

APPENDIX

1. Tiger Reserves

There are 50 Tiger Reserves in India which are governed by Project Tiger. National Tiger Conservation Authority (NTCA) is the administering body.

Sl. No	Tiger Reserve	State
1	Dudhwa	Uttar Pradesh
2	Pilibhit	Uttar Pradesh
3	Rajaji	Uttarakhand
4	Corbett	Uttarakhand
5	Valmiki	Bihar
6	Sunderbans	West Bengal
7	Buxa	West Bengal
8	Namdapha	Arunachal Pradesh
9	Pakke/Pakhui	Arunachal Pradesh
10	Kamlang	Arunachal Pradesh
11	Orang	Assam
12	Manas	Assam
13	Nameri	Assam
14	Kaziranga	Assam
15	Dampa	Mizoram
16	Ranthambore	Rajasthan
17	Sariska	Rajasthan
18	Mukandra Hills	Rajasthan
19	Kanha	Madhya Pradesh
20	Pench	Madhya Pradesh
21	Bandhavgarh	Madhya Pradesh
22	Panna	Madhya Pradesh
23	Satpura	Madhya Pradesh
24	Sanjay-Dubri	Madhya Pradesh
25	Melghat	Maharashtra
26	Tadoba-Andhari	Maharashtra
27	Pench	Maharashtra
28	Sahyadri	Maharashtra
29	Nawegaon-Nagzira	Maharashtra
30	Bor	Maharashtra
31	Udanti-sitanadi	Chhattisgarh
32	Achanakmar	Chhattisgarh
33	Indravati	Chhattisgarh
34	Palamau	Jharkhand
35	Simlipal	Odisha
36	Satkosia	Odisha
37	Bandipur	Karnataka
38	Bhadra	Karnataka
39	Dandeli-Anshi	Karnataka
40	Nagarhole	Karnataka
41	BiliRanganatha Temple	Karnataka
42	Nagarjunsagar Srisailem (part)	Andhra Pradesh
43	Nagarjunsagar Srisailem (part)	Telangana
44	Kawal	Telangana
45	Periyar	Kerala
46	Parambikulam	Kerala
47	Kalakad-Mundanthurai	Tamil Nadu

48	Mudumalai	Tamil Nadu
49	Sathyamangalam	Tamil Nadu
50	Anamalai	Tamil Nadu
51	Srivilliputhur Meghamalai	Tamil Nadu

#### Pointers for prelims:

1. Nagarjunasagar Srisailem is the largest tiger reserve.
2. Bandipore was the first tiger reserve of India.
3. India hosts around 70% of all the tigers in the world.
4. States like Gujarat, Punjab, Haryana, Himachal Pradesh and UTs like J&K and Ladakh have no tiger reserves.

#### 4<sup>th</sup> All India Tiger Estimation 2018:

1. Tiger population has grown from 1400 in 2014 to 2967 in 2018.
2. Corbett Tiger Reserve has the highest number of tigers.
3. State wise, Madhya Pradesh has the highest number of tigers followed by Karnataka.
4. No tiger has been found in Buxa (West Bengal), Palamau (Jharkhand) and Dampa (Mizoram) reserves.

In addition to existing reserves, **in-principle approval** has been granted by NTCA for the creation of following new tiger reserves:

1. Ratapani Tiger Reserve (Madhya Pradesh)
2. Sunabeda Tiger reserve (Odisha)
3. Guru Ghasidas (Chhattisgarh)

Final approval has been accorded to Kudremukh National Park to be declared as a tiger reserve.

**Amrabad Tiger Reserve** in Telangana has been in news for uranium exploration.

1. It lies in the Nallamala hills
2. In 2017, endangered species of mouse deer was reintroduced here.
3. Chenchus tribe are present in the reserve.

## 2. Elephant Reserves

Project Elephant was launched in 1992 with the objective of protecting elephants and their habitat.

Sl. No	Elephant Range	Location	Elephant Reserve
1	East-Central landscape (South-West Bengal-Jharkhand-Orissa)	West Bengal Jharkhand Odisha  Chhattisgarh	Mayurbhanj ER Singhbhum ER Mayurbhanj ER Mahanadi ER Sambalpur ER Baitami ER South Odisha ER Lemru ER Badalkhol-Tamorpingla ER
2	Kameng-Sonitpur Landscape (Arunachal-Assam) Total	Arunachal Pradesh Assam	Kameng ER Sonitpur ER
3	Eastern-South Bank Landscape (Assam-Arunachal Pradesh)	Assam Arunachal Pradesh	Dihing-Patkai ER South Arunachal ER

4	Kaziranga-Karbi Anglong-Intanki Landscape (Assam-Nagaland)	Assam Nagaland	Kaziranga-Karbi Anglong ER Dhansiri-Lungding ER Intanki ER Singphan ER
5	North Bengal-Greater Manas Landscape (Assam-West Bengal)	Assam West Bengal	Chirang-Ripu ER Eastern Dooars ER
6	Meghalaya Landscape	Meghalaya	Garo Hills ER Khasi Hills ER
7	Brahmagiri-Nilgiri-Eastern Ghat Landscape (Karnataka-Kerala-Tamilnadu-Andhra)	Karnataka Kerala  Tamil Nadu  Andhra Pradesh	Mysore ER Wayanad ER Nilambur ER Nilgiri ER Coimbatore ER Rayala ER
8	Anamalai-Nellianpathy-High Range Landscape (Tamil Nadu-Kerala)	Tamil Nadu Kerala	Anamalai ER Anamudi ER
9	Periyar-Agasthyamalai Landscape (Kerala-Tamilnadu)	Kerala Tamil Nadu	Periyar ER Srivilliputhur ER
10	North-Western Landscape (Uttarakhand-Uttar Pradesh)	Uttar Pradesh Uttarakhand	Uttar Pradesh ER Shivalik ER

#### Pointers for prelims:

1. The oldest female is the leader of an elephant group.
2. A breeding pair remains together for around 3 weeks.
3. Elephants have a life expectancy of around 70 years.
4. As of 2017 Census, India is home to 27,312 elephants. It accounts for 55% of the total world elephant population.
  - a. South India has the highest number of wild elephants- 14,612.
  - b. Among the south Indian states, **Karnataka leads** the table followed by Kerala.

### 3. Biodiversity Heritage Sites in India

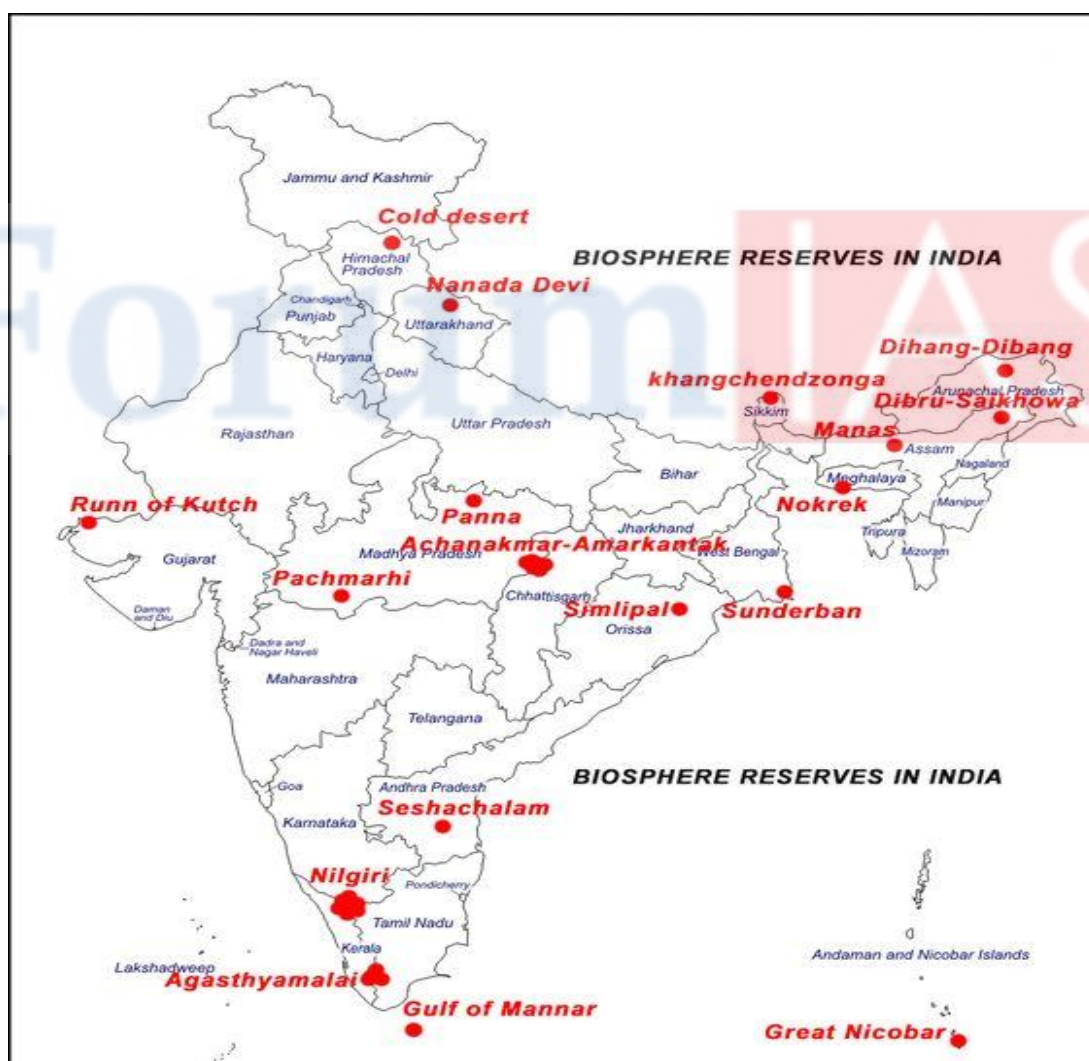
“Biodiversity Heritage Sites” (BHS) are well defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal, inland waters and marine, having rich biodiversity comprising of any one or more of the following components: richness of wild as well as domesticated species or intra-specific categories, high endemism, presence of rare and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic/ cultivated species or their varieties, past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values. They are important for the maintenance of cultural diversity, with or without a long history of human association with them.

Sl. No	Name	State
1	Nallur Tamarind Grove	Karnataka
2	Hogrekan	Karnataka
3	University of Agricultural Sciences, GKVK Campus, Bengaluru	Karnataka
4	Ambaraguda	Karnataka
5	Glory of Allapalli	Maharashtra
6	Tonglu BHS under the Darjeeling Forest Division	West Bengal

7	Dhotrey BHS under the Darjeeling Forest Division	West Bengal
8	Dialong Village	Manipur
9	Ameenpur Lake	Telangana
10	Majuli	Assam
11	Ghariyal Rehabilitation Centre	Uttar Pradesh
12	Chilkigarh Kanak Durga	West Bengal
13	Khlaw Kur Syiem Kmielng	Meghalaya
14	Mandasaru	Odisha
15	Purvatali Rai	Goa
16	Naro Hills	Madhya Pradesh
17	Patalkot	Madhya Pradesh
18	Asramam	Kerala

#### 4. Biosphere Reserves

UNESCO initiated the program of Biosphere Reserves in 1971 under its Man and Biosphere (MAB) Programme.



Sl. No	Name	Location (State)	Key fauna
1	Achnakamar-Amarkantak	M.P. and Chhattisgarh (Maikal Hills)	Sarus crane, white rumped vulture

2	Agasthyamalai	Neyyar, Peppara and Shendurney Wildlife Sanctuaries in Kerala	Nilgiri tahr, Asian elephant
3	Cold Desert	Pin Valley National Park, Chandratat and Sarchu & Kibber Wildlife Sanctuary in Himachal Pradesh	Snow Leopard
4	Dehang-Dibang	Arunachal Pradesh	Musk deer, mishmi takin
5	Dibru-Saikhowa	Assam	Water buffalo, white-winged wood duck
6	Great Nicobar	A&N Islands	Saltwater crocodile
7	Gulf of Mannar	Tamil Nadu	Dugong
8	Kachchh	Gujarat	Indian wild ass
9	Khangchendzonga	Sikkim	Snow leopard, red panda, Tibetan Wild Ass
10	Manas	Assam	Asiatic elephant, tiger, Assam roofed turtle, hispid hare, golden langur, pygmy hog
11	Nanda Devi	Uttarakhand	Snow Leopard
12	Nilgiri (India's first Biosphere Reserve)	Parts of Wayanad, Nagarhole, Bandipur and Madumalai, Nilambur, Silent Valley and Siruvani hills (Tamil Nadu, Kerala, and Karnataka)	Nilgiri tahr, tiger, lion tailed macaque
13	Nokrek	Garo hills (Meghalaya)	Red panda
14	Pachmarhi	M.P.	Giant squirrel, flying squirrel
15	Seshachalam Hill	Andhra Pradesh	Slender loris
16	Simlipal	Odisha	Royal Bengal tiger, Asian elephant
17	Sunderbans	West Bengal	Royal Bengal tiger
18	Panna	M.P.	

### Pointers for prelims:

- Gulf of Kachchh**, Gujarat is the largest Biosphere Reserve while **Dibru-Saikhowa**, Assam is the smallest.
- Rann of Kachchh**:
  - Tropic of Cancer passes through it.
  - Luni river drains into it.
  - Known for Banni Grasslands and Chari-Dhand Wetland Conservation Reserve.
- Nanda Devi peak** is drained by Rishi Ganga.
- Dibru-Saikhowa**:
  - Drained by Brahmaputra river, Lohit river and Dibru river.
- Pachmarhi**:
  - Satpura National Park, Bori Sanctuary and Pachmarhi Sanctuary are present.
- Achanakamar-Amarkantak**:
  - Drained by Narmada, Johilla and Son river.
  - Maikal ranges together with Vindhya and Satpura lies within the reserve.
- Simlipal**:
  - "Mugger Crocodile Management Programme" was started here.
  - Famous for Gaurs and Chausingha.
- Great Nicobar**:
  - Cambell Bay National Park and Galathea National Park are present.

## 5. World Network of Biosphere Reserves (WNBR)

12 out of 18 Biosphere Reserves are a part of World Network of Biosphere Reserves, based on UNESCO Man and Biosphere (MAB) Programme list.

Sl. No	Name (Year)	State
1	Nilgiri (2000)	Tamil Nadu, Kerala, Karnataka
2	Gulf of Mannar (2001)	Tamil Nadu
3	Sunderbans (2001)	West Bengal
4	Nanda Devi (2004)	Uttarakhand
5	Nokrek ((2009)	Meghalaya
6	Pachmarhi (2009)	Madhya Pradesh
7	Similipal (2009)	Odisha
8	Achanakmar-Amarkantak (2012)	Chhattisgarh
9	Great Nicobar (2013)	A&N Islands
10	Agasthyamalai Biosphere Reserve (2016)	Kerala and Tamil Nadu
11	Khangchendzonga National Park (2018)	Sikkim
12	Panna (2020)	M.P.

**Khangchendzonga National Park** is one of the highest ecosystems in the world located at the trijunction of Sikkim, Nepal and Tibet. It was inscribed as India's first '**Mixed World Heritage Site**'.

## 6. Sacred Groves

Sacred groves are patches of primeval forest that some rural communities protect as abodes of deities. Sacred Groves have been legally protected under 'community reserves' in the Wildlife (Protection) Amendment Act, 2002.

Sl. No	Name	State
1	Pavithravana	Andhra Pradesh
2	Gumpa Forests	Arunachal Pradesh
3	Gamkhap, Mauhak	Manipur
4	Ki Law Lyngdoh	Meghalaya
5	Orans, Jogmaya	Rajasthan
6	Deorai	Goa
7	Sarana	Jharkhand
8	Devara Kadu	Karnataka
9	Kavu, Sara Kavu	Kerala
10	Devrai, Devrahati, Devgudi	Maharashtra
11	Jahera, Thakuramma	Odisha
12	Kovil Kadu	Puducherry
13	Swami shola, Koilkadu	Tamil Nadu
14	Deo Bhumi, Bugyal	Uttarakhand
15	Garamthan, Harithan, Jahera, Sabitrithan, Santalburithan	West Bengal

**Maharashtra** accounts for the highest number of sacred groves followed by Karnataka.

## 7. Natural World Heritage Sites

They are listed by UNESCO for their cultural or physical significance.





Sl. No	Name	State
1	Kaziranga national Park	Assam
2	Manas Wildlife Sanctuary	Assam
3	Sunderbans National Park	West Bengal
4	Keoladeo Ghana National Park	Rajasthan
5	Nanda Devi National Park	Uttarakhand
6	Western ghats	Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala
7	Great Himalayan National park	Himachal Pradesh

**Kaziranga National Park** is also recognized as an 'Important Bird Area' by Birdlife International.

#### 8. Mangrove sites in India

Sl. No	Name	State
1	Sunderbans	West Bengal
2	Bhitarkanika Mahanadi Subernarekha Chilika	Odisha
3	Coringa East Godavari Krishna	Andhra Pradesh

4	Pichavaram Pulicat	Tamil Nadu
5	North Andamans Nicobar	A&N Islands
6	Vembanad	Kerala
7	Karwar	Karnataka
8	Goa	Goa
9	Ratnagiri Vaitarna Malvan	Maharashtra
10	Gulf of Kutchh Gulf of Khambat	Gujarat

#### Pointers for prelims:

1. Godavari Mangroves at **Coringa Wildlife Sanctuary (CWLS)** are touted to be the second largest mangroves in India. The largest mangrove forest in the world is Sunderbans, West Bengal.
2. The mangrove forests in Andhra Pradesh are located in the estuaries of Godavari and Krishna rivers.
3. CWLS, located in Andhra Pradesh is home to several endangered species like fishing cat, flamingoes, pelicans, heron among others.
4. **Hope Island** too comes under the purview of CWLS.

#### 9. Marine National Park and Wildlife Sanctuaries

Sl. No	Name	State
1	Gulf of Kutch Marine National Park	Gujarat
2	Mahatma Gandhi Marine National Park (also known as Wandoor National Park)	Andaman Islands
3	Gahirmatha Wildlife Sanctuary	Odisha
4	Gulf of Mannar Marine National Park	Tamil Nadu
5	Malvan Marine Wildlife Sanctuary	Maharashtra

**Gahirmatha Marine Wildlife Sanctuary** is the biggest nesting ground for Olive Ridley Turtles in the world. **Olive Ridley Turtles** are the most abundant of all sea turtles found in the world. They are known for their unique mass nesting called **arribada**. They are predominantly carnivorous in nature. IUCN has classified them as 'Vulnerable'.

#### 10. National Parks and Wildlife Sanctuaries in news

Sl. No	Name	State
1	Hemis National Park	Ladakh
2	Keibul Lamjao National Park	Manipur
3	Namdapha National Park	Arunachal Pradesh
4	Neora Valley National Park	West Bengal
5	Gumti	Tripura
6	Trishna Wildlife Sanctuary	Tripura
7	Sukhna Wildlife Sanctuary	Chandigarh
8	Dalma Wildlife Sanctuary	Jharkhand
9	Eaglenest Wildlife Sanctuary Mouling National Park	Arunachal Pradesh
10	Kishtewar National Park	Jammu and Kashmir



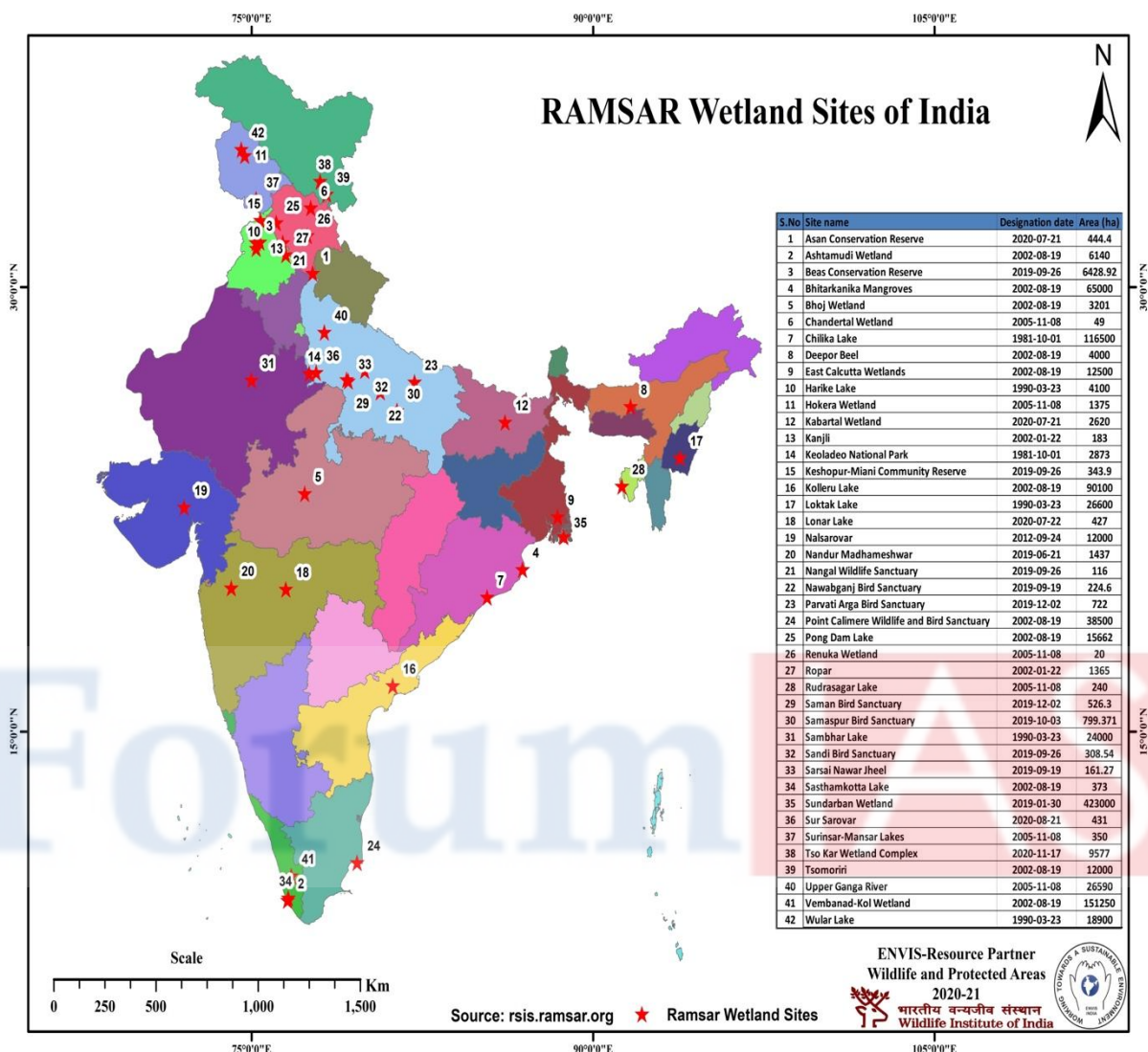
11	Tipeshwar Wildlife Sanctuary Painganga Wildlife Sanctuary	Maharashtra
12	Desert National Park	Rajasthan
13	Nauradehi Sanctuary	Madhya Pradesh
14	Tally Valley Wildlife Sanctuary	Arunachal Pradesh
15	Atapaka bird sanctuary	Andhra Pradesh
16	Nalbana bird sanctuary	Odisha
17	Singphan Wildlife sanctuary Intanki National Park Puliebadze Wildlife Sanctuary Fakim Wildlife Sanctuary Rangapahar Wildlife Sanctuary	Nagaland
18	Valley of Flower National Park	Temperate Alpine Zone of Uttarakhand
19	Kanhargaon Sanctuary	Maharashtra

### Pointers for prelims:

- Namdapha National Park**
  - This region is famous for its Diterocarp forests.
  - Its climate varies from tropical to subtropical, temperate and arctic.
  - Hoolock Gibbons**, only ape in India, is found here.
  - This protected area is India's only national park credited with providing a haven to all the three top types of cat- snow leopard, clouded leopard and Bengal tiger.
- Nauradehi Sanctuary** is the potential site for Cheetah reintroduction.
  - It spreads across two river basins: Ganges and Narmada
- Atapaka bird sanctuary** in Kolleru is a breeding ground for pelicans and painted stork.
- Nalbana bird sanctuary** is the core area of Chilka lake.
- Keibul Lamjao National Park**
  - Loktak Lake present in this park is known for 'floating phumdis'.
  - Sangai**, an endemic and endangered subspecies of brow-antlered deer is found only in this park.

## 11. Ramsar sites

Ramsar convention is an international treaty for the conservation and sustainable use of wetlands.



Sl. No	Name of Site	State
1	Asan Conservation Reserve	Uttarakhand
2	Asthamudi Wetland	Kerala
3	Beas Conservation Reserve	Punjab
4	Bhitarkanika Mangroves	Orissa
5	Bhoj Wetlands	Madhya Pradesh
6	Chandertal Wetland	Himachal Pradesh
7	Chilika Lake	Orissa
8	Deepor Beel	Assam
9	East Kolkata Wetlands	West Bengal
10	Hariker Lake	Punjab
11	Hokera Wetland	Jammu and Kashmir
12	Kabartal Wetland	Bihar
13	Kanjli Lake	Punjab
14	Keoladeo Ghana NP	Rajasthan
15	Keshopur-Miansi Community Reserve	Punjab
16	Kolleru Lake	Andhra Pradesh

17	Loktak Lake	Manipur
18	Lonar Lake	Maharashtra
19	Nalsarovar Bird Sanctuary	Gujarat
20	Nandur Madhameshwar	Maharashtra
21	Nangal Wildlife Sanctuary	Punjab
22	Nawabganj Bird Sanctuary	Uttar Pradesh
23	Parvati Agra Bird Sanctuary	Uttar Pradesh
24	Point Calimere Wildlife and Bird Sanctuary	Tamil Nadu
25	Pong Dam Lake	Himachal Pradesh
26	Renuka Wetland	Himachal Pradesh
27	Ropar Lake	Punjab
28	Rudrasagar Lake	Tripura
29	Saman Bird Sanctuary	Uttar Pradesh
30	Samaspur Bird Sanctuary	Uttar Pradesh
31	Sambhar Lake	Rajasthan
32	Sandi Bird Sanctuary	Uttar Pradesh
33	Sarsai Nawar Jheel	Uttar Pradesh
34	Sasthamkotta Lake	Kerala
35	Sunderbans Wetland	West Bengal
36	Surinsar-Mansar Lakes	Jammu and Kashmir
37	Sur Sarovar	Uttar Pradesh
38	Tso Kar Wetland Complex	Ladakh
39	Tsomoriri Lake	Jammu and Kashmir
40	Upper Ganga River (Brijghat to Narora Stretch)	Uttar Pradesh
41	Vembanad Kol Wetland	Kerala
42	Wular Lake	Jammu & Kashmir

#### Pointers for prelims:

- Kolleru Lake**
  - Freshwater Lake
  - Located between Krishna and Godavari rivers.
  - Supports Spot-billed Pelicans, Painted Storks as well as the critically endangered Spoon-billed Sandpiper.
- Wular Lake**
  - Largest freshwater lake in India.
  - Situated on the Jhelum river.
- Tsomoriri**
  - Brackish lake.
- Pong Dam Lake**
  - It is a manmade wetland.
- Chilka Lake**
  - Mouth of Daya river.
- Ropar and Kanjli Wetland**
  - A manmade wetland
- Bhitarkanika Mangroves**
  - Known for salt-water crocodiles, olive ridley.
  - Brahmani and Baitrani river delta.
  - This is an important site of wildlife and biodiversity and a protected area.
- Bhoj Wetland**
  - Manmade reservoir
  - Largest bird of India, Sarus Crane is found here.
- Keoladeo Ghana National Park**
  - Also known as Bharatpur Bird Sanctuary.

b. Home of rare Siberian Cranes.

10. **Lonar Lake:**

- It is situated in **Deccan Plateau's volcanic basalt rock** and was created by the impact of a meteor 35,000 to 50,000 years ago.
- The lake is a part of Lonar Wildlife Sanctuary which falls under the unified control of Melghat Tiger Reserve.
- It is a notified **National Geo-heritage Monument**.
- The water in the lake is highly saline, containing special micro-organisms like anaerobes, cyanobacteria and phytoplankton.

11. **Sur Sarovar Lake:**

- It is also known as **Keetham Lake**.
- The lake is situated alongside river Yamuna in Agra, Uttar Pradesh.
- It has a **Beer Rescuing Centre** for rescued dancing beers.

**Pulicat lake** is not a Ramsar site. But it is an important lake near Chennai. Flamingo festival is a major attraction here.

## 12. Reports and indices

Sl. No	Report	Publisher
1	Emissions Gap Report, Our Planet, Tunza, Atlas of Our Changing Environment, Global Environment Outlook, Adaptation Gap Report	UNEP
2	Greenhouse Gas Bulletin	WMO
3	Climate Change Performance Index	Germanwatch, New Climate Institute and Climate Action Network
4	Global Climate Risk Index	Germanwatch
5	Living Planet Report	WWF
6	Hindu Kush Himalayan Assessment Report	International Centre for Integrated Mountain Development
7	State Energy Efficiency Preparedness Index	Alliance for Energy Efficient Economy (AEEE) along with Bureau of Energy Efficiency (BEE)
8	Comprehensive Environmental Pollution Index (CEPI)	CPCB
9	EnviStats Report	Ministry of Statistics and Programme Implementation (MoSPI)

**UNEP (United Nations Environment Program)** is the leading environmental authority that sets the global environmental agenda. It is headquartered in Nairobi, Kenya and depends on voluntary contributions for 95% of its funding.

**Awards by UNEP** for environmental work include:

- SEED Awards**
- Champions of the Earth Award**
- Sasakawa Prize**

UNEP has also launched initiatives like:

- Faith for Earth Initiative** to strategically engage with faith-based organizations and partner with them to collectively achieve SDGs.
- UNEP Finance Initiative (UNEP FI)** to develop global partnership between UNEP and the financial sector.