable,  
WPA : Schedule II, Local Status: Threatened



Indian Soft-shell Turtle, *Apalone gangetica*, IUCN Status: Endangered,  
WPA : Schedule I (Part II), Local Status: Threatened



## State Symbols of Haryana



*Antelope cervicapra*  
Blackbuck, State Animal



*Francolinus francolinus*  
Black Partridge, State Bird



*Ficus religiosa*  
Pipal, State Tree



*Nelumbo nucifera*  
Lotus, State Flower