





Revision Series Environment (Part - 2)

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Topics to be Covered Important Species

Asiatic Lion

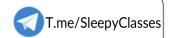
- Gir National Park and Wildlife Sanctuary, also known as Sasan Gir, is a forest and wildlife sanctuary in Gujarat, India, is the only natural habitat of Asiatic lions.
- People mostly link Gir with "Maldharis" who have survived through the ages by having symbiotic relationship with the lion.
- They are religious pastoral communities living in Gir.
- Their settlements are called "nesses".
- Endangered
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- The "Asiatic Lion Conservation Project" has been launched by the Union Ministry of Environment, Forests and Climate Change (MoEFCC).
- Under Project Lion, six new sites apart from the Kuno-Palpur Wildlife Sanctuary (Madhya Pradesh) have been identified under Project Lion that was announced in August 2020.

Snow Leopard

- In India, the snow leopards are found in Ladakh, Jammu and Kashmir, Sikkim, Uttarakhand, and Arunachal Pradesh.
- It is an indicator of the health of India's mountains.
- Rarely seen so also known as ghosts of the mountains.
- IUCN Red List of the Threatened Species Vulnerable.
- Wildlife (Protection) Act 1972 Schedule I.







- Convention on International Trade of Endangered Species (CITES) Appendix I.
- Convention on the Conservation of Migratory Species of Wild Animals Appendix I
- International Snow Leopard Day is observed on 23rd October.
- It came into being on 23rd October, 2013, with the adoption of the Bishkek Declaration by 12 countries on the conservation of snow leopards.
- The 12 countries included, India, Nepal, Bhutan, China, Mongolia, Russia, Pakistan, Afghanistan, Kyrgyzstan, Kazakhstan, Tajikistan, and Uzbekistan.
- Global Snow Leopard and Ecosystem Protection Programme (GSLEP).

Clouded Leopard

- Named after cloud shaped pattern on its skin.
- It is listed as Vulnerable on the IUCN Red List.
- It is the State animal of Meghalaya.
- Clouded Leopard National Park of Tripura is India's first dedicated wildlife park to Clouded Leopards, located inside the Sepahijala Wildlife Sanctuary.



• Dampa Tiger reserve in Mizoram has the highest density of clouded leopards in Southeast Asia, according to a study by researchers from India and the UK.

Cheetah

- The country's last spotted feline died in Chhattisgarh in 1947.
- Later, the cheetah which is the fastest land animal was declared extinct in India in 1952.
- The only mammal to become extinct in India in last 1,000 years.



- In 2009, the United Progressive Alliance government had floated a plan to re-introduce cheetahs into the wild in India. (Project Cheetah).
- African Cheetah Vulnerable.
- Asiatic Cheetah Critically endangered (Iran).





Pangolin

- Scaly anteater.
- Indian Pangolin is widely distributed in India, except the arid region, high Himalayas and the North East.
- The species is also found in Bangladesh, Pakistan, Nepal and Sri Lanka.



- Chinese Pangolin is found in the Himalayan foothills in Eastern Nepal, Bhutan, Northern India, North East Bangladesh and through Southern China.
- Indian Pangolin Endangered
- Chinese Pangolin Critically Endangered
- Both these species are listed under Schedule I, Part I of the Wildlife (Protection) Act, 1972 and Appendix I of CITES.

Rhinoceros

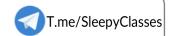
The five different species of Rhino are

- **Great One-**Horned Rhino/Indian Rhino: Vulnerable.
- **Black Rhino**: Smaller of the two African species.
- White Rhino: Recently, researchers have created an embryo of the northern white rhino by using In vitro Fertilization (IVF) process.



- **Javan Rhino**: Critically endangered in IUCN Red List.
- **Sumatran Rhino**: Recently gone extinct in Malaysia.
- There are three species of rhino in Asia Greater one-horned (Rhinoceros unicornis), Javan and Sumatran.
- Only the Great One-Horned Rhino is found in India.
- It is the largest of the rhino species. (Habitat- India and Nepal)
- The Indian rhinoceros is regionally extinct in Pakistan.
- The five rhino range nations (India, Bhutan, Nepal, Indonesia and Malaysia) have signed a declaration 'The New Delhi Declaration on Asian Rhinos 2019' for the conservation and protection of the species.

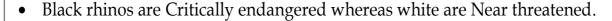




- Indian Rhino Vision 2020.
- Launched in 2005, it is an ambitious effort to attain a wild population of at least 3,000 greater one-horned rhinos spread over seven protected areas in the Indian state of Assam by the year 2020.

African Rhinos

- In Africa, Southern white rhinos, once thought to be extinct, now thrive in protected sanctuaries and are classified as near threatened.
- They are also known as the Square-lipped rhino.
- Black rhinos(hook-lipped rhinoceros) are the smaller of the two African species.





Javan Rhinoceros

- Lesser one horned rhinos CE.
- Also known as the Sunda rhinoceros.
- A small population of Javan rhinos is found in only one national park (Ujung Kulon NP) on the Indonesian island of Java.



Sumatran Rhinos

- CE
- Also known as the hairy rhinoceros or Asian two-horned rhinoceros.



Indian Wild Ass

- The Indian Wild Ass (Equus hemionus khur), also called Ghor Khar or Ghud Khur is found predominantly in the Little Rann of Kutch and its surrounding areas in Gujarat.
- It is also found in southern Pakistan, Afghanistan, and southeastern Iran.







- Saline deserts (Rann), arid grasslands and shrub lands are its preferred environment.
- In August 2015, the IUCN Red List has moved the Indian wild ass from the 'vulnerable' to 'endangered' category, indicating the need for heightened protection measures.
- It has been classified as 'nearly threatened' animal by IUCN in 2016.
- It is protected under Schedule 1 of the Wildlife Protection Act 1972.
- Included on Appendix I of the Convention on International Trade in Endangered Species (CITES), making international trade in this species illegal.
- Indian Wild Ass Sanctuary located in the Little Rann of Kutch is the largest wildlife sanctuary in India.
- A few years back, the Gujarat Ecological Education and Research Foundation (GEER) report had recommended that the Thar desert in Rajasthan should be developed as an alternative site for re-establishing the Indian wild ass by reintroduction a few of them.

Indian Wild Dog/Dhole

- Found in Central, South, East Asia, and Southeast Asia.
- **Endangered**
- Schedule II of the Wild Life (Protection) Act, 1972.
- Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- Karnataka, Maharashtra and Madhya Pradesh rank high in the conservation of the endangered dhole in India, according to a new study.
- Central Zoo Authority has selected the Indira Gandhi Zoological Park (IGZP) of Vizag for creation of a conservation breeding centre for the endangered wild dog – Dhole.

Wild Water Buffalo

- Native to the Indian subcontinent and Southeast Asia.
- Found in the alluvial grasslands, marshes, swamps and river valleys.
- Endangered
- Schedule I of the Wild Life (Protection) Act, 1972.







- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- Five female wild buffaloes have been translocated from Manas National Park in Assam to Udanti Wildlife Sanctuary in Raipur district, Chhattisgarh which is longest translocation in the country ever, that seeks to revive the waning population of Chhattisgarh's State animal.
- Big five of Kaziranga NP Tiger, rhino, elephant, swamp deer, and wild water buffalo.

Swamp Deer/Barasingha

- Three subspecies are currently recognized -
 - Western swamp deer Indogangetic plains.
 - o **Southern swamp deer** Kanha National Park.
- The State animal of Madhya Pradesh Hard Ground Barasingha is found exclusively in Kanha Tiger Reserve.
- It is the first tiger reserve in India to officially introduce a mascot, "Bhoorsingh the Barasingha".
- It was reintroduced into Satpura Tiger Reserve.
- Eastern swamp deer Kaziranga and Dudhwa National Parks).
- It is the state animal of the Indian states of Madhya Pradesh and Uttar Pradesh.
- Vulnerable
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Sangai/Dancing Deer

- Endemic species found only in Manipur, India.
- Floating marshy grasslands, Phumids in the Loktak Lake. (largest freshwater lake in eastern India).
- The largest of all the phumdis covers an area of 40 km² (15 sq mi) and is situated on the south-eastern shore of the lake.









- Located on this phumdi, Keibul Lamjao National Park is the only floating national park in the world.
- The park is the last natural refuge of the endangered Sangai (state animal).
 - o Endangered
 - Schedule I of the Wild Life (Protection) Act, 1972.
 - Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Blackbuck/Indian Antelope

- Native to India and Nepal.
- Widespread in Rajasthan, Gujarat, Madhya Pradesh, Tamil Nadu, Odisha, and other areas throughout peninsular India.
- State Animal of Punjab, Haryana, and Andhra Pradesh.
 - Least concern.
 - o Schedule I of the Wild Life (Protection) Act, 1972.
 - o Appendix III of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Nilgiri Tahr/Nilgiri Ibex

- Endemic to the Nilgiri Hills and the southern portion of the Western Ghats in the states of Tamil Nadu and Kerala in Southern India (Anamalai Hills, Palni Hills).
- Found in open montane grassland habitat of rain forests ecoregion.
- State animal of Tamil Nadu.
- Mukurthi National Park in TN was created to protect it.
- Endangered
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).







Caracal

- It is an elusive, primarily nocturnal animal and its sightings are not common.
- The caracal is a carnivore and has traditionally been valued for its flexibility and its extraordinary ability to catch birds in flight.



- Earlier Caracals could be found in arid and semi-arid scrub forest regions of 13 Indian states and in nine out of the 26 biotic provinces.
- However, currently, its presence is restricted to Rajasthan, Kutch, and parts of Madhya Pradesh(MP).
- IUCN Red List: Least Concern
- Wildlife Protection Act, 1972: Schedule I
- CITES Listing: Appendix I for the Asian population and Appendix II for others.

Himalayan Serow

- They are known to be found in the eastern, central, and western Himalayas.
- It has been described as resembling a cross between a goat, a donkey, a cow, and a pig.



- They are herbivores, and are typically found at altitudes between 2,000 meters and 4,000 meters (6,500 to 13,000 feet).
- It is considered a flagship species due to its specialized habitat requirements of dense and undisturbed forests.
- Previously assessed as 'near threatened', the Himalayan serow is now been categorised as 'vulnerable' in the IUCN Red List of Threatened Species
- It is listed under Schedule I of The Wildlife Protection Act, 1972, which provides absolute protection.
- CITES Appendix I.





Dolphins

Important Dolphins Found in India

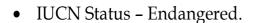
- Gangetic dolphin Endangered
- Indus River Dolphin Endangered
- Irrawaddy Dolphin Endangered

Project Dolphin

- The Prime Minister announced the government's plan to launch a Project Dolphin in 2020.
- The proposed project is aimed at saving both river and marine dolphins.
- On the lines of Project Tiger.
- Implemented by the Ministry of Environment, Forest and Climate Change.

Irrawaddy Dolphins

- Found in coastal areas in South and Southeast Asia, and in three rivers: the Irrawaddy (Myanmar), the Mahakam (Indonesian Borneo) and the Mekong (China).
- Around 6000 have been reported from Bangladesh.
- Their distribution in Chilika is considered to be the highest single lagoon population.



Indus River Dolphins

- They can only be found in the lower parts of the Indus River in Pakistan and in River Beas, a tributary of the Indus River in Punjab, India.
- They have adapted to life in the muddy river and are functionally blind.
- The dolphin is the state aquatic animal of Punjab.

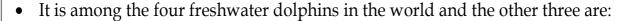






Gangetic Dolphins

- National Aquatic Animal of India.
- They are locally known as Susu which refers to the noise the dolphin is said to make when it breathes.
- Wildlife (Protection) Act, 1972: Schedule I.
- CITES: Appendix I



- The 'Baiji' now likely extinct from the Yangtze River in China,
- The 'Bhulan' of the Indus in Pakistan, and
- The 'Boto' of the Amazon River in Latin America.
- These four species live only in rivers and lakes.
- They prefer deep waters, in and around the confluence of rivers.
- They can only live in freshwater and are essentially blind (It is also called a blind dolphin because it doesn't have an eye lens and uses echolocation to navigate and hunt.)
- The Bihar government is setting up India's first observatory for the Gangetic dolphins in Bhagalpur district.
- The observatory is constructed at Vikramshila Gangetic Dolphin Sanctuary (VGDS).

Great Indian Bustard

- It is one of the heaviest flying birds in the world.
- It is the State bird of Rajasthan. (mostly to Rajasthan and Gujarat)
- It is considered the flagship grassland species, representing the health of the grassland ecology.



- But with less than 200 GIBs remaining in the world, most of them found in Rajasthan's Desert National Park.
- Critically endangered
- Schedule I of the Wild Life (Protection) Act, 1972.







- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- The Great Indian Bustard, Asian Elephant and Bengal Florican have been included in Appendix I of the UN Convention on Migratory Species at the 13Convention on Migratory Species (CMS) in Gandhinagar (Gujarat).
- It is kept under the species recovery programme under the Integrated Development of Wildlife Habitats of the Ministry of Environment, Forests and Climate Change (MoEFCC).
- The MoEFCC has also launched a program called 'Habitat Improvement and Conservation Breeding of Great Indian Bustard-An Integrated Approach'.
- Rajasthan government has launched 'Project Great Indian Bustard'.

Raptors

- As per new study by IUCN and BirdLife International, 160 species of birds of prey endangered worldwide.
- Around 30 per cent of the 557 raptor species around the world are threatened by extinction to some degree, according to a new study.
- Of them, 18 species are critically endangered, 25 are endangered, 57 are vulnerable and 66 are near-threatened.
- Raptors Birds of prey.
- Examples Eagles, vultures, falcons, etc.
- India has signed non-legally binding Memorandums of Understanding (MoU) with CMS on the conservation and management of Siberian Cranes (1998), Marine Turtles (2007), Dugongs (2008) and Raptors (2016).

Vultures

- India's vultures haven't always needed conservation.
- For many years, their numbers were robust.
- But in 2003, BNHS found that an increasing number of vultures were dying of kidney failure, which they traced back to the presence of diclofenac (Non-Steroid Anti-inflammatory Drug (NSAID)) a drug used to treat pain and inflammation in human and cattle—in animal carcasses.





- In 2006, the Indian government banned veterinary use of the drug. (Replaced by Meloxicam)
- Diclofenac is a wonder drug for cattle and humans, but is toxic for vultures.
- Other NSAIDs aceclofenac, carprofen, flunixin, ketoprofen toxic to vultures are still in use and must be discontinued.
- There are nine species of vultures in India out of which three have been on critically endangered list of IUCN and also listed under Schedule I of the Wild Life (Protection) Act, 1972.





- White-rumped Vulture (Gyps bengalensis)
- Slender billed Vulture (Gyps tenuirostris)
- o Indian Vulture/long-billed vulture (Gyps indicus)
- Himalayan Griffon closely related to Indian Gyps Near Threatened
- o Egyptian Vulture Endangered
- Red-headed vulture is on critically endangered list of IUCN but not listed under Schedule I of the Wild Life (Protection) Act, 1972.



9 RECORDED SPECIES: Oriental white-backed, long-billed, slender-billed, Himalayan, red-headed, Egyptian, bearded, cinereous and the Eurasian Griffon.

(4CRITICALLY ENDANGERED 1 ENDANGERED, 3 NEAR THREATENED)

Sarus Crane

- The sarus crane is the tallest flying bird in the world, and was declared the official state bird of Uttar Pradesh in 2014.
- It is also India's only resident breeding crane, as per the Wildlife Trust of India (WTI).



- Sarus cranes generally make habitats in marshy places like wetlands.
 - o Vulnerable
 - o Schedule IV of the Wild Life (Protection) Act, 1972.
 - o Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).





Crocodiles

• India has three species of Crocodiles -

o Gharial: Critically Endangered.

Mugger crocodile: Vulnerable

Saltwater crocodile: Least Concern.

Vultures - Conservation

- First Vulture Care Centre (VCC) was set up at Pinjore, Haryana.
- Starting with just a few vultures, the VCC, until then the sole facility for conservation of vultures in the country, has come a long way in the past two decades.
- Later in 2004, the VCC was upgraded to being the first Vulture Conservation and Breeding Centres (VCBC) in India.
- At present there are nine Vulture Conservation and Breeding Centres (VCBC) in India, of which three are directly administered by Bombay Natural History Society (BNHS).
- The main objective of the VCBCs was to look after the vultures and breed them in captivity and also release them into the wild.
- The Bombay Natural History Society and the RSPB (UK) are working as part of Saving Asia's Vultures from Extinction (SAVE).
- Ministry for Environment, Forests and Climate Change has launched a Vulture Action Plan 2020-25 for the conservation of vultures in the country.

Gharial



- Population of Gharials are a good indicator of clean river water.
- Mainly found in Chambal river and also in Ghaghra and Gandak river, Girwa river (Katarniaghat Wildlife Sanctuary in Uttar Pradesh), the Ramganga river in Jim Corbett National Park and the Sone river(Bihar).





- The National Chambal Sanctuary is located along river Chambal on the tri-junction of Rajasthan, Madhya Pradesh and Uttar Pradesh.
- It is known for critically endangered gharials, the red-crowned roof turtle, and the endangered Ganges river dolphin.
- Critically endangered.
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Mugger



Mugger (Marsh Crocodiles)

- It is mainly restricted to the Indian subcontinent where it may be found in a number of freshwater habitat types including rivers, lakes, and marshes.
- However, it can even be found in coastal saltwater lagoons and estuaries.
- Extinct in Bhutan and Myanmar.
- Vulnerable
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- Both species have overlapping habitats in the northern rivers (Ganges, Chambal, Son, Ramganga and Girwa) and eastern (Mahanadi) river systems of India and historically have shown systematic resource partitioning in their aquatic environments.





Salt Water Crocodile

- Saltwater crocodiles, known as 'salties', are native to eastern India, South-East Asia and Northern Australia.
- Also called estuarine crocodile is found in Inland lakes, swamps and marshes as well as coastal brackish waters and tidal sections of rivers.
- Found in coastal areas of Odisha, WB and TN.
- The Indian government launched its conservation effort, Project Crocodile, in 1975.
- Least Concern
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- Citing the growing number of crocodile attacks on tourists, the administration of Andaman and Nicobar islands had last year requested the central government to delist the saltwater crocodiles (or salties as they are referred to) from Schedule 1 of the Wildlife Protection Act, 1972.

Olive Ridley Turtle

- Olive Ridley Turtles are the smallest and most abundant of all sea turtles found in the world, inhabiting warm waters of the Pacific, Atlantic and Indian oceans.
- These turtles, along with the Kemps ridley turtle, are best known for their unique mass nesting called
 - Arribada, that is, mass-nesting event when thousands of turtles come ashore at the same time to lay eggs on the same).
- But they can also lay eggs by sporadic nesting.
- Gahirmatha Marine Sanctuary is the mass nesting spot in Indian Ocean region and the only turtle sanctuary in Odisha (Rushikulya River).







- It is the world's largest nesting beach of Olive Ridley Sea Turtles.
- Indian Coast Guard's "Operation Olivia", initiated in the early 1980s, helps protect Olive Ridley turtles as they congregate along the Odisha coast for breeding and nesting from November to December.
- To reduce accidental killing in India, the Odisha government has made it mandatory for trawls to use Turtle Excluder Devices (TEDs).
- Vulnerable
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Sea Turtles

- Five species of sea turtles are known to inhabit Indian coastal waters and islands.
- These are the
 - o Olive Ridley Vulnerable.
 - o Green Endangered.
 - Hawksbill Critically Endangered.
 - o Loggerhead Vulnerable.
 - Leatherback Vulnerable.
- Except the Loggerhead, the remaining four species nest along the Indian coast.
- Schedule I Indian Wildlife Protection Act of 1972.

Freshwater Tortoises and Turtles

- There are 29 species of freshwater turtles and tortoises in the country.
- Indian biologist Shailendra Singh has been awarded the Behler Turtle Conservation Award for bringing three critically endangered turtle conservation species back from the brink of extinction.
- Co-presented by Turtle Survival Alliance (TSA), IUCN Tortoise and Freshwater Turtle Specialist Group, Turtle Conservancy, and Turtle Conservation Fund.





- In the present context, the three critically endangered turtles are being conserved as a part of TSA India's research, conservation breeding and education programme in different parts of the country.
 - o The Northern River Terrapin being conserved at the Sundarbans.
 - The Red-crowned Roofed Turtle at Chambal
 - The Black Softshell Turtle at different temples in Assam.

Northern River Terrapin

- Critically Endangered
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).



Red-crowned Roofed Turtle

- Critically Endangered
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).



Black Softshell Turtle

- Critically Endangered
- Wild Life (Protection) Act, 1972 No protection
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).



Operation Clean Art

- It the first pan India operation to crackdown on the smuggling of mongoose hair in the country.
- Operation Clean Art was conceived by WCCB with the singular aim of ensuring that the mongoose hair brush trade should be closed down across the country.







- There are six species of mongoose found in India -Indian grey mongoose, Small Indian mongoose, Ruddy mongoose, Crab-eating mongoose, Stripe-necked mongoose and Brown mongoose and mostly recovered in the raids is grey mongoose hair.
- Mongoose is listed in Schedule II Part 2 of the Wildlife Protection Act, 1972 and any smuggling or possession of its body part is a non-bailable offence.
- IUCN Red List status- Least Concerned.
- All six species are listed on CITES Appendix III with a zero quota for commercial trade.



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